PHILADELPHIA, PA | NOVEMBER 6-9

Work, Stress and Health 2019

FULL PROGRAM

AMERICAN PSYCHOLOGICAL ASSOCIATION

Society for Occupational Health Psychology

National Institute for Occupational Safety and Health NIOSH

Work, Stress and Health 2019

FULL PROGRAM

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#WSH2019

Agenda at a Glance

WEDNESDAY

9:00 a.m.–12:00 p.m.	Preconference Morning Workshops
1:00–4:00 p.m.	Preconference Afternoon Workshops
5:30–6:30 p.m. *Liberty Ballroom A*	Opening Session and Awards
6:30–8:30 p.m. *Freedom Ballroom*	Welcome Reception

THURSDAY

7:30 a.m.	Continental Breakfast Served			
8:00–9:00 a.m. *Liberty Ballroom B*	Poster Session 1			
9:15-10:15 a.m. **Keynote** *Liberty Ballroom A*	**What Will It Take for People to Stop "Dying for a Paycheck"?** *Jeffrey Pfeffer, PhD* CEP			
10:30–11:45 a.m. **Concurrent Sessions 1**	PAPER SESSION Workload and Stress *Salon 3 & 4*	SYMPOSIUM Understanding and Mitigating the Impact of Occupational Stress on Professional Firefighters *Salon 5 & 6*	PAPER SESSION Working Conditions and Mental Health *Independence Ballroom A*	SYMPOSIUM Engaging Students in OHP Courses *Salon 10*
	PAPER SESSION Organization Readiness for Total Worker Health Programs *Philadelphia Ballroom South*	SYMPOSIUM Work and Family Well-being: Resources and Challenges *Independence Ballroom CD* CEP	PAPER SESSION Workplace Civility and Incivility *Independence Ballroom B*	SYMPOSIUM The Future of Work: Implications for Occupational Health and Worker Well-being *Philadelphia Ballroom North* CEP
12:00–12:45 p.m.	Luncheon Sessions Total Worker Health Professionals Collaborative Meeting *Philadelphia Ballroom North* Partnering with Organizations on Occupational Health Research *Philadelphia Ballroom South*			

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AGENDA AT A GLANCE

THURSDAY CONTINUED

1:00–2:15 p.m. **Concurrent Sessions 2**	PAPER SESSION Exhaustion and Burnout *Philadelphia Ballroom North*	PAPER SESSION Psychosocial Work Factors and Stress *Philadelphia Ballroom South*	PAPER SESSION Work Factors Associated with Worker Satisfaction and Happiness *Salon 3 & 4*	Ensuring a Good Fit Between Interventions and Their Participants: Intervening to Improve Employee Well-being in Different National and Occupational Contexts *Independence Ballroom B* CEP
	PAPER SESSION Total Worker Health in Small Businesses *Independence Ballroom CD*	PAPER SESSION Work, Parenting, and Family Outcomes *Independence Ballroom A*	PAPER SESSION Workplace Bullying *Salon 5 & 6*	PAPER SESSION Stress at Work *Salon 10*
2:30–3:45 p.m. **Concurrent Sessions 3**	PAPER SESSION Qualitative Approaches to the Study of Stress *Salon 3 & 4*	SYMPOSIUM Labor's Methods And Tools *Philadelphia Ballroom South*	PAPER SESSION Organizational Influences on Worker Well-being *Philadelphia Ballroom North*	Fitting the Intervention to the Context: Intervening to Improve Employee Well-being in Different National and Occupational Contexts *Independence Ballroom B* CEP
	PAPER SESSION Economic Factors to Workplace Health Outcomes *Salon 5 & 6*	PAPER SESSION The Importance of Work-Family Support for Caregivers *Independence Ballroom A*	PAPER SESSION Diversity and Health Disparities *Salon 10*	SYMPOSIUM Economics of Outpatient Prescription Opioids in U.S. Workers *Independence Ballroom CD*
4:00–5:30 p.m. **Concurrent Sessions 4**	PANEL Going Public: Sharing Our Work Through the Media *Salon 5 & 6*	SYMPOSIUM Labor's Research To Practice *Philadelphia Ballroom South*	PAPER SESSION Employees as a Resource for Organizational Interventions *Salon 3 & 4* CEP	PAPER SESSION Sleep, Fatigue, and Stress *Independence Ballroom B*
	The National Research Agenda on Healthy Work Design: A Town Hall Informational and Interactive Forum *Philadelphia Ballroom North*	PANEL Reading Between the (APA Guide)lines: A Discussion of Ethical Dilemmas *Independence Ballroom CD* CEP		
5:45–7:00 p.m. *Independence Ballroom A*	Film screening of *The Company We Keep*, including Q&A with the film's producer			

FRIDAY

7:30 a.m.	Continental Breakfast Served

AGENDA AT A GLANCE

FRIDAY CONTINUED

8:00–9:00 a.m. *Liberty Ballroom B*	Poster Session 2 and Total Worker Health Book Signing			
9:15–10:30 a.m. **Concurrent Sessions 5**	PAPER SESSION Physical Outcomes of Stress *Independence Ballroom B*	PAPER SESSION Safety Climate Assessment and Training in the Firefighting Industry *Salon 10*	PAPER SESSION Work Schedules and Health *Salon 3 & 4*	SYMPOSIUM The Healthy Work Campaign: A Public Health Campaign to Advance Work Stress Prevention and Healthy Work in the United States *Independence Ballroom CD*
	SYMPOSIUM Associations of Work Design, Management Practices, and the Physical and Psychosocial Work Environment with Worker and Family Member Well-being *Philadelphia Ballroom South*	PAPER SESSION Workplace Telepressure, Work-Family Conflict, and Associated Outcomes *Independence Ballroom A* CEP	SYMPOSIUM The U.S. Workplace Bullying Movement: Assessing Two Decades of Progres *Philadelphia Ballroom North* CEP	PAPER SESSION Emerging Issues and Opiods in the Workplace *Salon 5 & 6*
10:45-11:45 a.m. **Keynote** *Liberty Ballroom A*	**Safety and Health at the Heart of the Future of Work** *Manal Azzi, PhD* CEP			
12:00–12:45 p.m.	Luncheon Session Publishing Research in Occupational Health Psychology *Philadelphia Ballroom North*			
1:00–2:15 p.m. **Concurrent Sessions 6**	PAPER SESSION Stress in Higher Education *Salon 5 & 6*	SYMPOSIUM Unique Factors Related to Stress and its Outcomes in Healthcare Workers *Philadelphia Ballroom North*	PAPER SESSION Organizational Resources *Salon 10*	PAPER SESSION Positive Approaches to Promoting Employee and Organizational Outcomes *Independence Ballroom A* CEP
	SYMPOSIUM Worker Well-Being: A Framework and Measurement Tool *Philadelphia Ballroom South* CEP	PAPER SESSION Leadership as a Resource for Work Life *Independence Ballroom B*	PAPER SESSION Age and Work Ability *Independence Ballroom CD*	SYMPOSIUM Building Successful Academic-Employer Partnerships for Research Innovation: Examples from the Construction and Health Care Sectors *Salon 3 & 4*
2:30–3:45p.m. **Concurrent Sessions 7**	PAPER SESSION Stress and Teachers *Independence Ballroom A*	PAPER SESSION Strategies to Improve Workers' Perceptions and Performance on the Job *Independence Ballroom CD* CEP	PAPER SESSION Psychosocial Factors and Health: Surveys of Working Conditions and Training Opportunities *Salon 3 & 4*	SYMPOSIUM Applied Health and Safety Research Projects, Challenges, and Recommendations *Independence Ballroom B* CEP

AGENDA AT A GLANCE

FRIDAY CONTINUED

	SYMPOSIUM Using Guidelines to Implement Integrated Approaches to Work, Health and Well-being: Applications in a Health Services System, Food Services, and Construction *Philadelphia Ballroom North*	PAPER SESSION Work and Health Behaviors *Salon 10*	PAPER SESSION Technology and Harassment *Philadelphia Ballroom South*	PAPER SESSION Risk Management of Workplace Psychosocial Environment *Salon 5 & 6*
4:00–5:30 p.m. **Concurrent Sessions 8**	PANEL It's Time to Think More Formally About Time in Occupational Health Psychology *Salon 3 & 4*	PANEL Approaches that Accelerate Research to Practice: Lessons learned from NIOSH Total Worker Health Centers *Independence Ballroom CD*	The Impact of New and Changing Technologies on Employee Health and Well-being: A Panel and Research Incubator *Philadelphia Ballroom North*	PANEL Development and Implementation of Standards for Workplace Psychological Health and Safety: Opportunities and Challenges from International Perspectives *Salon 5 & 6*
	Use of a Workplace Best Practices Measurement Tool to Support Strategic Planning, Collaboration, and Program Integration *Salon 10*	SYMPOSIUM Working Outside the Ivory Tower: Insights and Advice on OSH Careers *Independence Ballroom B*	PANEL Modelling the Healthy Work Design and Well-Being Domain: An Interactive Forum *Philadelphia Ballroom South*	PANEL Stress and Well-Being Today and Tomorrow: Practical Challenges for Scientists and Practitioners *Independence Ballroom A*
6:00–6:30 p.m. *Philadelphia Ballroom South*	Society for Occupational Health Psychology Business Meeting Open to All Conference Attendees			
6:30–8:00 p.m. *Philadelphia Ballroom North*	SOHP-Hosted Reception Open to All Conference Attendees			

SATURDAY

7:30 a.m.	Continental Breakfast Served			
8:00–9:00 a.m. *Liberty Ballroom B*	Poster Session 3			
9:15–10:15 a.m. **Plenary** *Liberty Ballroom A*	**Plugged In: Managing Risks and Maximizing Gains in an Era of Rapid Technological Change** *David W. Ballard, PsyD, MBA, Susan Zhu, PhD, George Kohl, and Sheri Feinzig, PhD*			
10:30–11:45 a.m. **Concurrent Sessions 9**	PAPER SESSION Work Stress Recovery *Philadelphia Ballroom South*	PAPER SESSION Approaches to Maintain Worker Health During Emergency Response *Salon 3 & 4*	PAPER SESSION Interpersonal Stress Predictors and Effects *Salon 5 & 6*	PAPER SESSION Addressing Mental Health in the Workplace *Independence Ballroom A*

AGENDA AT A GLANCE

SATURDAY CONTINUED

	PAPER SESSION Job Insecurity, Career Needs, Earnings, and Health in a Global Context *Salon 10*	SYMPOSIUM Starting (or Changing) a Research Program: The Experience of Veteran Researchers *Independence Ballroom CD*	PAPER SESSION Social Environment and Workplace Mistreatment *Independence Ballroom B*	SYMPOSIUM Opioids in the workplace, prevention and response *Philadelphia Ballroom North*
12:00–12:45 p.m.	Luncheon Session Early Career Speed Mentoring *Philadelphia Ballroom North*			
1:00–2:15 p.m. **Concurrent Sessions 10**	SYMPOSIUM Work-related Boredom at Different Levels: Days, Persons, and Jobs *Independence Ballroom CD*	PAPER SESSION Stress and Mental Health *Independence Ballroom B*	PAPER SESSION Predictors of Burnout *Salon 3 & 4*	20/20 Vision Session: What Does the Future Hold For... *Philadelphia Ballroom South*
	PAPER SESSION Total Worker Health: Rationale and Application *Independence Ballroom A*	SYMPOSIUM Improving Employees' Health Through Supervisor Support *Philadelphia Ballroom North* CEP	PAPER SESSION Individual Differences *Salon 5 & 6*	PAPER SESSION Research Methodology to Investigate Factors That impact Worker Safety, Health, and Well being *Salon 10*
2:30–3:45 p.m. **Concurrent Sessions 11**	PAPER SESSION Models and Measures *Independence Ballroom A*	SYMPOSIUM Young Workers and Occupational Health and Safety *Philadelphia Ballroom North* CEP	PAPER SESSION Surveillance Among High Risk Workers *Independence Ballroom B*	PAPER SESSION Training Strategies for Promoting Health and Safety for Nurses *Salon 3 & 4*
	SYMPOSIUM Intervention Approaches for Sedentary Occupations *Salon 5 & 6*	PAPER SESSION Balancing Work and Life in Various Occupations *Philadelphia Ballroom South* CEP	SYMPOSIUM Stress and Violence in fire-based EMS Responders - SAVER *Salon 10*	SYMPOSIUM The New Trend in National Organizational Work Stress Assessment Tools: Challenges, Successes, and Lessons Learned *Independence Ballroom CD*
4:00–5:00 p.m. *Philadelphia Ballroom North*	Closing Session			

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Preconference Workshops

A single fee of $35 allows you to earn credit for any combination of preconference workshops attended. The unlimited CE credit fees are in addition to other conference fees charged for these sessions.

NOVEMBER 6

WEDNESDAY

9:00 a.m.–12:00 p.m.

Pre-conference AM Workshops

Philadelphia Ballroom South
Developing Student Skills and Fostering Student Learning: Evidence-Based Teaching
Susan A. Nolan and Guillermo Wated

Philadelphia Ballroom North
Measurement in Occupational Health Psychology: From Fundamentals to Emerging Issues
Russell A. Matthews and Kimberly A. French

Independence Ballroom A
Non-Standard Work Arrangements and Worker Well-Being
Rene Pana-Cryan, Leslie I. Boden, and P. Tim Bushnell

1:00–4:00 p.m.

Pre-conference PM Workshops

Independence Ballroom A
The Future of Worker Well-Being: Total Worker Health
Chia-Chia Chang, Constance Franklin, Heidi Hudson, and Sara L. Tamers

Philadelphia Ballroom South
Understanding and Using Bayesian Analysis for Hypothesis Testing in Occupational Health Research
Ivan Hernandez and Pablo Gomez

Philadelphia Ballroom North
What You Need to Know Now about Safety Climate and Culture: An Overview
Lisa M. Kath and Ted Scharf

5:30–6:30 p.m.
Liberty Ballroom A

Opening Session and Awards

Opening

David W. Ballard, PsyD, MBA, Senior Director for Applied Psychology, American Psychological Association

Naomi G. Swanson, PhD, Chief, Organizational Science and Human Factors Branch, National Institute for Occupational Safety and Health

Tammy D. Allen, PhD, President, Society for Occupational Health Psychology

Welcome

Arthur C. Evans, Jr., PhD, Chief Executive Officer, American Psychological Association

Awards

Career Lifetime Achievement Award in Research Presentation
David M. DeJoy, PhD, University of Georgia College of Public Health
Norbert K. Semmer, PhD, Universität Bern Institut für Psychologie

Early Career Achievement Award Presentation
Erika Sabbath, ScD, Boston College School of Social Work
Aditya Jain, PhD, Nottingham University Business School

Gwendolyn Puryear Keita Award for Social Justice and the Welfare of Working People Presentation
Carles Muntaner MD, PhD, MHS, University of Toronto, Dalla Lana School of Public Health

6:30–8:00 p.m.
Freedom Ballroom

Welcome Reception

NOVEMBER 7

THURSDAY

8:00–9:00 a.m.
Liberty Ballroom B

Poster Session 1

Comprehensive Approaches to Healthy Work Design and Well-Being

A-1

Using Total Worker Health to examine Work Organization and Well-Being in Local / Short-Haul Commercial Trucking. Interview and Focus Group

Jeannie Nigam (NIOSH)

Problem. Commercial truck drivers face widely acknowledged safety risks on the job and are at increased risk for heart disease, diabetes, hypertension, and obesity. Long / irregular work hours, lack of breaks, inadequate sleep, and little access to exercise facilities and healthy eating options contribute to drivers' health and safety problems. Additionally, health complications of obesity (e.g., sleep apnea, type II diabetes) place drivers at even greater risk of roadway crashes. The effects of occupational risks on health and safety have been investigated for long-haul commercial drivers (e.g., Sieber et al., 2014) but little is known about risks to local / short-haul (L/SH) drivers.

The Total Worker Health (TWH) approach reflects an understanding that factors both on and off the job affect well-being. TWH advocates for attention to the whole worker through comprehensive workplace programs that design work to support health and safety, as well as protect and promote well-being. In order to identify targets for interventions, and exactly how best to integrate efforts across relevant organizational initiatives, it is necessary first to understand the workplace context. This research is designed to learn more about the factors at play within L/SH driving that can impede or facilitate worker well-being.

This poster will describe an ongoing pilot project that investigates how work design and personal factors relate to the health, safety, and well-being of L/SH drivers. We define L/SH drivers as those whose trips are primarily within 150 miles of their reporting location and rarely have to spend a night away from home.

Procedures. Phase 1 consisted of a literature review that informed the development of semi-structured interviews and focus group protocols. In Phase 2 we conducted interviews with four stakeholders, and two focus groups (one with seven industry managers, and another with eight L/SH drivers).

Analysis. Raw data from each activity included redundant audio recordings and at least two sets of notes per interaction. Respondent data was coded (assigned a unique and random number) during entry in order to ensure anonymity. A content analysis of respondent data was conducted in order to identify themes that emerged from respondents in each group as well as themes that emerged across groups.

Results. Stakeholders. "…The type of trailer and the type of haul" are primary causes of stress and physical demands. Traffic, client relations, meeting deadlines, driver shortages, and compensation were cited as stressful. Driver shortage reportedly affects L/SH drivers through increased workload and work pressure.

Managers. Managers emphasized workplace relationships (manager-driver; driver-driver) as a protective factor. Scheduling and deadlines are intricately designed ("measured to the minute"), and traffic delays add pressure to the employer, driver, and client. Traffic or construction delays affect activity levels of drivers because they reduce opportunities for movement (i.e., stretch breaks).

While certain risks were recognized (e.g., falling/slipping/tripping, improper movement, opening doors, traffic incidents, etc.), the development of chronic diseases (e.g., diabetes) due to truck driving was not considered a major risk. Being able to bring their own food and be home at night were cited as primary protective factors for L/SH truck drivers compared to the typical long-haul driver. Previously drivers had more physical activity opportunities, but the use of third party laborers ("lumpers") who load and unload cargo has reduced those opportunities.

Drivers. Traffic affects safety, scheduling, and stress. Drivers reported feeling tense due to traffic density and the "constant watching" that must occur to make sure "four-wheelers are doing what they are supposed to be doing." Safety concerns included cabin (dis)comfort, risk for injury while opening/closing doors, and jumping out of the cab, "Sometimes I forget [the three point exit] when I'm in a hurry."

Health problems discussed included sleep apnea, high blood pressure, diabetes, heart disease, and fatigue. Drivers take personal responsibility for health and expressed that there is a healthy way and an unhealthy way to do the job.

Many prefer the solitude of the job, but also enjoy interacting with fellow drivers, customers, and shippers. Employers are "very concerned about injury."

Practical implications. Interview and focus group data analysis provided valuable insight regarding topics to explore in more depth during the third phase of this project (a survey of 300 L/SH drivers).

Conclusions. Several noted concerns were expected (i.e., traffic, scheduling, lack of opportunity for physical activity). Others that we expected to present as risks (i.e., private contracting, pressure due to incentive pay, electronic logging) were not recognized as such by industry representatives in this small sample. Some topics were concerns for stakeholders but not necessarily for drivers (e.g., driver shortages).

There are some similarities between L/SH and long-haul driving but many differences. Our research will further characterize work and health within L/SH driving. The survey will examine work design, personal factors, and comprehensiveness of organizational support, and their association with driver safety, health, and overall well-being.

A-2

Job and Personal Resources to Promote Puerto Rico Public School Personnel Health and Well-being

Israel Sánchez-Cardona (Carlos Albizu University)

Schools personnel play a crucial role in academic and socio-emotional development of students (Harding et al., 2019; Ronfeldt, Loeb, & Wyckoff, 2013). However, schools are highly stressful work environments with daily demands that affect staff's work and emotional well-being (Dicke, Stebner, Linninger, Kunter & Leutner, 2017; Ryan et al. 2017). According to the Job Demands-Resource Model (Demerouti

et al., 2001), jobs are comprised of demands as well as of resources. Job resources reduce job demands, are functional in achieving work goals, and stimulate personal growth, learning and development (Demerouti et al., 2001). When individuals lose resources at work, broadly defined as objects, states, conditions, and other things that people value (Hobfoll, 1988), they are more likely to experience strain. Therefore, increasing resources prevent strain (e.g., burnout) and foster well-being (e.g., engagement) (Schaufeli, 2017). The evaluation of school personnel resources allows understanding and intervening at different levels for the prevention of stressors at work and the development of resources for the promotion of health.

In this project we aimed to examine how job and personal resources relates to work (burnout and work engagement) and mental health (anxiety and depression) among school personnel in Puerto Rico. Literature indicates that norms of respect, support at school and positive interaction are strong predictors of well-being at schools (stress, burnout, satisfaction, mental health) (Alvarado & Bretones, 2018; Collie et al., 2017; O'Brennan et al., 2017). Additionally, higher level of personal resources leads to higher level of well-being (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Personal resources are positive self-evaluations that are linked to resiliency and refer to individual's sense of their ability to control and impact upon the environment (Xanthopoulou et al., 2009). We focus on psychological capital since it comprises a set of malleable personal resources: self-efficacy, optimism, hope, and resilience (Luthans et al., 2007), which can be developed through interventions (Salanova & Ortega, 2019). It is expected that enhancing these job and personal resources will help to achieve more positive school climate and will support the accumulation of resources to cope with daily challenges.

This project is part of a broader program, which aims to provide culturally sensitive services to students, families, and school staff in public schools in Puerto Rico to strengthen the health and well-being of the community through promotion, prevention and treatment. School personnel were invited to an orientation meeting conducted in four participating schools. After briefly present the Program, they were invited to voluntarily and anonymously complete a paper and pencil questionnaire. A sample of 199 school staff from the 4 schools (86.14%, response rate) completed the questionnaire. Participants were mainly women (78.9%) working at the academic area (77.4%). On average, participants had been working at the school for 6.26 years (DE= 6.38). Most participants had a bachelor's degree (36.2%) or had completed graduate studies (34.7%). Job resources were measured using four scales: Civility norms (α=.67; Walsh et al., 2012), Support Climate (α= .83; Salanova et al., 2012), Leadership quality (α=.92; Moncada et al. 2013) and Student-Staff relations (α= .82; Johnson, Stevens, & Zvoch, 2007). Personal Resources was measure through the Psychological Capital Questionnaire (α= .91; Luthans et al., 2007). Burnout was measure using the Exhaustion (α= .92) and Cynicism (α= .85) sub-scales of the MBI (Salanova et al., 2000). Work engagement was measure with the ultra brief UWES (α= .81) (Schaufeli et al., 2017). Finally, mental health was measure using the GAD-7 (α= .92) (Spitzer et al., 2006) and the PHQ-8 (α= .90) (Dhingra et al., 2011) to assess indicators of anxiety and depression, respectively. We used structural equation modeling with STATA (v. 15) to examine the association of job and personal resources to work related well-being (e.g., Burnout and Engagement) and mental health (e.g., Anxiety and Depression).

Results indicate that Job resources are strongly related to burnout (β = -.92, p<.001), work engagement (β =.86, p<.001) and mental health (β = -.25, p<.01). Personal resources were not significantly related to burnout (β = -.13), but was significantly related to work engagement (β = .21, p<.05) and mental health (β =-.42, p<.001). The model showed good fit: $\chi2$ (81) = 186.68, RMSEA= .08, CFI=.93, TLI= .91.

These results denote that resources are strong predictors of work related well-being and mental health. Most participants were teachers; therefore, we could not examine differences among school areas. However, we assessed 86% of the school personnel, which provides a good psychosocial representation of each school. These results set the foundation for future intervention approaches. Job resources were mainly focused on support and positive relationships; thus, these positive work climate job resources seem relevant in the promotion of school staff well-being. Additionally, interventions aimed to develop personal resources might be essential to support the acquisition of resources to reduce strain and improve school staff psychological functioning.

A-3

Development of a Needs-Based Healthy Workplace Assessment

Cristina Banks (School of Public Health, UC Berkeley)

Researchers from the University of California, Berkeley (UCB) and Norwegian University of Technology and Science (NTNU) partnered to create a new survey to assess the degree to which an organization has the elements of a healthy workplace environment. The goal of the research was to develop a snapshot of an organization's psychosocial environment focusing on specific factors considered important for employee health and well-being in the following areas: job characteristics, interpersonal relations, organization practices, and job experience. This survey is unique in two ways. First, unlike other workplace assessments, this one was based on the Healthy Workplaces Model developed at UCB, which posits that employee health and well-being is significantly influenced by the presence (or absence) of organizational elements that facilitate (or limit) individual basic need satisfaction (Maslach & Banks, 2017). Second, this survey was developed and tested to identify a common set of survey items that showed consistent relationships across cultures between need-relevant organizational elements and important health and organizational outcomes.

Problem. Current healthy workplace assessments focus on organizational elements that are related to stress, conflict, demand/resource gaps, and safety risks. The assumption is, the lower the psychosocial stressors, the healthier the workplace. While useful, most measures do not examine organizational elements that promote health and well-being. The assumption underlying this approach is, the greater the number of elements that promote health and well-being, the healthier the workplace is for people. The Berkeley and Norwegian teams took on the challenge of creating a single instrument that enabled assessment of a workplace in terms of the presence (and absence) of health-promoting organizational elements.

Procedures. After conferring about our approach, each team developed and tested their instrument with convenience samples before assembling a final survey. The Berkeley team followed the Healthy Workplaces Model in selecting needs to be measured: autonomy, competence, belongingness, fairness, psychological safety, and meaning/value. The context in which they were measured followed organizational elements WHO has identified as important for healthy workplaces (Burton, 2010). They are benefits and wages, work-life balance, leadership style, control, job characteristics, resources, work

overload, employee involvement/influence, co-worker support, role clarity, information sharing, organizational culture, and civility and respect. Nine items were written (5 positive, 4 negative) for each need, capturing how the need may expressed in an organizational element for a subset of relevant elements. This resulted in a 54-item instrument named the Workplace Health Assessment (WHA). The Berkeley team also selected items from previously validated measures of needs: three basic needs identified by self-determination theory: autonomy, relatedness, and competence (Deci & Ryan, 2000), psychological safety from the Psychological Safety Climate PSC-12 (Hall, Dollard & Coward, 2010), and meaning/value from the Work and Meaning Inventory (WAMI; Steger, Dik & Duffy, 2012). The Norwegian team selected existing validated measures that related to the set of WHO organizational elements used by the Berkeley team and the Berkeley WHA. Both Berkeley and Norwegian teams selected the same outcome measures: job satisfaction, general health, organizational and team commitment, turnover intention, sickness absence, in-role performance and current work performance previously used in the ARK study in Norway (Innstrand et al., 2015). The Berkeley team further refined it's survey in a second administration by incorporating the Norwegian team's WHO organizational element items and a revised set of outcome measures which became a healthy workplace index: job satisfaction, in-role performance, engagement, productivity, distress, meaning, inclusiveness, psychological safety climate, turnover, work-home balance, general health, and commitment.

Analyses and Results. Analyses were conducted on each team's datasets of 300+ respondents per administration. The analysis was conducted by the Norwegian team using the multivariate methods marker object projection (MOP), marker variable projection (MVP), and partial least squares projections to latent structures (PLS) software programs (Kvalheim, 1988; Wiik, 2011). We used the statistical program Sirius version 10.0 (Pattern Recognition Systems, AS, info@prs.no). These programs permitted us to identify the most differentiating items within the survey (positive and negative) for predicting healthy workplace outcomes. Based on rounds of comparisons between the Berkeley and Norwegian item sets, the two teams identified a final set of 100 survey items which were highly relevant in both cultures and were significantly related to a composite of the healthy workplace index (revised outcome measures). The final survey was administered to the same four occupations in each culture: academic staff, real estate professionals, high school teachers, and nurses. The pattern of relationships across items and with outcome measures were consistent across administrations, although level differences were observed in the two cultures

Implications. Need-based measures significantly contributed to an evaluation of organizational effectiveness as a healthy workplace, particularly with respect to the absence of organizational elements that promoted employee health and well-being. That is, needs left unsatisfied had a significant effect on workplace outcomes whereas more typical measures of absence of stressors, which were characterized as positive items, did not contribute to organizational outcomes as strongly. The differences between Berkeley and Norwegian samples were found largely with respect to which organizational elements were most important for workplace health.

A-4

Findings from a Pilot of Pro-Motion: A Program to Reduce Sedentary Behavior at Work

Kara Suvada (RTI International)

Background. Only one in five American adults meet the Center for Disease Control and Prevention's recommended physical activity guidelines (Blackwell & Clarke, 2018). Increasingly, research suggests that physical inactivity and sedentary lifestyles contribute to disability and premature mortality by increasing an individual's risk of developing noncommunicable diseases, such as heart disease, diabetes, and cancer (Haskel et al., 2007). In 2013, the World Health Organization estimated that physical inactivity accounted for approximately 69 million disability-adjusted life years and 3.2 million global deaths annually (Barretto, 2013). The shift of the global economy from industrial, manual-labor-driven industry to increased use of technology and automation may be linked to the rise of physical inactivity; many workers now spend up to 90% of their working hours sitting at desks (Bureau of Labor Statistics, 2018). The negative health implications of continuous sedentary behavior, such as sitting at a desk for extended hours, may be distinct and more deleterious than simply a lack of exercise (Owen et al., 2010). Time spent engaging in sedentary behavior is positively correlated with mortality and increased risk of developing chronic conditions (Thorp et al., 2011). Robust workday solutions for decreasing sedentary behavior and increasing movement are needed.

Procedures/Methods. In 2017-2018, employees of RTI International (RTI) implemented Pro-Motion, an evidence-based pilot initiative to increase awareness of the consequences of sedentary work behavior and promote physical activity during the workday among employees. Planning for Pro-Motion began in May 2017, and the pilot took place between February and March of 2018. Members of the implementation team recruited staff in their work groups via email and explained the goals of the initiative, described data collection processes, and identified the dates and times of launch events. Interested employees volunteered for the pilot via email and were eligible if they used an Android or iPhone smartphone and worked in one of the targeted locations (Durham, NC or Waltham, MA). All participants attended an in-person launch event, which presented the consequences of sedentary work behavior and offered strategies to incorporate physical activity throughout the workday. To investigate changes in workday movement, the implementation team collected passive pre- and post-intervention data using Moves1—a mobile application (app) for tracking fitness activities including walking, cycling, and running—over a period of eight weeks (approximately 40 workdays). The implementation team also conducted pre- and post- web surveys to assess pilot participants' beliefs regarding sedentary work, opportunities to engage in workday movement, workplace experiences, self-reported workday movement, and barriers to movement. Qualitative data captured during implementation events and from direct communication with participants provided additional context and insights regarding participants' experiences.

Analyses. We used longitudinal hierarchical linear models to investigate changes in objective step counts and factors predicted to affect step count changes (Raudenbush & Bryk, 2001; Singer & Willet, 2003). Individuals' activity trajectory was modeled by a random intercept (i.e., their number of steps on the first day using the app) and a random slope (the rate of change in steps over time). This approach is optimized for small samples (Ridenour et al., 2015; Ridenour et al., 2017). Two senior researchers reviewed qualitative data to identify common themes.

Results. Compared to baseline, and after controlling for participant beliefs, personal characteristics and contextual factors, the Pro-Motion program increased participants' movement during the workday by 664 steps ($p=0.02$) per workday. Work unit and office location

also predicted change in workday movement. Qualitative feedback suggested that the one-hour interactive workshop increased participants' awareness of the adverse health effects of sedentary behaviors, helped the them to think about how to fit movement

into the context of their work day, and allowed them set individualized and realistic movement goals for during the workday.

Discussion/Conclusions. The results of the Pro-Motion pilot study demonstrate the program's potential efficacy to significantly reduce employees' sedentary behavior during the workday. The intervention improved employees' self-reported attitudes and health indicators, suggesting that Pro-Motion had significant positive effects on both objective and subjective measures of workday movement and related constructs.

Practical Implications. The Pro-Motion program is a promising approach to reducing workers' sedentary time on the job. Study results suggest that similar programs may help employers and employees mitigate the negative consequences of workday inactivity and physical inactivity more generally.

A-5

Recession Experience Influencing Change in Health Outcomes via Change in Work Situation: Resources as Moderators

Kathleen Keeler (Virginia Commonwealth University)

Introduction. From late 2007 to 2009, the United States experienced its largest economic recession since the Great Depression. Although the recession officially ended in June 2009, the U.S. economy is beginning to show signs of recovery, however, the consequences of the economic crisis are likely to leave lasting scars (Astell-Burt & Feng, 2013). The purpose of this paper is to examine the long-term consequences associated with recession experience on one's well-being. Prior research has demonstrated that during times of economic instability, individuals experience greater job insecurity (Kinnunen, Mauno, Natti, & Happonen, 1999) and poorer well-being outcomes (Astell-Burt & Feng, 2013; Probst et al., 2018), however, whether these effects sustain over time has yet to be explored. Further, prior research has not clarified the mechanisms that underlie this relationship. In this paper, we propose that negative recession experience leads to a negative change in one's work situation, which in turn leads to a negative change in well-being outcomes. However, there are likely social and personal factors that may mitigate the potential harmful effects due to an economic recession.

Sample. Data came from the longitudinal National Survey of Midlife Development in the United States (MIDUS). We used data from the same working adults (N = 1,414) who provided relevant data between 2007-2009 (Wave 2) and between 2013-2015 (Wave 3). All measures were presented in Table 1.

Results. Regression results were presented in Table 2. Recession experience and change in work situation both significantly predicted change in work situation, change in mental health, change in physical health, and change in life satisfaction. In addition, negative recession experience had significant indirect effects on the aforementioned health outcomes through change in work situation. These results indicated that people who had more negative recession experience were more likely to experience a decrease in mental health, physical health, and life satisfaction because of its negative impact on work situation. Neither recession experience nor change in work situation significantly influenced change in alcohol use.

Different moderators were found for different health outcomes. Specifically, family support moderates the relationship between change in work situation and change in mental health, as well as the relationship between change in work situation and change in alcohol use. Spouse support moderates the relationship between change in work situation and change in physical health. Problem-focused coping moderates the relationship between change in work situation and change in mental health; while education moderates the relationship between change in work situation and change in alcohol use. These results indicated that change in work situation only impacted the corresponding health outcomes for people who did not have spouse support or family support, did not use problem-focused coping, or with low levels of education. In addition, spouse support also moderated the indirect effect of recession experience on change in physical health through change in work situation (95% CI for people with low spouse support: [-0.0656, -0.0089]; 95% CI for people with high spouse support: [-0.0571, 0.0159]). Education moderated the indirect effect of recession experience on change in alcohol use through change in work situation (95% CI for people with low education level: [-0.0473, -0.0029]; 95% CI for people with high education: [-0.0390, 0.0043]).

Practical Implications.Economic recessions such as the Great Recession happened from late 2007 to 2009 have serious repercussions for people's health outcomes that even last until today. Unfortunate as it is, the society also needs to think about ways to minimize the negative influences in case of such event. The current study pointed out several remedies to deal with this issue. Specifically, resources that come from either one's social support system or self-regulation capacity could buffer the detrimental effects of experiencing economic crisis. We encourage people to actively obtain such resources, in order to be better prepared for unfortunate events that happen in the society or negative changes of their work situations.

Conclusion. In sum, these results show that economic crises exert long term negative consequences on worker well-being by negatively impacting working conditions. However, protective factors such as social support from family and problem focused coping behaviors, mitigate this decline.

A-6

Mediating Effect of Perceived Stress Between Social Capital and Work Satisfaction Among Modern Service Industry Workers in China

Jun Zhang (Beijing CDC, China)

Objective: To explore the relationship among social capital, perceived stress, and work satisfaction to provide a basis for improving work satisfaction among modern service industry workers.

Methods. A total of 737 employees from two units belonging to modern service industries in Shanghai were investigated through purposive sampling. A self-administered anonymous questionnaire was used to collect data on demographics, social capital, work satisfaction, and perceived stress. Social capital was assessed by the Workplace Social Capital Scale, while work satisfaction was evaluated by the Overall Work Satisfaction Scale. Perceived stress was estimated using the Chinese version of the Perceived Stress Scale (PSS-10). The relationships among these variables were analyzed using a multiple linear regression model and structural equation model.

Results. The average scores for social capital and work satisfaction were 3.55±0.76 and 19.55±4.14, respectively. Further, the perceived

stress score was 14.78±5.72. After controlling for demographics, perceived stress was shown to be a negative predictor of work satisfaction, while social capital had a significant positive predictive effect. The adjusted R2 was 54.6%. Structural equation modeling confirmed that social capital's direct effects on work satisfaction and perceived stress were 0.716 and -0.365, respectively. Meanwhile, its indirect effect on work satisfaction was 0.05 with the impact of perceived stress. Both direct and indirect effects were statistically significant ($p<0.05$), implying that perceived stress partially mediated the relation between social capital and work satisfaction.

Conclusion. Social capital could be an efficient method for improving work satisfaction directly or indirectly by reducing perceived stress. It is suggested that health intervention programs pay more attention to these two domains to maintain enthusiasm for work among modern service industry workers.

A-7

Healthy work environment for nurses: a concept analysis

Hyeonmi Cho (University of Wisconsin-Madison School of Nursing)

Statement of the problem. The nursing work environment is an important area of research considering that it affects not only the lives of nurses but also patient and organization outcomes. A healthy work environment that is safe, empowering, and satisfying for nurses is essential in that nurses have the potential to lead the way in improving health and health care for all, and nurses can realize their potential in a healthy work environment (American Nurses Association, n.d.). In many studies, a healthy work environment for nurses (HWEN) has been used as a modifier to refer to a work environment that has been positively assessed by the various measurements of a nursing work environment, without a theoretical or conceptual basis (Wei et al., 2018; Yokoyama et al., 2016; Cohen et al., 2009).

Procedures. This concept analysis was conducted to clarify and explicate the conceptual meaning of a HWEN in the hospital setting and identify its current usage. Walker and Avant's (2018) method was used.

An in-depth review including articles, dictionary, and web pages of professional nursing organizations was conducted. 'Healthy work environment', 'Healthy workplaces', 'Healthful work environment', or 'Healthy practice environment' were used as subject headings with additional keywords 'nursing' and 'nurses' in the title or abstract used to conduct searches in Google Scholar, PubMed, and CINAHL. The inclusion criteria included: published between 2000 and 2018 and, written in English. 350 papers were identified in the initial search. After filtering process, the 37 articles were included in this analysis.

Analyses. The identified sources from data were reviewed to identify definition, attributes, antecedents, and consequences.

Results. Definitions of a HWEN have focused on supporting nurses' health and safety and ensuring that they are satisfied with their job and provide quality care. A HWEN would appear to be the surroundings or conditions of tasks supporting the physical and mental condition, and safety for nurses.

The majority of the presented attributes referred to organizational culture, the leadership of nursing manager, and occupational health and safety. Based on the frequency of citation, the attributes of the HWEN are as follows: 1) Appropriate staffing, 2) Quality leadership of nurse leader, 3) Effective communication and teamwork among coworkers, 4) Support for professional development, 5) Shared decision making, 6) Promoting for nurses' health and safety, 7) Recognition of contribution, and 8) Clinical autonomy.

The suggested antecedents overlapped much with presented attributes. Articles pointed to positive relationship with colleagues (Moore et al., 2013), team characteristics including accountability, commitment, enthusiasm, motivation, and collaborative social support from a supervisor or colleague (Pearson et al., 2006), and the nurse manager's role supporting staff in the decisions about the unit functioning, empowering staff, being an example to staff, and providing staff with the resources (Hartung & Miller, 2013; Kramer et al., 2011), addressing nurses' stress (Kahnen et al., 2016) as antecedents.

The consequences of the HWEN include nurse, patient, and organizational outcomes. In terms of nurse outcomes, a HWEN improves job satisfaction and quality of professional life by reducing burnout and increasing compassion satisfaction (Wei et al., 2018; Bai, 2016; Bai et al., 2015; Bai, Hsu, & Zhang, 2015; Brunges & Foley-Brinza, 2014; Kelly & Todd, 2017). A HWEN can mitigate the environmental reality shock of new nurses (Kramer et al., 2013). Positive patient outcomes resulting from the healthy working environment include quality patient care (Wei et al., 2018; Bai, 2016; Bai et al., 2015). Organizational outcomes of HWEN are reduced workplace bullying (Yokoyama et al., 2016) and workplace incivility (Smokler & Malecha, 2011) among nurses, and nurses' intention to leave (Harrison & Zavotsky, 2018; Cohen et al., 2009; Blake et al., 2013; Ritter, 2011; Kramer et al., 2012).

Practical implications. Findings from this analysis can guide researcher in better understanding the HWEN and how it might develop. This helps construct hypotheses or statements to determine the relationship between HWEN and other phenomena, including critical nurse, patient, and healthcare organization outcomes. Moreover, identifying empirical referents based on attributes of HWEN can be used as a basis for developing instruments to comprehensively measure the phenomenon of HWEN and evaluate the existing instruments. This is important as current measures are not based on a well-developed definition and understanding of the HWEN and are therefore inconsistent in what they are evaluating. As attention on healthy workplaces grows in healthcare and other industries to maintain the health and productivity of workers, it is important that effective and consistent measures are identified. Finally, the results of this analysis can help employers and policy-makers develop and implement interventions to foster and improve the healthy workplace.

Conclusions. This study is noteworthy as the first concept analysis of HWEN. While individual nurses and nurse managers clearly have a responsibility for creating and maintaining HWEN, much organizational change is required to realize the full potential.

Interventions in the Workplace

B-1

Employee Work-Related States Benefit from Engaging in Mindfulness Procedures

Ian Armstrong (Central Michigan University)

Mindful activities focus on increasing awareness and acceptance of moment-to-moment experiences, and they can evolve into a mindfulness practice (Good et al., 2015; Hyland et al., 2015; Jamieson & Tuckey, 2016). Mindfulness can refer to formal mindfulness training, state mindfulness, trait mindfulness, or a specific mindfulness activity. Mindfulness can relate to favorable psychological outcomes such as less general anxiety (Chu, 2010), but we examine whether employees'

job-related anxiety and other work-related states may be affected by mindfulness. Affective events the¬ory for example, suggests mindfulness can positively relate to job satisfaction, because mindfulness affects employees' appraisal of work demands as less stressful, leading to more positive evaluations of one's job (Hülsheger et al., 2013). We propose that both a specific mindfulness activity and having previous formal mindfulness training will be related to more favorable outcomes for employees. Additionally, we investigate whether previous training in mindfulness interacts with engaging in a mindfulness activity to predict state mindfulness and the outcomes.

H1 Previous formal mindfulness training will relate positively to state mindfulness and job satisfaction, and relate negatively to general anxiety, job burnout, and job-related anxiety.

H2 State mindfulness will relate negatively to general anxiety, job burnout, and job-related anxiety, and relate positively to job satisfaction.

H3 Engaging in a mindfulness activity will negatively affect general anxiety, job burnout, and job-related anxiety, and will positively affect job satisfaction and state mindfulness.

Research question: Does previous mindfulness training interact with engaging in a mindfulness activity to predict state mindfulness, general anxiety, job burnout, job-related anxiety, and job satisfaction?

Method. Participants, half with previous formal mindfulness training, were employed full-time in Southeastern U.S. At baseline (T1), all variables were measured. At Time 2 (one week later) employees were randomly assigned to a professional audio guided mindfulness-meditation activity or a control (cooking instructions) and then completed a second a survey.

Two State-mindfulness measures were administered, State Mindfulness Scale (SMS) (Tanay & Bernstein, 2013) and short form Mindfulness Attention and Awareness Skill (MAAS; Brown & Ryan, 2003).

State general anxiety was measured with the State-Trait Anxiety Inventory (Spielberger, Grosuch, Lushene, Vagg & Jacobs, 1983).

Job anxiety was measured with the Negative Affect Schedule (Watson, Clark & Tellegen, 1988), adapted to ask how employees felt while thinking about their work.

Job burnout was measured with the Shirom-Melamed Burnout Measure (Lundgren-Nilsson, Jonsdottir, Pallant. & Ahlborg, 2012).

Job satisfaction was measured using the Michigan Organizational Assessment Questionnaire (e.g., Caplan et al., 1975).

Previous mindfulness training was measured with the question "Have you received formal mindfulness training?" (1 indicating previous training and 0 indicating no training).

Results. Previous mindfulness training was positively related to state mindfulness measured by the SMS, but not MAAS (Table 2); previous training was also negatively related to burnout; overall, there was only limited support for Hypothesis 1.

Regarding hypothesis 2, state mindfulness measured by MAAS was related as expected to all criterion variables at time 2 and two of them (job burnout and job satisfaction) at time 1, providing good support. The SMS measure, however, was related only to job burnout and only at time 2 (Table 2). Because sex and employment status were related to some criterion variables, we also held them constant in regressing each criterion on the two state mindfulness variables, and the same relationships were still significant (Tables 3 and 4).

The mindfulness activity intervention resulted in reduced job-related anxiety and increased job satisfaction, providing partial support for hypothesis 3.

Regarding the research question, the interactions between previous mindfulness training and the mindfulness intervention did not significantly predict any criterion variable.

Discussion

The results suggest mindfulness can be related to organizational outcomes significantly, but for state mindfulness, relationships vary depending on the mindfulness measure. The SMS and MAAS apparently measure two independent types of mindfulness, and this finding needs to be addressed in future studies, because (1) they were not significantly correlated with each other; (2) SMS state mindfulness was related to previous mindfulness training but MAAS state mindfulness was not; and (3) MAAS was related to positive psychology outcomes, but SMS was not. One interpretation is that the SMS might have better construct validity based on relationships with a predictor of state mindfulness, but the MAAS might have better construct validity based on relationships with outcomes of state mindfulness.

Also, surprisingly, the mindfulness activity intervention affected job-related outcomes (e.g., job-related anxiety) but not more general psychological reactions (e.g., general anxiety), despite the content of the training stimulus not mentioning jobs or work. Thus, it is encouraging that engaging in mindfulness may be helpful in the workplace but not in general life. The null results for the research question suggest that to be fully trained in mindfulness is not a prerequisite for benefiting from engaging in mindful activities.

B-2

Does Mindfulness Reduce Interactional Justice Perceptions in Response to Abusive Supervision? Implications for Employee Well-Being and Supervisor-Directed Retaliation

Larissa Barber (San Diego State University)

Though the construct of abusive supervision was first proposed almost 20 years ago (Tepper, 2000), the literature is sparse with evidence on intervention strategies that help employees effectively cope with abusive supervisors (Tepper, Simon, & Park, 2017). Most of what we know about coping with abusive supervision is derived from nonexperimental work (e.g., Harvey, Stoner, Hochwarter, & Kacmar, 2007; Lopes, Kamau, & Jaspal, 2018). Finding ways to limit the negative effects of abusive supervision is important due to the substantial personal and financial costs associated with abusive supervision (e.g., Tepper, Duffy, Henle, & Lambert, 2006). One popular intervention for helping individuals cope with stressful situations in their work environment has been mindfulness, a mental state related to focused attention and awareness on present experiences (Sutcliffe, Vogus, & Dane, 2016). In this paper, we propose that mindfulness weakens the impact of perceptions of abuse on a variety of outcomes (e.g., stress and retaliation) through weakening the relationship between abuse and injustice.

Given the central role that interactional justice plays in linking abusive supervision to employee responses (e.g., Mackey, Frieder, Brees, & Martinko, 2017), including interactional justice in models considering mindfulness interventions is critical. This is because fairness perceptions arise from perceived violations of social exchange relationships, which are motivated by personal or self-interest according to social exchange theory (e.g., Cropanzano and Mitchell, 2005). Therefore, we propose that mindfulness likely influences how employees interpret abusive supervision in a manner that affects perceptions of interactional justice. In particular, mindfulness has been shown to reduce the relevance of the "self" when evaluating negative events

(Sutcliffe et al., 2016), which we propose results in reduced attention to self-interest or interdependence in the exchange relationship with the supervisor based on social exchange theory. This process coincides with mindfulness propositions regarding "how" we think about events, as mindfulness reduces self-judgment and evaluation (Shapiro, Carlson, Astin, & Freedman, 2006). In other words, the lens through which the employee views abusive supervision changes under conditions of high mindfulness; events are viewed objectively as merely a passing phenomenon that is less relevant to the self (Van Gordon, Shonin, Zangeneh, and Griffiths, 2014). This externalizing of negative events, such as abusive supervision, results in taking things less personally and increasing tolerance of negative events (Arch and Craske, 2006; Sutcliffe et al., 2016). Therefore, we suspect that the relationship between abusive supervision and the resulting justice perceptions will weaken in the presence of high mindfulness, which then results in less retaliation directed at one's supervisor (H1) and less perceived stress (H2).

We conducted two studies to test our hypotheses. The first study was a nonexperimental initial study conducted with 230 full-time employed individuals from a variety of industries. Participants completed validated measures of abusive supervision (Tepper, 2000), trait mindfulness (Baer et al., 2006), interactional justice (Colquitt, 2011), work stress (House & Rizzo, 1972), and retaliation towards the supervisor (Mitchell & Ambrose, 2007). Data was collected via two on-line surveys two weeks apart to separate the measurement of the independent and dependent variables. The second study further examined how mindfulness predicts justice perceptions of abusive supervision, but with the advantage of using an experimental laboratory-based scenario that standardized environmental stimuli (i.e., level of abusive supervision) across 263 participants. In addition, the laboratory setting allowed us to experimentally manipulate participants' current level of mindfulness and examine how they reacted to a written scenario involving an abusive supervisor.

In Study 1, contrary to our expectations, we found that individual perceptions of justice were most strongly predicted by the perceived abuse of the supervisor when the participant had high levels of trait mindfulness (see Table 1). These perceptions of interactional justice then mediated the relationship between abusive supervision over the past six months and negative work-related outcomes (higher levels of work stress and retaliation directed at their supervisor). Exploratory analyses demonstrated that this effect seems to be largely driven by the fact that individuals with high mindfulness had the tendency to be very attentive to what they experience moment to moment.

Given the unexpected findings in Study 1, we sought to replicate these findings and focused specifically on the finding that being attentive of one's moment to moment experiences may make someone more likely to view their abusive supervisor as unfair. Therefore, in Study 2, we manipulate state levels of mindfulness focusing specifically on attention to the present moment. We replicated the findings from Study 1 by demonstrating that individuals with high levels of state mindfulness (i.e., attention to the present moment) were most likely to report lower perceptions of justice when they experience an abusive supervisor, which in turn predicted higher levels of expected work stress and the intention to retaliate against their direct supervisor in the near future (see Table 1).

B-3

The Moderating Role of Person-Environment Fit on the Relationship between Perceived Workload and Work Engagement

Ike Onyishi (University of Nigeria, Nsukka)

Employees still have to work in highly stressful organizational settings where they encounter high job demands (e.g., workload, emotional demands, cognitive demands; Landy & Conte, 2016). These stressful work conditions affect employees' attitude and well-being and may lead to strain and fatigue symptoms (e.g., Bakker, Demerouti, & Schaufeli, 2003). This may hinder physical, cognitive, and emotional energy (components of work engagement; Kahn, 1990) in the pursuit of role-related goals. Reasoning from the job demands-resources (JD-R) model, job demands, such as excessive workload, tasks employee personal resources and leads to depletion of such resources (Bakker & Demerouti, 2014; Bakker, Van Veldhoven & Xanthopoulou, 2010).

Although researchers have recognized the relevance of work demands on engagement, empirical findings linking these concepts have been inconsistent (Crawford, LePine, & Rich, 2010). While some researchers found a positive relationship between work demand and engagement (e.g., Warr & Inceoglu, 2012), others (e.g., Bakker, Van Veldhoven, & Xanthopoulou, 2010; Upadyaya, Vartiainen, & Salmela-Aro, 2016) reported negative relationships. A few studies reported no significant relationship between work demand and engagement (e.g., Demerouti Bakker, De Jonge, Janssen, & Schaufeli 2001; Schaufeli & Bakker, 2004). These inconsistencies in research findings underscore the existence of moderating variables in the relationship, necessitating further empirical inquiries. Literature is replete with evidence that for employees to be work engaged they are expected to have good personal disposition and work ability (Airila, 2015; Leiter & Bakker, 2010). In addition, workers react to work demands in different ways depending on the work environment or on individual employee dispositions or coping abilities (Rijik, Blanc, Schaufeli, & Jonge, 1998). Thus, the inconsistencies in the report of the relationship between work demand, especially workload and engagement could be attributed to the lack of consideration of possible moderating effects of person-environment fit in the study of work engagement. Bakker, Albrecht, and Leiter (2011) had noted that not much has been done in this area and suggested that person-environment (P–E) fit should be considered in future research on work engagement. The study examines the moderating roles of person-environment fit on the relationship between perceived workload and work engagement of hospital nurses in Southeast, Nigeria.

The participants of the study comprised of 216 fulltime hospital nurses sampled from public hospitals in southeast Nigeria. The participants responded to measures of perceived workload, person-job fit, person-organization fit, and work engagement. The perceived workload was measured using the NASA Task Load Index (TLX) (Hart & Staveland, 1988). Person-job (P–J) fit was assessed with the 3-item demand-abilities subjective fit perception measure developed by Cable and DeRue (2002) while person-organization (P-O) fit was measured with a 3-item self-report scale developed by Cable and Judge (1996). The Shortened Version of Utrecht Work Engagement Scale (UWES) (Schaufeli, Bakker, & Salanova, 2006) was used to measure work engagement. The results of the regression analyses showed that perceived high workload was significantly and negatively related to work engagement ($\beta = -.23$ $p < .01$). Person-job fit was positively related to work engagement ($\beta = .22$, $p < .01$). Person-organization fit was also positively related to work engagement ($\beta = .20$,

p <.01). The results of the moderated hierarchical regression analyses showed that P-J fit had a moderating effect in the relationship between perceived high workload and work engagement. The moderating effect of person-organization fit in the relation between perceived high workload and work engagement was not significant. The observed moderating effects of P-J fit in the negative relationship between perceived high workload and employee work engagement implies that P-J weakens the negative relationship between perceived workload and employee work engagement. This suggests that employees that reported high on person-job fit scales were more work engaged even when they experience high workload. The findings have implications for the job demands-resources theory, and employee selection and development.

B-4

One for all and all for one: Support at work as a mediator between compassionate goals and work engagement

Lena Etzel (University of North Carolina at Charlotte)

Work engagement (WE) is a positive, work-related state of mind, characterized by vigor, dedication, and absorption (Bakker et al., 2008; Schaufeli et al., 2002). Previous work has demonstrated the favorable effect of WE on employees and organizations, including its link to increased organizational commitment, performance (Bakker et al., 2004; Bakker & Demerouti, 2008; Hakanen et al., 2008) and decreased turnover intention (Schaufeli & Bakker, 2004). Different individual and work-related factors predict WE (cf. Christian et al., 2011), yet to date, individual social-motivational factors have been excluded from the literature. This study examines one such factor (compassionate goals) as a predictor of WE partially through social support at work.

The Job Demands-Resource Model (JD-R; Bakker & Demerouti, 2007; Demerouti et al., 2001) is a theoretical framework of factors that predict employee burnout and WE. In the model, high job demands (e.g., excessive work load) that require sustained effort among employees has been linked to maladaptive work-related outcomes (Demerouti et al., 2001). In contrast, job resources can reduce potentially deleterious effects of persistent job demands. While a lack of such resources interferes with the ability to cope with job demands, thus promoting withdrawal behavior, available job resources have motivational potential by fostering adaptive work-related outcomes (Demerouti et al., 2001).

Social support has been identified as a type of job resource and an antecedent of WE. For instance, social support from colleagues was linked to WE in a sample of four Dutch service organizations (Schaufeli & Bakker, 2004) and supervisor support (SS) was positively linked to WE among Finnish teachers (Hakanen et al., 2008). Research in the healthcare industry has demonstrated similar relationships, though the link between co-worker support (CS) and WE appears to be less consistent (Othman et al., 2013; Poulsen et al., 2016; Vera et al., 2016).

Research on the egosystem-ecosystem theory of social motivation posits that interpersonal goals influence social interactions (Crocker et al., 2009; Crocker & Canevello, 2012). For example, people with compassionate goals support and avoid harming others. They also function from the ecosystem, a motivational system that assumes everyone's well-being is interdependent (Crocker & Canevello, 2015). Namely, they trust that their needs will be met in conjunction with the group through kindness and mutual support. Previous work has shown that others can discern when people have compassionate goals and they increase their own responsiveness in return, thus functioning as a catalyst for a supportive interpersonal environment (Crocker et al., 2009). In work settings, employees with high compassionate goals may motivate others to be more supportive (i.e., CS and SS). Additionally, as these employees are expected to be concerned with the well-being of the larger group (i.e., the organization), they should be committed to promoting the organization's success, thus fostering their own WE.

We propose that compassionate goals at Time 1 positively relate to WE at Time 3 via CS and SS at Time 2 (see Figure 1). We hypothesized that CS would partially mediate the relationship between compassionate goals and WE (Model 1). We also hypothesized that SS would partially mediate the relationship between compassionate goals and WE (Model 2).

A total of 311 Amazon's Mechanical Turk (MTurk) participants (Nfemales = 160; Mage = 39; SDage = 9.66) completed a three-wave study on work and health. Participants completed a Qualtrics survey 30 days apart each time. Validated measures were used. We used Hayes' (2013) PROCESS Macro Model 4 for SPSS Statistics Version 25 with percentile bootstrap estimates to detect potential indirect effects in separate mediation models, controlling for another type of interpersonal goal not examined here. Prior, variables were z-scored and a significant indirect effect was demonstrated when the 95% CI excluded zero (Preacher & Hayes, 2008). Model 1 accounted for 28% of the variance in WE ($\beta = .45$, $p < .0001$, 95% CI [.34, .56]). Analyses produced a significant direct effect ($\beta = .31$, $p < .0001$, 95% CI [.20, .42]) and a significant indirect effect of compassionate goals on WE via CS ($\beta = .14$, 95% CI [.08, .21]). Model 2 accounted for 37% of the variance in WE ($\beta = .45$, $p < .0001$, 95% CI [.34, .56]). Analyses produced a significant direct effect ($\beta = .26$, $p < .0001$, 95% CI [.15, .36]) and a significant indirect effect of compassionate goals on WE via SS ($\beta = .19$, 95% CI [.13, .27]). Thus, both mediation models supported our hypotheses.

Our findings provide initial evidence for the importance of intra-individual goals, and how they partially influence WE through their effect on fostering support at work. Thus, we offer a valuable contribution as organizations seek to better understand factors that influence WE and promote a supportive work environment. Future research should investigate how compassionate goals can be increased among employees (e.g., through workshops) and whether they might affect other outcomes (e.g., commitment, OCBs).

B-5

Positive Well-being at Work: The Bright Side of Workaholism

Kristi Lavigne (Saint Louis University)

The emergence of the positive psychology movement (Seligman & Cskikzentmihalyi, 2000) challenged psychologists to rethink their preoccupation with negative subjective experiences and begin focusing on positive phenomena. It is now well-established that predictors can simultaneously lead to positive and negative well-being (Rodell & Judge, 2009). Nonetheless, preconceived notions of the "goodness" or "badness" of constructs still influence research decisions.

The current study explores the relevance of workaholism for positive work-related well-being given that the construct is typically examined alongside negative well-being due to its addiction-like properties. Some researchers have challenged this grim perspective, arguing for the co-existence of positive characteristics of workaholism (Ng et al., 2007), a debate preserved by the continued use of varied conceptualizations (Clark et al., 2014). We conceptualize workaholism as being driven by compulsion (Schaufeli et al., 2008). Despite negative connotations, compulsion may lead to positive outcomes via motivational

properties, similar to other individual differences entailing irrational cognitions (e.g., defensive pessimism; Norem & Cantor, 1986).

Three other constructs may play into the association workaholism has with work-related well-being outcomes. It is often assumed that workaholism leads to negative outcomes due to its compulsive nature, but we questioned whether controlling for variance stemming from outside sources might strengthen its relationship with other work-related well-being outcomes. Telepressure, the preoccupation and urge to respond quickly to ICT communications (Barber & Santuzzi, 2015), can be partly explained by external pressures (Grawitch et al., 2017). Time pressure and work overload are commonly portrayed as challenge and hindrance stressors, respectively (LePine et al., 2005). We predicted that workaholism would show modest associations with job satisfaction, work engagement, and flourishing, but that the addition of telepressure, time pressure dissatisfaction, and work overload would actually result in stronger positive associations between workaholism and other well-being measures.

Method. Participants and Procedure. U.S. employees at least 18 years of age were recruited from Amazon's Mechanical Turk to participate in an online study; 815 respondents were included in the final analyses (45.4% male; Mage = 34.59).

Measures. Personality. Big 5 personality traits were measured using the 20-Item IPIP (Donnellan et al., 2006). Responses ranged from 1 (very inaccurate) to 5 (very accurate). Personality was measured as a control variable given findings linking the traits to job satisfaction (Judge et al., 2002), employee engagement (Akhtar et al., 2015), and flourishing (Keyes et al., 2015).

Workaholism. Workaholism was measured using the 10-item Dutch Work Addiction Scale (Schaufeli et al., 2009) using a 5-point frequency scale (1= never or almost never; 5= always or almost always).

Work Overload. Work overload was measured with the 3-item Role Overload Scale (Seashore et al., 1982) using a 7-point scale (1 = strongly disagree; 7 = strongly agree).

Time Pressure. Dissatisfaction with time pressure was measured with a 3-item scale (Rose et al., 2013) with a 7-point response scale (1 = extremely dissatisfied; 7 = extremely satisfied), which was reversed scored for construct consistency purposes.

Telepressure. Workplace telepressure was measured using the 6-item Workplace Telepressure Measure (Barber & Santuzzi, 2015) with a 5-point response scale (1 = strongly disagree; 5 = strongly agree).

Job Satisfaction. Job satisfaction was measured with 3 items from the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale (MOAQ-JSS; Cammann et al., 1979) using a 7-point scale (1 = extremely dissatisfied; 7 = extremely satisfied).

Work Engagement. Work engagement was measured with the UWES-9 (Schaufeli & Bakker, 2006) using a 7-point frequency scale (1 = a few times a year; 6 = every day).

Psychological Flourishing. Flourishing was measured with the 8-item Flourishing Scale (FS; Diener et al., 2010) using a 7-point scale (1 = strongly disagree; 7 = strongly agree).

Results. Three separate hierarchical linear regressions were performed, one for each outcome (see Tables 1, 2, and 3); Block 1 included Big Five traits, Block 2 added workaholism, and Block 3 added telepressure, time pressure dissatisfaction, and work overload.

When controlling for Big Five traits, workaholism was positively related to job satisfaction, B = .09, p = .006. After external pressures were entered, workaholism actually accounted for more unique variance, B = .18, p < .001. When controlling for Big Five traits, workaholism was positively related to employee engagement, B = .26, p < .001. When adding external pressures into the model, workaholism again actually accounted for more unique variance, B = .32, p <.001. Lastly, workaholism was significantly positively related to flourishing when controlling for Big Five traits, B = .13, p <.001. When controlling for external pressures, workaholism explained a similar amount of unique variance, B = .15, p <.001.

Conclusion. Although workaholism has been conceptualized as an inherently harmful addiction to work (Loscalzo & Giannini, 2017), the positive relationships found among workaholism and our three positive well-being indicators indicate the polarization of workaholism as a "dark" trait does not comprehensively capture the nature of this characteristic.

B-6

A Combined Mindfulness and Emotional Intelligence Workplace Intervention: A Preliminary Report

Norian Caporale-Berkowitz (University of Texas at Austin)

A growing body of literature points to the benefits of workplace mindfulness training (Good & Lyddy, 2016; Jamieson & Tuckley, 2017), with many mindfulness programs adapted for the workplace (e.g., Mindfulness-Based Stress Reduction; Kabat-Zinn, 2013, Hülsheger et. al., 2013) demonstrating improvements in work-related outcomes (e.g., job performance, Shonin et al., 2014; communication quality, Beckman et al., 2012). Training in emotional intelligence (Salovey & Mayer, 1990) has also been associated with increased employee well-being and productivity (Zeidner et. al., 2004; Brackett et. al., 2011). Despite the demonstrated utility of these trainings, programs are often modified from their intended format due to time and scheduling constraints (eg. Hülsheger et. al., 2013), which may compromise effectiveness. The present study provides preliminary evidence for the effectiveness of an intensive, combined mindfulness and emotional intelligence training program, which could serve as a promising model for efficient and scalable dissemination of these workplace competencies.

Search Inside Yourself (SIY) is a 2-day, combined, skill-based mindfulness and emotional intelligence program, originally developed at Google and designed for corporate employees (Tan, 2012). The course consists of lectures, guided experiential exercises, micro-skills practice, and a 4-week, post-course practice period with daily emails and exercises. Topics include self-awareness, emotional regulation, communication skills, loving-kindness, and various forms of meditation. Although SIY has been taught to over 20,000 people in 100+ countries (SIY Leadership Institute, 2019), it has never been empirically studied. More broadly, there is a lack of research on the impact of intensive, short-duration combined mindfulness and emotional intelligence training programs on engineers and other highly-skilled employees. This pilot study addresses this gap in the literature by assessing the effectiveness of SIY.

Participants were employees of a large, multinational internet company located in three offices (Chicago, IL; Bellevue, WA; London, United Kingdom) who completed the SIY course. Participants were emailed online surveys assessing active listening, mindfulness, and emotional intelligence before and after the course, as well as after the 4-week practice period. All three surveys included the 13-item Active Listening Attitude Scale (Mishima, Kubota, & Nagata, 2000; α = .84), the 10-item Cognitive and Affective Mindfulness Scale (Feldman et al., 2007; α = .81), and the 16-item Workplace Emotional Intelligence

Profile (Jordan, Ashkanasy, Härtel, & Hooper, 2002; subscale αs = .77 - .86).

The final sample included 216 participants from the SIY training sites who completed the pre-course survey. Almost half of participants were White (49.5%), 29% were South Asian, 7.9% East Asian, 3.7% Hispanic, and 9.8% multiracial or another ethnicity. Approximately one-third of participants identified as female (35%) and 53.6% identified as male (11.4% did not report gender), and the average age of employees was 34.71 (SD = 7.47). Of these 216 employees, 107 at least partially completed the post-course survey (49.5%), and 73 at least partially completed the 4-week follow-up (33.8%), response rates comparable to previous employee survey research (Baruch & Holtom, 2008). Attrition (non-completion of at least one follow-up) was unrelated to site, manager status, race/ethnicity, gender, religion/spirituality, previous personal growth training, $\chi 2s = .40\text{-}8.29$, ps = .308-.868, age, $t(212.84) = 1.07$, $p = .284$, and outcome variables, ts = -.723 - .995, ps = .321 - .730.

To test change in outcome variables from pre-course to 4-week follow-up, six unconditional linear latent growth curve models (LGCMs) were specified using the lavaan package for R (Rosseel, 2012), accounting for unequal time intervals between surveys and using full-information maximum likelihood estimation to handle missing data (Enders & Bandalos, 2001). LGCMs estimate intra-individual growth trajectories of outcome variables and compute sample means and variances describing initial levels (intercept) and change over time (slope) in these outcomes. Growth parameter estimates and model fit statistics for the six LGCMs are shown in Table 1. Parameter estimates indicate significant ($p < .05$) increases in active listening, mindfulness, awareness of own emotions, awareness of others' emotions, and management of others' emotions from pre-course to the 4-week follow-up. These results suggest that completing the SIY program is associated with significant increases in these mindfulness and emotional intelligence competencies.

This pilot study provides preliminary evidence for the positive impact of SIY, a combined mindfulness and emotional intelligence workplace training program, on self-reported active listening, mindfulness, and emotional awareness. Although increases in these outcome variables are modest in magnitude, findings warrant further examination of the SIY program with larger samples. Specifically, future work should attempt to address the high attrition rates in this study by sending reminders to non-completers or offering small incentives for follow-up surveys (Edwards et al., 2002). Furthermore, the impact of SIY should be evaluated in light of its efficiency. Given the impracticality of widespread dissemination of more demanding, time-intensive mindfulness and emotional intelligence programs, SIY and similar short-duration, combined programs may serve as a promising intervention for practically teaching and spreading these beneficial workplace skills.

B-7

Effects of Mindfulness-Based Interventions on Self-Compassion in Health Care Professionals: A Meta-Analysis

Rachel Wasson (Bowling Green State University)

Background/Problem: Health care professionals have emotionally demanding careers and high rates of stress, burnout, and compassion fatigue (Aiken et al. 2002; Shanafelt et al. 2012). Many struggle with fluctuating and long work hours, insurance difficulties, changing workplace roles, and low staffing (Regehr et al. 2014; Rutledge et al. 2009; Stucky et al. 2009; Lee et al. 2009). Nonetheless, they are expected to perform their job tasks efficiently, accurately, and ethically.

Stress, burnout, and compassion fatigue can adversely affect their mental health, quality of life, and job performance (Spickard et al. 2002; Galentino et al. 2005; McVicar 2003). Thus, health care professionals experiencing high levels of stress may deliver sub-optimal patient care and are more likely to make medical errors (Leiter et al. 1998; Williams et al. 2007; Shanafelt et al. 2002; Vahey et al. 2004).

One promising area of research is focused on fostering self-compassion. Preliminary research supports the relationship of higher self-compassion and overall positive variables of well-being in health care professionals (Beaumont et al. 2016). Researchers have evaluated the effects of mindfulness training on increasing self-compassion among health care professionals. However, the current inconsistencies in intervention methods and discrepancies in corresponding results throughout the literature make it difficult to interpret the efficacy of these programs (e.g., Shapiro et al. 2005; Brooker et al. 2013).

The specific aims of this project were to: 1) provide a systematic methodological review of the literature on treatment outcome studies evaluating the extent to which mindfulness-based interventions produce change in self-compassion in health care professionals, 2) calculate the effect sizes associated with mindfulness-based interventions targeting self-compassion among health care professionals, and (3) explore potential moderators of mindfulness-based intervention effect sizes.

Procedures. Articles were screened to meet inclusion criteria: a) a mindfulness-based intervention was provided; b) the sample included health care professionals [e.g., medical students, medical and psychological trainees, physicians, nurses, psychologists, midwives], c) a treatment comparison design was used to evaluate outcomes; d) self-compassion was used as an outcome variable; e) the article was published in an academic journal or dissertation [if full text was available]; and f) the article was written in the English language. Randomized and non-randomized trials were included.

Articles were evaluated by two independent raters in stages. Once an agreement rate of 95% was established for full-text review, the remainder of the studies were reviewed independently by each coder.

Analyses. A pre-post treatment effect size and pre-treatment to follow-up effect size were calculated for the treatment and control groups. The difference in pre-post effect sizes for the treatment and control groups were evaluated using a z test using d-values that were converted to standardized correlations (Schmidt and Schmidt 2015). Additionally, the standardized mean difference was calculated for post-treatment versus post-control comparisons. A random-effects model was utilized. Forest plots were generated to illustrate the results. Funnel plots, Kendall's Tau, and Rosenthal's fail-safe number were calculated to assess publication bias.

Results. A total of 30 articles ($k = 34$) were included. Eighteen samples (55%) included health care professionals and fifteen (45%) included professional health care students. Twenty samples (61%) included medical professionals and eleven (33%) included professionals in a psychological or social field. Twelve (36%) samples investigated manualized treatment protocols, while 21 samples (64%) utilized an adapted intervention.

Results showed a moderate effect size between pre-post treatment comparisons ($\delta = .62$, $SD\delta = .25$, 95% CI = .54 to .72) for self-compassion and a strong effect size for pre-treatment to follow-up ($\delta = .78$, $SD\delta = .40$, 95% CI = .61 to .97). The effect size comparing post-treatment versus post-control was moderate. No significant effects were

found for control groups. Exploratory moderator analyses produced no significant differences.

Practical implications. The consistency among effect sizes and lack of moderator effects suggests that medical settings and training facilities can have flexibility in the format and implementation of these kind of programs and interventions for their employees and trainees.

Results suggest that the effects of a mindfulness-based intervention are not only maintained but continue to strengthen over time. This should encourage researchers to collect more long-term outcome data when possible. Most samples included in the pre-treatment to follow-up analysis distributed information and resources to participants to continue their practice, and a few included 'booster' sessions. If institutions invest in a mindfulness-based intervention for their employees or students, it would likely benefit them to include resources and 'booster' sessions to maintain or further develop the benefits gained from the initial intervention.

Conclusions. Findings suggest that mindfulness-based interventions improve self-compassion in health care professionals. Future studies evaluating the impact of increased self-compassion via mindfulness-based interventions on objective indictors of self-care, quality of patient care, and job performance would be beneficial. Additionally, self-compassion as a protective factor for stress, burnout, and compassion fatigue in this population should be investigated.

Diversity and Inclusion in a Changing Workforce

C-1

Gender Differences in Nursing Job Demands and Resources

Katherine Barlow (Bowling Green State University)

Occupational stress is a contributing factor to organizational inefficiency, high staff turnover, absenteeism, increased healthcare costs, and decreased job satisfaction (Wheeler & Riding, 1994). Although extended exposure to stress is universally harmful, nurses are especially susceptible to stress and burnout due to the unique caregiving requirements of their jobs. Nurses balance the health and safety of multiple patients each day at work, relying on their own abilities, support from coworkers, and organizational support to consistently perform well in high-risk environments. Vast amounts of research have been devoted to identifying predictors of nursing stress and burnout, leading to individual- and organizational-level interventions. However, before such knowledge and interventions can be appropriately utilized, it is imperative that researchers and practitioners understand whether these findings are generalizable to all nurses.

To date, little research in psychology has examined gender differences in nursing, and there is reason to believe that male nurses experience different job demands and resources than their female counterparts (e.g., Keogh & O'Lynn, 2007; Ott, 1989). By exploring this topic, we open the door for discussion of inequitable treatment and differing expectations, resulting in the development of more effective, targeted interventions to reduce the negative physical and psychological outcomes of nurses' occupational stress.

The current project aims to examine gender differences in nursing demands, resources, and outcomes using the job demands and resources model of burnout (Demerouti et al., 2001). First, this research aims to identify whether male and female nurses experience different frequency and intensity of job demands including physical workload, time pressure, incivility, and caregiver burden. Additional exploration aims to show whether male and female nurses are provided different levels and types of job resources such as supervisor support, autonomy, and social support. The combined effects of these job demands and resources will be examined with regard to burnout, turnover, injury, and health outcomes for male and female nurses. Ultimately, this research should lead to a better understanding of not only the different factors affecting men and women in nursing but also how the combined effects of job demands and resources may culminate differently for minority versus majority members in a high-risk occupation.

Recent estimates state that close to 10% of nurses are male, a significant increase from 2.7% in 1970 (U.S. Census Bureau, 2013). While the proportion continues to grow, the current lack of male nurses has contributed to the scarcity of research on men in nursing through sampling challenges. To address this, our research will take a two-pronged sampling approach. Recruitment emails will be sent to male and female nurses through the Ohio Board of Nursing as well as to members of the American Association of Men in Nursing, and organization with a membership of primarily male nurses. The planned sample is 150 men and 150 women, and participants will be compensated for their time with funding from a Pilot Research Project grant through the University of Cincinnati and NIOSH. Participants will be asked to complete one survey assessing job demands, resources, and outcomes. Gender and other demographics will be asked last and planned comparison of the two groups will be hidden from participants to prevent identity threat or other bias. Data will be collected and analyzed prior to this conference.

Implications for this project are clear; conclusions on how men and women's experiences differ in nursing can indicate areas for targeted intervention, resource allocation, recruitment efforts, and more. Additionally, this research can further develop understanding of tokenism, particularly for groups which typically act as the majority. Using the conclusions of this research, the experiences of nurses can be made more positive and health outcomes improved regardless of gender.

C-2

The Effects of Diversity Climate on Cohesion and Engagement

Nikola Fedorowicz (University of Houston)

The workplace diversity literature has revealed the importance of implementing diversity-related initiatives and maintaining a diverse organizational climate (McKay & Avery, 2005). High diversity climate—the extent to which an organization values and promotes diversity and inclusion (Kossek & Zonia, 1993)—has been shown to predict positive individual and organizational-level outcomes (e.g., Madera, Dawson, & Neal, 2013). However, its effects on workgroup cohesion and engagement remain a research opportunity. With the present study, we propose a psychological process in which diversity climate predicts engagement directly and indirectly through workgroup cohesion.

The present study focuses on employee engagement, or the "positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption," as an indicator of well-being (Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002, p. 74). Applying a social exchange framework (SET; Blau, 1964), we suggest that high diversity climate signals fairness and inclusion, which in turn, leads employees to reciprocate by remaining engaged in their work. Thus,

we predict a positive relationship between diversity climate and engagement.

We also propose an indirect effect of diversity climate on engagement through workgroup cohesion. Drawing on social exchange theory (Blau, 1964), we argue that in the presence of high diversity climate, employees perceive support from the organization, which encourages them to reciprocate by placing trust in others and working cohesively. In turn, consistent with social identity theory (Tajfel, 1982), cohesion may lead to strong feelings of belonging and encourage high engagement.

Lastly, demands may moderate these relationships. Demands consist of job characteristics that require physical or psychological costs (Schaufeli & Bakker, 2004). Conservation of resources theory (COR, Hobfoll, 1989) states that individuals seek to protect and maintain their resources, especially when they perceive resource threat. Demands may threaten resources, encouraging employees to withdraw from the workplace by reducing their engagement and effort in maintaining group cohesion. Thus, we propose that the direct and indirect relationships between diversity climate and engagement are stronger when demands are high. This is because diversity climate would play a larger role as a resource when demands are high (Figures 1 and 2).

Our sample consisted of 681 employees working for a U.S. bank. All scales were self- developed for this study. Measures included a 5-item diversity climate scale (e.g., The organization supports diversity initiatives in day to day operations), a 4-item cohesion scale (e.g., We work well together to accomplish our objectives), a 4-item engagement scale (e.g., The work is interesting and challenging), and an 8-item demands scale (e.g., I experience too much job pressure).

Diversity climate was positively related to cohesion ($r = .54$, $p < .01$) and engagement ($r = .40$, $p < .01$). Cohesion was positively related to engagement ($r = .35$, $p < .01$). Using Hayes' (2013) PROCESS macro, and employing model 4, we found a significant direct effect of diversity climate on engagement, after controlling for cohesion ($B = .36$, $t = 8.35$, $p < .01$; Table 2). The 95% confidence interval also indicated an indirect effect of diversity climate on engagement through cohesion 95% CI [.04, .15], suggesting partial mediation.

We employed model 59 of the PROCESS macro to test for moderated-mediation effects (Table 3). There was a significant interaction between diversity climate and demands in predicting cohesion at path a ($b = -.16$, $SE = .05$, $p < .01$; Figure 4). As anticipated, the relationship between diversity climate and cohesion was stronger at high demands. There was also a significant interaction between cohesion and demands in predicting engagement at path b ($b = .08$, $SE = .04$, $p < .05$; Figure 5). As predicted, the positive relationship between cohesion and engagement was stronger at high demands. However, the interaction at path c` was not significant ($b = -.05$, $SE = .05$, ns). Our results suggest moderated-mediation as path a and b were both moderated by demands. Specifically, the indirect relationship between diversity climate and engagement was strongest at high levels of demand.

Our results indicate that diversity climate increases employee engagement levels directly and indirectly through workgroup cohesion. Additionally, our results suggest that demands play an important role in these relationships. The indirect relationship between diversity climate and engagement was strongest at high levels of demands. These results suggest that when employees have limited resources due to high demands, diversity climate is a resource that can significantly increase their cohesion and engagement levels. However, when demands are low, employees have sufficient resources to maintain high levels of cohesion and engagement, thus, diversity climate has a weaker effect on these outcomes. These results emphasize the need for organizations to implement policies that increase diversity climate, especially when group cohesion or engagement levels are low. Moreover, these results should encourage leaders to be cognizant of their employees' demand levels as these may influence workgroup cohesion.

C-3

Workplace well-being of Chinese immigrant workers in Lisbon

Silvia Silva (ISCTE-IUL)

International migration has increased over the decades, and become a significant stream of the global workforce. Considering the work conditions difference, cultural diversity and other factors, foreign workers will have work-related stress in host countries. The well-being of foreign workforce working in a foreign workplace environment should be studied. According to the Portuguese immigration report from Serviço de Estrangeiros e Fronteiras, Chinese population have become the fifth main foreign population in Portugal, and the main city they settle is Lisbon. More and more Chinese workforce is working in Lisbon, not only employed but also self-employed.

Until the present moment, only some studies were conducted aiming to understand Chinese immigrants work and well-being experience. Almost all the studies have been with surveys with only some exceptions (e.g., Bertotti, Dan-Ogosi, , & Rao, 2017). A deeper look to the samples studied reveal that there is not much knowledge about lower educated Chinese workers.

The main goal of this poster is to present a qualitative study aiming to investigate the factors relevant for the well-being of Chinese workers with different education levels, with a special focus on identifying stressors, strains and their coping strategies.

Twenty-six Chinese descendants leaving in Portugal, in Lisbon, were individually interviewed. Fourteen worked in a Chinese workplace environment (interviewees group 1) in Chinese restaurants and Chinese stores, twelve worked in an international environment mainly in companies (interviewees group 2). Fifteen of the participants were female and eleven male. The education level was much lower for the workers in the Chinese work environment. In fact, as far as the authors know this is the first study about well-being at work that included Low Educated Chinese immigrants. The semi-structured interview covered the background of the person, description of their work experience in Portugal, work histories and the current experience and well-being and stress at work. The focus of the interview was on the identification of stressors, strains and coping strategies. All the interviews were conducted in Chinese and afterwards translated to English and had a duration between 40 minutes and 90 minutes. Thematic analysis approach from Braun and Clarke (2006) was used to analyse the data.

The data analysis is currently being done but the preliminary findings already reveal similarities and differences of well-being work experiences and stressors for the two group of interviewees. For instance, the majority of the participants emphasized the challenge of Adaptation to the new country; language was one of the main issues raised. Work-family conflict had a negative impact and was felt as a problem especially relevant for the female participants in group one, due to long working hours. Interpersonal relations; and social support was considered as a critical factor for the well-being. All the findings will be included in the Poster.

This study was some limitations, for instance, all the participants were working in Lisbon that is the larger city in Portugal, and Chinese workers in smaller cities may have different experiences.

Nevertheless, we consider that with this research gives an important contribute, useful to understand the non-yet studied reality of Chinese migrant workers in the context of a large city. Some recommendations will be presented aiming to contribute also for the improvement of well-being at work for these workers.

C-4

Health and employment among working-age cancer survivors

Christine Ekenga (Washington University in St. Louis)

Background. Breast cancer is the most commonly diagnosed form of cancer (excluding skin cancer) in American women [1]. In the United States, white women have historically had higher overall breast cancer incidence rates than African-American women; however, in 2012, the incidence gap between white and African-American women closed [2]. With advances in detection and treatment, the population of breast cancer survivors is expected to increase by 25% to almost 4 million by the year 2024, and approximately nine out of every ten breast cancer patients are expected to live at least five years after diagnosis [3, 4]. Nevertheless, in contrast to recent incidence rates, racial disparities in breast cancer survival persist, with five-year survival rates of 81% for African-American women and 92% for white women, and long-term mortality rates that are 42% higher in African-American women than white women [1].

Survivorship has become the expectation, not the exception, for women who have been diagnosed with breast cancer. In the United States, breast cancer survivors are more likely to be unemployed than the rest of the population [5], and among working age (<65 years) women, breast cancer has been associated with poorer employment outcomes in African-American women than in white women [6, 7]. In our prior studies of employment outcomes among breast cancer patients, we found that African American race and non-private insurance status were associated with diminished employment participation after early-stage breast cancer [8]. However, few longitudinal studies have examined determinants of employment outcomes among African-American women with breast cancer.

Methods. We examined factors associated with return to work over 2-year follow-up in a sample of African-American breast cancer patients participating in a randomized controlled trial of a cancer-information intervention's impact (vs. standard of care) on quality-of-life and treatment adherence outcomes. Interview and medical-record data from 227 newly diagnosed African-American breast cancer patients (stage 0-III), who enrolled a mean 6 days from surgical post-op visit or start of neoadjuvant therapy, were analyzed in association with return to work; four more interviews were conducted over two years. Potential predictors included sociodemographic variables (age, marital status, income, education, insurance status), treatment(s) received (surgery type, chemotherapy, radiation), comorbidity, and elevated depressed mood (Center for Epidemiologic Studies Depression Scale [CES-D] score > 15). Multivariable logistic regression models were used to identify factors independently associated with return to work.

Results. At enrollment, 100 patients (44%) were employed part- or full-time; 71 of employed patients returned to work during 2-year follow-up. Study arm and other treatment and sociodemographic variables were not significantly associated with return to work and was not included in the final model. Patients with elevated depressed mood at baseline were less likely to return to work than non-depressed patients.

Conclusions. Patients with elevated depressed mood were less likely to return to work over 2-year follow-up. Screening for depressed mood at diagnosis and providing treatment might be an effective strategy to improve continued workforce participation in African American breast cancer patients. Understanding how psychosocial health influences returning-to-work outcomes in breast cancer patients could be particularly powerful for developing new strategies to reduce racial disparities in the quality of breast cancer survivorship. It is our expectation that we will integrate findings from this study to establish criteria for identifying and engaging breast cancer patients who are at high risk for leaving to workforce and, based on such findings, develop an empirically-grounded strategy for improving return-to-work in breast cancer patients.

C-5

Workplace Incivility among Racial Minority Workers

Yisheng Peng (George Washington University)

The problem: Workplace incivility, as a deviant behavior characterized by low-intensity and ambiguous intent to harm (Andersson & Pearson, 1999), is prevalent in today's organizations and thus has garnered significant amount attention from researchers and practitioners (e.g. Cortina, Magley, Williams, & Langhout, 2001; Pearson, Andersson, & Porath, 2005). Previous research has consistently found that workplace incivility can negatively impact a variety of employee work and well-being outcomes (e.g., Cortina, Magley, Williams, & Langhout, 2001; Penney & Spector, 2005). Furthermore, because workplace incivility also indicates violation of workplace norms for mutual respect, it could be a covert way through which discrimination is expressed at work (Cortina, 2008). However, few studies have examined workplace incivility in relation to employee race. This is an unfortunate oversight given that nowadays workforce gradually becomes more ethnically and racially diverse (Cascio, 2003; Barak, 2000)

Drawing on the modern racism literature (Bowman, 1991; Clark, Anderson, Clark, & Williams, 1999; Cortina, 2008; Major, Quinton, & Schmader, 2003), this study examined whether racial category one longs to contributes to the frequency of experienced workplace incivility. Furthermore, race may also influence how an employee interprets and responds to workplace incivility (Kern & Grandey, 2009). As such, based on the negative adaptation hypothesis (Thau, Aquino, & Bommer, 2008), the present study also examined whether race would moderate the relationship between workplace incivility and workplace deviance such racial minority employees are less reactive to workplace incivility (i.e., less workplace deviance). Finally, racial identity, defined as the importance and qualitative meaning that individuals place on race in defining themselves, and the individual's interpretation of what it means to be a member of their racial group, is a concept that is meaningful for racial minority employees (Sellers, Smith, Shelton, Rowley, & Chavous, 1998). Based upon previous literature, this study further examined whether racial identity weakens the effects of workplace incivility on physical symptoms and workplace deviance.

Procedures. One hundred and ninety-six (104 white participants and 92 minority participants) Mturk workers who recently experienced workplace incivility in the past 3 months were recruited. At time 1, using the Stress Incident Record (SIR) technique (Keenan & Newton, 1985), they were asked 4 questions that instructed them to describe the instance, explain why, what they did, and how they felt when experiencing the uncivil incident. Content analysis was conducted to examine

potential differences between whites and minorities. They were also asked to complete the scale on racial identity (Sellers et al., 1998). At time 2 (two weeks later), they completed the 7-item Workplace Incivility Scale by Cortina et al. (2001), the 19-item workplace deviance scale (Bennett & Robinson, 2000), and the 12-item Physical Symptoms Inventory (Spector & Jex, 1998).

Analyses. For the qualitative examination, we used Bonferroni-adjusted Chi-square analyses to examine potential racial differences. For the quantitative examination, hierarchical moderated regression analysis and simple slope analyses (Cohen, Cohen, West, & Aiken, 2003) were conducted to test if race moderates the effect of workplace incivility on workplace deviance. We also examined if racial identity moderates the effect of workplace incivility on workplace deviance among minority employees.

Results. Our preliminary findings of qualitative examination suggest no significant racial differences in the sources and forms of (i.e., verbal, non-verbal, or both) and responses (i.e., action, no action) to uncivil incidents. Most uncivil incidents were not explicitly related to ethnicity/race (More detailed results will be reported in the presentation).

Results of quantitative examination also suggest no significant racial differences in the frequency of experienced workplace incivility. However, moderation analyses found that highly identified minorities experienced less frequent physical symptoms and displayed less frequent interpersonal deviance when facing workplace incivility. Interestingly, post-hoc analyses found that highly-identified whites displayed more frequent interpersonal deviance when facing workplace incivility.

Research implications. Our findings have research and practical implications. First, our results do not imply that minority employees experience more frequent incivility at work or that minority employees are less capable of dealing with incivility at work. This finding may show that our decades of effort toward diversity and social equality is paid off with positive outcomes. Second, our results supported that workplace incivility has a significant, negative impact on employees. In combination with evidence showing that incivility remains a prevalent and costly organizational issue, our study reiterates that organizations shall require a sustained commitment to the reduction and prevention of incivility at work. Moreover, our study findings provide insights into interventions to help employees, especially minorities, deal with incivility at work. Organizations should respect minority employees' ethnic background and provide a work environment that facilitates minority employees' racial identity.

Conclusions. We did not find significant racial differences in experiences of workplace incivility. However, in addition to confirming the negative effects of workplace incivility on employee well-being and work outcomes, this study revealed the significant role of racial identity in helping minority employees cope with workplace incivility.

C-6

How old you feel matters: An examination of subjective age between job crafting and employee well-being

Yisheng Peng (George Washington University)

The problem: The worldwide aging population (World Health Organization, 2015) has led to increased interests in studying the role of age in the work context and to find ways to support older employees (e.g., Hertel & Zacher, 2015). Job crafting, which involves "the physical and cognitive changes individuals make in the task or relational boundaries of their work" (Wrzesniewski & Dutton, 2001, p. 179), has been recognized as important and helpful in the aging context (Kooij, Tims, & Kanfer, 2015; Wong & Tetrick, 2017). However, limited research has explicitly examined age differences in the effects of job crafting on employee work and well-being. What's more, prior research has typically focused on chronological age, neglecting the influence of employee subjective age (i.e., the age one feels, looks, acts, and the age that generally reflects their interests). Based on the selection, optimization, and compensation (SOC) theory (Baltes & Baltes, 1990), we propose that older employees (i.e., those with a relatively older chronological age/subjective age) would benefit more from job crafting. Specifically, we hypothesized that employee age (both chronological age and subjective age) would moderate the effects of job crafting strategies (i.e., task, cognitive, and relational job crafting) on perceived work meaningfulness, which in turn, relates to employee well-being outcomes (i.e., thriving at work and career satisfaction).

Procedures. A three-wave study design (over a 9-month period) was used. The job crafting questionnaire (Slemp & Vella-Brodrick, 2014) was used to measure the extent to which employees engage in job crafting at Time1. The work and meaning inventory (Steger, Dik, & Duffy, 2012) was used to measure work meaningfulness at Time 2. A 4-item measure (Montepare, Rierdan, Koff, & Stubbs, 1989) was used to measure subjective age at Time 2. Thriving at work was measured using the scale developed by Porath, Spreitzer, Gibson, and Garnett (2012) at Time 3. And career satisfaction was measured with a 5-item scale used by Greenhaus, Parasuraman, and Wormley (1990).

The final sample consisted of 278 employees, with an average age of 33.94 (SD = 9.67), and with the majority of them being married (75.00%). There were 114 males and 164 females. Most of them were married (59 %), were employees without supervisory responsibilities (68%), were employed by non-state-owned companies (83%), and have a 4-year and above degree (61%). The average tenure in their current positions was 7 years (SD = 8.36).

Analyses. To test the hypothesized model, we used model 4 and model 7 of the PORCESS analysis examples developed by Hayes (2013). We also ran the Preacher–Hayes bootstrapping script (N = 5,000) to acquire the 95% confidence interval for the indirect and conditional indirect effects of job crafting on employee well-being outcomes through work meaningfulness.

Results. Results found that employee chronological age significantly interacted with task job crafting (but not the other two types of job crafting) in predicting perceived work meaningfulness in an unexpected direction. However, employee subjective age significantly moderated the effects of all three job crafting strategies (i.e., task, cognitive, and relational job crafting) on perceived work meaningfulness such that the positive relationships of the three job crafting strategies on perceived work meaningfulness were stronger for those who perceived them to be older rather than younger. Furthermore, the indirect effects of the three job crafting strategies on thriving at work and career satisfaction were stronger for employees who perceived them to be older (vs. perceived to be younger).

Practical implications. Our findings have practical implications. First, the positive effects of job crafting suggest that organizations should promote bottom-up, employee-driven job crafting behaviors as a helpful strategy to cultivate the sense of work meaningfulness and consequently employee well-being. Second, considering the mediating role of work meaningfulness, more effective interventions/actions can be developed to improve work meaningfulness by targeting at other influential antecedents of work meaningfulness besides job crafting

strategies examined in the current study. Finally, more attention should be paid to employees' perceived subjective age. Managers should be aware that job crafting could particularly benefit employees with relatively older subjective age. Future interventions may consider targeting employees' subjective age when designing and delivering interventions.

Conclusions. The present research not only supported the beneficial effects of job crafting on employee well-being outcomes, but also revealed the significant role of employee subjective age as a moderator of the effects of job crafting. This is one of the first studies to empirically support the proposition that job crafting could play a critical role in the aging context.

C-7

Which psychosocial factors and psychological health aspects can contribute to the job retention of healthy older workers? A qualitative study in the education sector

Ai-Thuy Huynh (IRSST)

Problem. Most industrialized countries have been experiencing major demographic changes (e.g., the extension of average life expectancy) that pose socio-economic problems, such as the replacement of the aging workforce. The education sector in Quebec is not immune to this phenomenon. Therefore, there is a need to know which psychosocial factors and psychological health aspects contribute to the job retention of healthy older workers. Specifically, this study aims to know which psychosocial factors and psychological health aspects contribute to the decision of a group of older workers aged 45 and over to keep on working and to retire with a full pension, rather than to retire earlier with financial penalties.

Procedures. This qualitative study is part of a broad survey on job retention of older workers aged 45 or over conducted in a Canadian public-school organization (CPSO). Three hundred CPSO workers who have been employed there since 2004 and aged 45 and over in 2016, have been randomly selected and invited to participate. The final sample was composed of 28 participants. Most were female (n=17; 61%) and occupied four functions [teachers (25%), clerical personnel (25%), professionals (25%), and administrators (25%)]. The mean age was 54.4 (SD=5.2), and the mean organizational tenure was 24.2 years (SD=7.3). Most worked full time (n=26; 93%). Participants answered to an interview grid composed of four sections: a) socio-demographic/employment characteristics; b) intentions and plans for retirement; c) work environment; d) factors influencing the decision to keep on working at the CPSO or to retire with financial penalties. The questions were developed and/or adapted from previous research on retirement plans and older workers' career paths.

Analyses. Data coding and analysis were performed using NVivo software. Verbatim analysis was performed using the content analysis model following the steps proposed by Wanlin (2007). A sample of eight interviews was selected to create, compare and discuss the codes until the obtention of the consensus between two research professionals and the principal investigator. All the interviews were analyzed following the list of codes.

Results. The group of the older workers who decides to keep on working at the CPSO and to retire with a full pension, mentioned the following pull factors: the non-discriminatory organizational culture with respect to age, work content (e.g., autonomy, flexible working hours), and the social support from supervisor and colleagues, and the positive aspects of their psychological health (e.g., job satisfaction, motivation, accomplishment). The worker's health status and his/her negative attitudes towards retirement (e.g., fear about retirement life, absence of post-retirement projects), the financial situation (e.g., social advantages), as well as the extra-working context (e.g., family responsibilities, spouse's health status) also contributed to the older workers' decision to keep on working until the full pension.

The decision of the group of interviewed participants to retire early with financial penalties was driven by factors, such as the work environment changes (e.g., budget cuts, bureaucratic and rigid procedures), difficulties with violent students, over workload, as well as the lack of recognition and appreciation for the work done. The negative aspects of psychological health that pushed participants to retire early were, for example, the following ones: emotional exhaustion, psychological distress, anxiety, fatigue, feelings of frustration, weariness, and irritation. Other aspects of the extra-working context contributed to participants' choice to leave CPSO early. For instance, having a spouse with a good income, not having tuition fees to pay for their children and having retirement plans (e.g., travel) were mentioned by this group of participants.

Practical implications. The results of this study provided to the CPSO a better understanding of the favorable working conditions to improve in order to prevent early retirement, and to promote the job retention of healthy older workers.

Conclusions. This study was designed to address a need of the education sector in Quebec, which seeks to retain older workers. It was possible to focus on the psychosocial factors and aspects of psychological health that influence the decision of a group of older workers to stay or to leave the CPSO. Our results showed that job retention is a complex process in which several working and extra-working factors, actors and systems are involved. This is an example of a qualitative research in the field of Occupational Health Psychology that can be replicated in other sectors and other industrialized countries.

C-8

Improving Disability Employment by Alleviating Employer Concerns through a Brief Intervention Approach

Laura Heron (Florida International University)

Employment is a crucial part of adult life and is associated with improved health outcomes (Cocks, Thoresen, & Lee, 2015) and life satisfaction (Lucas et al., 2004). Despite this, in 2016, only 17.9% of individuals with disabilities were employed, compared to over 65% of individuals without disabilities (BLS., 2017). Further, organizations without inclusive strategies, may not match employees with disabilities suitably to a job, which could lead to turnover. Therefore, a significant improvement is required in both the hiring and retention of adults with disabilities, including individuals with intellectual and developmental disabilities (IDD). While research indicates growing efforts to prepare individuals with disabilities for gainful employment (Burke et al., 2017), initiatives are still necessary to bridge the employment gap in order to create a sustainable diverse and inclusive workforce.

Previous research has identified several benefits to hiring individuals with disabilities, including consistent attendance, increased workforce diversity, and long-term employment (Morgan & Alexander, 2005). If organizations are made more aware of these advantages, they may be more inclusive of individuals with disabilities, as successful employment opportunities for individuals with IDD typically depends on employer attitudes (Burge, Ouellette-Kuntz, & Lysaght, 2007).

Companies are often hesitant to facilitate disability employment practices out of concern for increased organizational costs (Ellenkamp et al., 2016), a lack of awareness or tolerance, or the belief that employees with disabilities lack the skills needed to perform the job (Hendricks, 2010).

Efforts have been made by the U.S. Department of Labor's Office of Disability Employment Policy to support employers who hire individuals with disabilities. Initiatives such as the Employer Assistance and Resource Network on Disability Inclusion, Workforce Recruitment Program for College Students with Disabilities, and Job Accommodation Network, have been designed with the intention to enhance employment opportunities (U.S. Department of Labor, 2018). However, despite the introduction of these programs, statistics from a 2008 survey indicated that only 19.1% of companies hired individuals with disabilities (Domzal et al., 2008). Employer trainings demonstrating benefits and clarifying misconceptions have been suggested as promising ways to address employer concerns (Lindstrom, Kahn, & Lindsey, 2013).

In an effort to address this employment gap, this study evaluated the effectiveness of an employment conference intervention. Specifically, it was hypothesized that attendance at the one-day conference by potential employers would improve participant knowledge, perceptions and likelihood to employ individuals with disabilities.

Methods, Results, and Implications. An employment conference was organized by [University Initiative] in March 2018, in which multiple panel discussions including members of the community with disabilities who have successfully gained employment, as well as speakers from organizations such as Ekkobar, Walgreens, and Baptist Health, shared their experiences and organizational strategies aimed at increasing the number of employees with IDD. Prior to the conference, 64 participants were asked to complete a questionnaire with questions derived from the Survey of Employer Perspectives on the Employment of People with Disabilities (Domzal et al., 2008). After the conference, 38 participants completed the same questionnaire, in order to determine if there was a shift in knowledge and perceptions. Chi-square and Fisher's exact tests were conducted to examine whether there was a statistically significant difference between the pre- and post-tests. Finally, an ordinal logistic regression was conducted to examine response differences between various demographics.

Results from the present study demonstrated improvements in several areas. After the conference, more participants reported that not knowing how much accommodations will cost was less of a concern. This indicates that providing employers with more knowledge regarding successful hiring initiatives could potentially alleviate these concerns, ultimately helping to increase employment rates. After the conference, participants also reported that knowing about employer tax credits and incentives was less helpful as a hiring strategy. This finding demonstrates how information from companies currently hiring individuals with disabilities can be valuable in the formation of ideas and opinions relating to effective strategies for hiring disabled employees. Overall, the findings related to hiring practices are promising, as they highlight that similar interventions can help to reduce perceived concerns related to hiring individuals with disabilities.

Findings regarding retention indicated that most participants reported that common retention factors (i.e., concern about worker compensation, healthcare coverage, attitudes or customers, coworkers, and supervisors), were either not a challenge, or somewhat of a challenge, compared to reporting that they were major challenges. Results from the logistic regression analyses also indicated that responses to some questions differed by education level and ethnicity. Such information could be used to create more targeted interventions, in order to increase the potential for increased awareness and knowledge of disabilities in the workplace.

Overall, the findings support Wehman et al.'s (2018) suggestion that through the collaboration between employers and support service providers, there is the potential to significantly improve attitudes towards the employment of individuals with disabilities, which could ultimately help to improve the health and well-being of people with IDD.

C-9

Experiences of Caribbean Women in Senior Level Leadership Positions

Toshi Francis (Capella University/Center for Diverse Wellness)

Leadership inequity and gender inequality continue to be a concern in society. While women move forward to achieve greater gender equality, a particular group of women, African Americans and Caribbean's, continue to experience significant challenges in the areas of leadership and gender equality in an organizational setting. The purpose of the study is to examine the lived experiences of Caribbean women in senior-level leadership positions. Husserl's transcendental phenomenology approach was used to gain an understanding of each woman's individual experience as a Caribbean woman in her leadership position. The participants in the study were 10 Caribbean women in senior level leadership positions. To analyze the data, a line-by-line approach was implemented to determine themes within the collected data. The results showed some Caribbean women faced challenges in their attempts to climb the leadership ladder. Those who faced challenges blamed the challenges they faced on the lack of support from family members, management, and their inability to find mentoring and networking services. They became frustrated with these challenges.

Work-Life-Family

D-1

Using Participatory Action Research to Improve Work-Health Conflict Among Breast Cancer Survivors

Alicia Dugan (UConn Health)

In 2016, there were 15.5 million cancer survivors residing in the United States, and this number is expected to rise to 20.3 million by 2026 (Bluethmann, Mariotto & Rowland, 2016). Much of the cancer-related research is focused on treatment and survival, but the Institute of Medicine report on cancer survivorship called for more research on the adverse impact of cancer on employment (Stovall, Greenfield & Hewitt, 2005). This call was warranted, as 3.8 million cancer survivors are of working age (Toossi, 2013). Breast cancer survivors are one of the largest groups of cancer survivors, with a reported survival rate of 90% (Siegel et al., 2012). A better understanding of breast cancer survivors' occupational functioning and return to work experiences is needed.

The overall aim of the PinkWorks project was to use the Healthy Workplace Participatory Program to understand and evaluate the sources and extent of clinical and organizational support that best facilitates breast cancer survivors' continued employment, ability to balance health and work, and high quality of life. In the first phase of the project, online surveys developed with survivor input, gathered comprehensive information about breast cancer survivors' return to

work experiences. The current study focuses on the second phase of the project, intervention development, and summarizes and reports the outcomes of an intervention planning process that was used to design interventions aimed at reducing work-health conflict and health-work conflict among breast cancer survivors.

Method. Using methods adapted from the Center for the Promotion of Health in the New England Workplace (CPH-NEW) Health Workplace Participatory Program. A "design team"(DT) of breast cancer survivors, clinicians and managers was assembled. The DT consisted of five women: three breast cancer survivors, a patient navigator, and a nurse navigator. One survivor was also an executive manager at an engineering firm. DT meetings were held weekly over four-weeks with each meeting lasting 90 minutes.

The program facilitator shared relevant information from the survey, administered in phase one of the project, with DT members. The facilitator guided the DT through the intervention planning process using the Intervention Design and Analysis Scorecard (IDEAS) tool developed by CPH-NEW. The IDEAS tool is a 7-step planning process used to develop, evaluate, and rank, intervention ideas and solutions (Robertson et al., 2013). The current study to our knowledge is the first to use IDEAS to plan interventions with a clinical population working across several employing organizations, rather than at a single organization. To meet the needs of workers employed by various organizations with limited time available for DT participation, we adapted the IDEAS tool by only utilizing its Steps 2 through 5a.

In Step 2, the DT brainstormed solutions to address three sub-issues identified in the survey as being highly associated with work-health and health-work conflict: low clinical support, low organizational support, and poor post-cancer well-being. To evaluate each solution, in Step 3 the DT agreed on four criteria that would indicate success relative to scope, benefits, resources, and barriers. In Step 4, the DT reviewed each solution against their own criteria for success to identify the most viable activities. In Step 5A, each intervention alternative was rated "low," "medium," or "high", and ranked in order of priority for implementation.

Results

In Step 2, many solution activities were brainstormed to increase clinical support, increase organizational support, and improve individual well-being post-cancer. Activities could be generally categorized as having to do with the creation of new positions, enhancement of existing positions, and creation of new informational materials, in both clinical and organizational settings. In Step 3, the DT agreed solution activities should meet these criteria: they should affect all employed breast cancer survivors, have both short- and long-term benefits to well-being, be developed and implemented with few financial resources (<$50,000), and make use of available/existing resources (i.e., materials, people). Foreseeable implementation barriers included: lack of intervention sustainability and lack of organizational support for interventions, intervention cost, and fear that meeting survivors' needs would interfere with their employers' needs.

In Step 4, criteria were applied to nine proposed solution activities, which were "packaged" into three possible interventions related to: (1) creation of new materials, (2) enhancement of existing positions, and (3) creation of new positions, in both clinical and organizational settings.

In Step 5A, interventions were rated using the DT's selection criteria and ranked in order of priority. The highest priority was the creation and dissemination of new clinical and organizational materials that provide information on how treatments affect work life and how to navigate the work leave process.

Conclusion

The current study demonstrated the applicability of the IDEAS tool in developing interventions to improve health and well-being across organizational and clinical settings. The participatory approach facilitated the development of innovative interventions aimed at reducing work-health conflict and health-work conflict among breast cancer survivors, which will be implemented in a follow-up study.

D-2

The Role of Family Supportive Supervisor Behaviors in Mitigating the Association between Family-to-Work Conflict and Safety Performance

Caitlin Demsky (Oakland University)

Safety is a critical component of today's workplace, with nearly 2.8 million nonfatal workplace injuries and illnesses occurring in the United States in 2017 (U.S. Bureau of Labor Statistics, 2018). A number of psychosocial hazards in the workplace have been linked to workplace safety, including poor safety climate (Zohar, 2000) and job insecurity (Probst & Brubaker, 2001). More recently, a small but growing body of literature has begun to examine the role employees' nonwork experiences may have on workplace safety (e.g., Cullen & Hammer, 2007). In the current study, we seek to replicate and extend prior work by Johnson and colleagues (2019), examining family-to-work conflict (FWC) as a predictor of safety performance via cognitive failure. Further, we contribute to the work-family literature by examining the role of family supportive supervisor behaviors (FSSBs) as a workplace contextual resource that may mitigate the effects of FWC on safety performance.

Drawing on Conservation of Resources (COR) theory, we conceptualize FWC, which occurs when family demands limit an employee's ability to manage work demands (Netemeyer et al., 1996) as a stressor that draws on available cognitive resources, thereby limiting their use in the work domain. This reduction in cognitive resources is seen in higher levels of cognitive failure at work. In turn, employees with limited cognitive resources will be less likely to devote available resources to engaging in either contextual or extra-role safety performance at work. Support for this mediation model has previously been identified by Johnson and colleagues (2019), though they acknowledge the need to examine other individual and contextual moderators of this indirect effect. FSSBs, or supervisor behaviors aimed at supporting employees' ability to manage both family and work demands, can be seen as a contextual resource in that it signals to employees an awareness of demands outside of the work domain and support for managing competing roles (Hammer et al., 2013). In the presence of FSSBs, employees may be less likely to experience resource drain as a result of FWC. In examining the moderating role of FSSBs, we extend prior work by which found a direct link between FSSBs and safety compliance (Hammer et al., 2016). Our full proposed model can be seen in Figure 1.

Method. Participants and Procedure

United States Department of Agriculture (USDA) Forest Service employees in the Southwestern United States were recruited via e-mail. Of a potential 2,256 employees, 699 provided usable data (31% response rate). On average, participants were 48 years old (SD = 10.84), 49.2% female, and worked 41.77 hours per week (SD = 10.30). Over half (52.6%) of participants were married, and 22.6% had

between 1–3 children living at home. Participants worked in a variety of capacities, including in resources (i.e., recreation, wildlife), wildland fire, business operations, and planning.

Measures

FWC was measured with five items (Netemeyer et al., 1996). Cognitive failure at work was measured with five items (Wallace & Chen, 2005). Safety performance was measured with six items from Neal and Griffin (2006). Three items referred to safety compliance, while three items referred to safety participation. FSSBs were measured with the four item short-form scale developed by Hammer et al. (2013). Cronbach's alpha for all scales can be found in Table 1.

Results. Descriptive statistics and bivariate correlations can be found in Table 1. Key study variables were largely associated with one another in the expected directions. Hypotheses were tested using Models 4 and 7 of the PROCESS macro in SPSS 25.0. Significant indirect effects were found between FWC and both safety compliance and participation via increases in cognitive failure at work (safety compliance: Effect: -.03, SE: .01, LowerCI: -.06, UpperCI: -.01; safety participation: Effect: -.03, SE: .01, LowerCI: -.06, UpperCI: -.01), providing support for our first hypothesis. This indirect effect was found to be conditional on FSSBs when examining safety participation as an outcome (Index of Moderated Mediation: .0092, SE: .0061, LowerCI: .0002, UpperCI: .0255), but not for safety compliance (Index of Moderated Mediation: .0085, SE: .0063, LowerCI: -.0008, UpperCI: .0248), providing mixed support for our second hypothesis.

Discussion

The current study demonstrates support for a moderated mediation model in which FWC is associated with reduced safety performance via increased cognitive failure. Further, when FSSBs are high, the indirect effect between FWC and safety participation is weakened. We did not find support for conditional indirect effects on safety compliance. Having a supportive supervisor may signal to employees effective ways of managing work and family demands such that they are able to maintain resources for engaging in extra-role safety performance at work. Our findings should be interpreted in light of existing limitations. Future studies should examine these associations over multiple time points to further tease apart directionality. These findings suggest that interventions aimed at increasing FSSBs may have wide-reaching effects in organizations, including on employee safety.

D-3

A Broadened Examination of the Dyadic Spillover-Crossover Model

Jacquelyn Brady (Portland State University)

The aim of the current study was to investigate a broadened work and non-work spillover-crossover model between employees and their spouses. Although research has supported spillover-crossover models (SCM) between spouses, the current study is unique in that we examine spillover from work-family conflict (WFC) to the broader domain of life satisfaction (LS), the global assessment of a person's quality of life, rather than simple cross-domain spillover. Additionally we focus on two types of crossover: 1). negative different-domain crossover, in the form of employee WFC to spouse LS, and 2). positive same-domain crossover of employees' LS to spouses' LS. Finally we examine the effects through a mechanistic SCM (see Figure 1).

The current study utilizes two theoretical lenses to examine the processes which underlie the hypothesized SCM. First, spillover theory (Crouter, 1984) provides a theoretical rationale for how experiences in one domain can influence experiences in another domain. Crossover theory (Bolger DeLongis, Kessler, & Wethington, 1989) describes an interpersonal process that occurs when stress or psychological strain experienced by one person affects another person's level of strain. Crossover has been extended to include positive transmissions of states (Westman, 2001). Three mechanisms are thought to underlie crossover (Westman, 2001). Direct crossover describes how experiences and emotions between the partners are transmitted via empathy. Indirect crossover posits that crossover occurs through moderating mechanisms which result in a partner's strain or satisfaction. Third, crossover may occur via shared common stressors which then lead to shared, common states. The integrative SCM suggests that crossover occurs via the spillover process, producing improved insight into the processes that link work and family domains.

Hypothesis 1: Employees WFC will negatively spill over to their LS.

Hypothesis 2: Employees WFC will cross over to their spouses' LS (direct crossover).

Hypothesis 3: Employees LS will cross over to their spouses' LS (direct crossover)

Hypothesis 4: Employee WFC will cross over to spouses' LS via employees' LS (indirect crossover)

Data were collected as a part of the larger Military Employee Sleep and Health Study, that aims to improve sleep and health of service member (SM) working in the National Guard (NG). To be eligible, SM had to work ≥ 32 hours a week for the NG. The research team established collaborations with the unit leadership in the NG, and unit leaders sent out emails with a link to sign up for the study. Research team members also visited the armories and installations to recruit SM in-person. Of the 727 eligible SM, 417 completed the survey, yielding a response rate of 57.4%. Of the SM who completed the survey, 332 were married, and 269 provided their spouses' contact information. The number of spouses who completed the survey was 184, yielding a response rate of 55.4% relative to all married SM. 181 SM-spouse dyads completed the survey and were matched. We ran a multi-level path models in Mplus V8 (Muthen & Muthen, 2017), where couples were nested within the work units.

Findings revealed support for hypothesis 1, that employee WFC would be associated with negative spillover to LS ($\beta = -.33$, SE = .07, $p < .001$). Results did not support hypothesis 2, there was no direct cross over from employees' WFC to their spouses' LS ($\beta = -.07$, SE = .04 $p = .12$). However, consistent with hypothesis 3, employees' LS crossed over to theirs spouses' LS ($\beta = .32$, SE = .07, $p < .001$). Additionally, hypothesis 4, that the indirect effect from employee WFC to spouses' lower LS via employees' lower LS was significant ($\beta = -.11$, SE = .03, $p < .001$).

Overall, our findings supported spillover from employees' WFC to a broader construct, their own LS. We did not find support for a direct crossover from employees' WFC to their spouses' LS. Rather, employees' LS directly crossed over to their spouses' LS, and our findings supported indirect crossover from employees' WFC to their spouses' LS via employees' LS (support for the SCM). Overall these results supported our hypotheses of spillover, direct crossover, and indirect crossover based on SCM, and demonstrated that higher WFC has significant costs for employees and their spouses' LS. Next stages of the model will examine specific boundary conditions.

D-4

Exploring the Nature and Consequences of Employees' Weekend Recovery Profiles

Ze Zhu (George Mason University)

While some studies have documented the importance of leisure activities and nonwork cognitive experiences for recovery, findings have not been consistently supportive (Sonnentag, Venz, & Caspter, 2017). For instance, some studies have shown beneficial effects of passive leisure activities for recovery (Sonnentag, 2001), whereas others have shown neutral effects (Sonnentag & Ziljstra, 2006) or harmful effects (Rook & Ziljstra, 2006). When it comes to nonwork cognitive experiences, previous studies have also demonstrated mixed effects. For instance, though most research showed that psychological detachment from work (hereinafter detachment) is beneficial to recovery (Kinnunen, Feldt, Siltaloppi, & Sonnentag, 2011), other studies found adverse effects (Shimazu, Sonnentag, Kubota, & Kawakami, 2012).

One possible reason for these inconsistencies is that leisure activities and cognitive experiences have typically been studied in isolation, which could lead researchers to overlook how recovery is a function of both leisure activities and nonwork cognitive experiences. For instance, Cho and Park (2018) found that the positive effects of weekend physically active activities on recovery exist only when detachment is high (vs. low), suggesting that an important direction for future research is toward understanding how leisure activities and cognitive experiences work together to facilitate recovery.

Also, the prior research tends to rely on variable-centered approaches, which precludes insights about how people recover in different ways. For instance, some people may recover by being detached from work and engaged in leisure activities, while others may recover even though they continue working, if they have positive thoughts about work.

We suggest that more fully understanding how nonwork experiences facilitate recovery requires consideration of how nonwork cognitive experiences and activities jointly impact recovery outcomes. The current study uses a person-centered approach to: (1) describe the most common profiles of nonwork cognitive experiences (e.g., detachment, positive work reflection, negative work rumination) and activities (e.g., completing work-related activities, doing active, passive leisure activities) and (2) assess the consequences of these profiles, identifying which, if any, combinations of cognitive experiences and leisure activities are most strongly associated with recovery. Given that recovery can occur through different cognitive experiences and leisure activities, we expect to find numerous distinct ways of experiencing nonwork time that are equally conductive to recovery.

Method

The final sample included 430 full-time employees (Mean age= 36.69, 46% male). Participants reported time spent on active and passive leisure activities (see Table 1 for examples) and work-related activities during the past weekend. They also reported the degree to which they experienced detachment, positive work reflection, negative work rumination, problem-solving pondering over the past weekend, and their current recovery states (fatigue and vigor) at the end of the weekend.

Results

Table 2 displays descriptive statistics. We conducted latent profile analysis in R using the tidyLPA package (Rosenberg, Schmidt, Beymer, & Steingut, 2018). Table 3 presents the results of our profile enumeration. Considering both statistical fit and interpretability, we chose a four-profile solution.

Our largest profile (labeled "sedentary work ruminators") encompassed individuals who experienced high levels of negative work rumination and problem-solving pondering. In the second largest profile (labeled "positive work thinkers"), participants experienced high levels of positive work reflection and problem-solving pondering. The third largest profile (labeled "detached relaxers") consists of individuals who detached from work and did not engage in work-related activities. Our final profile (labeled "work hard, play hard") included employees who experienced fairly high levels of all constructs. See Figure 1 and Table 4 for detailed profile information.

Next, we conducted an ANCOVA with profile membership as the independent variable and recovery outcomes as the dependent variables. Results suggested that the differences in fatigue and vigor were significant between profiles. Specifically, detached relaxers and positive work thinkers had significantly lower levels of fatigue than the other groups. The work hard, play hard group had the highest fatigue but this group also had the highest levels of vigor. See Table 5 for descriptives of recovery outcomes per profile.

Conclusion

We found that people used different combinations of nonwork cognitive experiences and activities to recovery over the weekend. The profile analyses showed that both nonwork cognitive experiences and activities are important for determining profiles of individuals' weekend experiences, highlighting the importance of considering leisure activities and cognitive experiences simultaneously. Moreover, results suggest that multiple recovery approaches can lead to recovery, though different styles have different effects on specific recovery outcomes. Our profiles and their associated recovery outcomes, to some degree, can also help address mixed findings in the recovery literature. For example, the profile analysis showed that two groups of people—the detached relaxers and the work hard, play hard group—were psychologically detached from work. However, they had different weekend experiences regarding other cognitive experiences and activities, and thus different recovery outcomes. These findings can help explain why detachment may be differentially effective—because its impact on recovery outcomes varies based on co-occurring experiences.

D-5

Career and family pathways of college-educated women

Nancy Marshall (Wellesley College)

Historically, women's career pathways have often been affected by parenting responsibilities, with women selecting positions that are more compatible with child care demands (Allison & Rallston, 2018); women are more likely than men to adjust their education and career expectations if they anticipate becoming parents (Allison & Rallston, 2018). An estimated 70% of college students expect to earn a graduate or professional degree at some point; such expectations may be associated with delayed parenthood (Allison & Rallston, 2018). Women's employment trajectories are also associated with education level, family poverty, race/ethnicity and gender beliefs (Damaske & Frech, 2016).

This paper, part of Marshall's ongoing research program on women and employment, builds on prior research to examine career pathways among college-educated women, using a life-course perspective, which considers normative age- and gender-related trajectories, as well as the importance of individual-level prior events or decisions (Hostetler, Sweet & Moen, 2006). This perspective also considers cumulative effects of advantages and disadvantages associated race/ethnicity, social class background, and other factors (Damaske & Frech, 2016).

In this paper I address the following research questions about the career and family pathways of women graduates of an elite private college:

- What best describes the career trajectories of these alumnae?
- Do they attend graduate or professional school and, if so, when?
- Do they describe their career pathways as stable or involving changes within or between fields?
- What factors are associated with variations in career and family pathways?

Methods. These research questions are addressed using survey data collected in 2005, 2009, 2013 and 2017 (N=6,671). One or more of the four surveys were completed by alumnae who graduated in 1968, 1971, 1973, 1976, 1978, 1981, 1983, 1986 (Baby Boomers), 1988, 1991, 1993, 1995-2002 (Generation X), and 2003-2008 (Millennials). Table 1 summarizes the years since graduation at the time of survey completion.

Preliminary Results. Most (81%) of alumnae had attended graduate school at the time of the survey (Table 2). However, only 22% went on to graduate school immediately after college; an additional 10% attended within one year. This pattern varies by generation. While 30% of Baby Boomers went immediately on to graduate or professional school, only 20% of Gen Xers and Millennials did so. Boomers were also more likely than more recent generations to return to graduate or professional school after more than 10 years.

Alumnae (2005 & 2009 surveys only) were asked whether their career path involved staying in one field, moving within the same field, or changing fields (see Table 3). Almost two in five alums had changed fields at least once. Baby Boomers, with longer careers, were more likely than more recent generations to have changed fields three or more times.

The high rate of graduate and professional education among these alumnae is also associated with marriage/partnership and parenthood at later ages (Table 4). Only 16% of alums who completed the survey 4-6 years after graduation (i.e., in their late twenties) reported that they were currently married or living with a partner, while 54% of alums who completed the survey more than 10 years after graduation reported that they were married or living with a partner. Similarly, only 4% of alums had a child within 4-6 years after graduation, compared to 47% who completed the survey more than 10 years after graduation.

Future Analyses and Implications. These preliminary results show the potential for this dataset. The final paper will also examine variations in career and family pathways among first generation college students (whose parents did not attend college), alumnae of color, and alumnae from working class or lower middle-class backgrounds, as well as across a range of occupations. I will also examine variations among these groups in career attainment, life values (e.g., relative importance placed on family, career and other values), and life satisfaction.

While these alumnae of an elite college differ from the larger population of college-educated women, they provide a unique window into a group of women often at the forefront of changing work and family experiences for women. Alumnae of this school have higher rates of employment in business and management than do graduates of other women's colleges or co-ed colleges. In addition, the school has a significant enrollment of women of color and first-generation college students, allowing us to examine whether these alumnae experience similar career and family pathways as do their more privileged counterparts.

D-6

Job Insecurity and the Work-Family Tradeoffs: A Resource Scarcity Perspective

Yi-Ren Wang (University of Alabama)

With recent rise of sharing economy and automation along with a growing trend in organizations toward non-standard contingent employment arrangements (Lee, Huang, & Ashford, 2018), work situations for many employees have become increasingly precarious. An emerging issue in the workforce is job insecurity, defined as "perceived powerlessness in maintaining desired stability in a threatened employment situation" (Greenhalgh & Rosenblatt, 1984, p. 438). At the same time, incompatibility between work and family demands often leads to work-family conflict (Greenhaus & Beutell, 1985). Research has shown that family goals are often postponed or overlooked when there is an incompatibility, and this behavioral pattern seems to be larger for those working in undesirable situations (e.g., Jacob, 2004). For example, job insecurity is related to postponement in marriage (Piotrowski, Kalleberg, & Rindfuss, 2015) and parenthood (Kreyenfeld. 2010). However, the mechanism between job insecurity and work-family decision remains unclear. Therefore, this relationship between job insecurity and work-family decision-making is of particular interest in this paper. Here we suggest that working in an insecure job entails employee rights that cannot be easily exercised, providing the employee with less advantage to resolve work-family conflicts without sacrificing their family lives. This makes trade-offs between work and family goals more difficult for insecure workers.

Drawn on resource scarcity theory, we argue that experiencing scarcity can largely shape the way we think, decide and behave (Mullainathan & Shafir, 2013; Shah, Mullainathan, & Shafir, 2012). Research has shown that people without stable income tend to focus greatly on meeting the pressing needs, which is termed tunnel focus (Shah et al., 2012). This narrowed bandwidth further creates an absent attention paid to other needs, especially the ones without immediate consequences (Shah et al., 2012). This mindset associated with scarcity has been shown to lead to dysfunction in people's lives. For example, poor people have been found to have higher likelihood in accepting big loans with high interest rates (Meuris & Leana, 2015). Arguing job insecurity can be regarded as a type of resource scarcity, we further propose that job insecurity may significantly increase the consideration given to short-term rewards and decrease the consideration given to long-term implications while making family-related work decisions (Greenhaus & Powell, 2012).

Methods and Results. Using a scenario-based experimental study with a sample of 186, we manipulated potential impact on work long-term goal and family short-term goal in scenario A. We also manipulated potential on work short-term goal and family long-term goal in scenario B (see Table 1). A mixed model analysis of covariance was performed. Descriptive statistics for each scenario are presented in Table 2. Using the scenario A, we found that when deciding whether to take on a new project, people weight less on the impact on a work goal in the long term—that is, more opportunities of career advancement in the future, $F(35,148)=1.85, p< .01, \eta_p\hat{}2=.30$ (see Table 3). To better illustrate, Figure 1 shows that individuals high on job insecurity would take on a new project regardless of the expected impact on work in the long run. Levels of job insecurity did not decrease the consideration given to family short-term goal—that is, spending time with family in evening.

Using scenario B, we found that when deciding whether to take on a new project, people weight less heavily for the impact on a family goal in the long term—that is, having good quality of marriage in long run, $F(35,147)=2.45, p< .01, \eta_p\hat{}2=.37$ (see Table 3). To better illustrate, Figure 2 shows that individuals high on job insecurity would reduce work hours regardless of the expected impact on a family goal in the long run. Levels of job insecurity did not decrease the consideration given to work short-term goal—that is, performing work tasks efficiently.

Discussion. Results from this study showed that job insecurity did influence the way people make decisions at work. Specifically, people who cannot predict continuity of the job situation are significantly less likely to be affected by potential consequence in the future in the context of work family conflicting dilemmas. Unlike people with stable job situations, people high on job insecurity are less likely to withdraw from a decision at work even if it could cause a negative impact on lives in the future. The findings are consistent with arguments from resources scarcity theory, such that job insecurity diminishes the attention people paid to future consequences (e.g., Shah et al., 2012). It also suggests that job insecure individuals are more affected by horizontal conflict—that is, an action causes interference with goals at the same temporal domain, and less affected by vertical conflict—that is, an action causes interference with goals at temporally distant domains (Shaddy & Fishbach, 2018). Future studies should explore whether resource scarcity decreases the ability or decrease the motivation while considering future consequences.

D-7

Planning for Parental Leave: Leveraging Total Worker Health to Support Pregnant Working Women

Kelsie Daigle (Colorado State University)

Understanding the parental leave process is critical to support the optimal planning, well-being, and functioning of pregnant working mothers and the organizations that employ them (Fisher, Valley, Toppinen-Tanner, & Mattingly, 2016). This type of leave may introduce new stressors employees may not have faced before, such as the experience of stigma associated with being a working mother (Sabat, Lindsey, King, & Jones, 2016). The leave process can be stressful, which could have negative well-being outcomes (Alstveit, Severinsson, & Karlsen, 2011). Meanwhile, the health and supportive benefits of being an employed woman are far reaching (e.g., Gjerdingen, McGovern, Bekker, Lundberg, & Willemsen, 2001). Importantly, the Family Medical Leave Act (FMLA) only covers 40% of the workforce, many go without a mandated policy for preparing for and executing parental leave. Therefore, it is in both the employer's and individuals' best interests to support the parental leave process.

This inductive, exploratory study aimed to increase our understanding about the parental leave and return to work process by exploring the pre-leave stage. Pre-leave (i.e., working while pregnant) encompasses the time when the employee discovers she is pregnant and starts to anticipate working while pregnant and her leave experience. Fisher and colleagues (2016) noted that the "pre-leave stage involves the physical changes among mothers, as well as the social and psychological factors that become salient in anticipating and preparing for parenthood which affects both parents" (Fisher et al., 2016 p. 133). This stage of transitioning into motherhood impacts not only the mother's life, but has the potential to impact the child's well-being, and other stakeholders in the workplace (e.g., coworkers, supervisors, subordinates). This notion is supported by research which suggests that planning for affordable and acceptable childcare contributes to the working mother's and child's well-being during later stages of the process (Fisher et al., 2016). We conducted semi-structured interview questions to address these research questions. Sixteen working pregnant adult women in the U.S. participated; the sample size was determined on the basis of reaching saturation regarding the research questions. Inclusion criteria were: paid employment, working at least 30 hours per week, not self-employed, and having a singleton pregnancy. Participants ranged in age from 21 to 39 years old ($M = 29.88$, $SD = 4.24$). Participants reported annual household income before taxes ranging from $50,600 to $200,000. Participants varied in pregnancy stages, ranging from 9 to 36 weeks pregnant with a mean of 24.31 weeks pregnant ($SD = 6.70$) at the time of the screening survey. Most participants were married Participants worked in education and health services (n=7), finance and insurance (n=3), manufacturing (n=2), professional and business services (n=2), and other (2).

The research team used an exploratory qualitative analysis method to analyze the data. We coded the data through first-level and second-level strategies, and then identified major themes. The six main findings from the themes are 1) the monetary cost of things (e.g., childcare) in relation to household income played a major role in planning and decision making for parental leave, 2) participants varied in their perceptions on how much of a role their coworkers and supervisors play, 3) qualification for parental leave benefits (e.g., such as qualifying for FMLA benefits) or available sick or vacation time strongly influenced plans for when to take leave and for how long, 4) participants believe that supervisors and leaders in organizations can better support pregnant working women by supporting paid leave, knowing more about the policies and procedures around leave, and more flexibility around work hours and location, 5) participants expressed, and it became a clear theme, that each pregnancy and situation involved high levels of uncertainty and each context around parental leave is different, and 6) individual culture may or may not play a role in the experience of parental leave. Exemplars will be presented to give poignant examples of overarching themes and complexity of the data. These data highlight where stressors and strains may arise during planning for parental leave. Further, these data suggest that there may be a need for parental leave policies and practices based on a Total Work Health approach given the increased demands and perceived lack of resources women face when working while pregnant. These data may be a foundation to inform the development of interventions to help expectant mothers and their employers navigate this process successfully.

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D-8

How Does "Work as a Calling" Relate to OHP?

Alec Calvo (University of Connecticut)

If you were to listen to certain business-oriented podcasts, you might hear an advertisement for Harvard Business School's eMBA program enticing applicants to discover their callings. While the idea of having a calling might be gaining popularity among the general population—otherwise why might HBS use it as a selling point—the research among vocational and organizational psychologists might not be living up to the hype. A review and prospective on the calling literature highlights that research in the area remains relatively niche (Thompson & Bunderson, 2019), citing a lack of definitional consensus and theory as major issues to overcome. Specifically, Thompson and Bunderson (2019) urge researchers to converge on a conceptualization that stresses both the inner aspects of meaningfulness as well as the outer aspects of a transcendent summons or call, one that seems to match well with lay understandings of the construct (e.g., Hunter, Dik, & Banning, 2010). Our study follows this recommendation, using a profile approach that allowed us to explore differences among individuals that perceive themselves as having both the internal and external components, only the internal component, or neither component in their work and how those differences relate to constructs typically studied by organizational health psychologists, such as engagement, burnout, workaholism, stress, and work-to-family conflict. Because calling research is scant on theory, this study takes an exploratory approach such that an emerging pattern of results might provide the impetus for such theorizing. We summarize our initial findings and discuss their potential theoretical implications below.

Method. Participants. We used a subset of data from the first wave of a larger study. Table 1 includes sample characteristics. The larger study consisted of sampling full-time, salaried, working adults from Amazon's MTurk. After removing duplicates, attention-check failures, and cases of extreme missingness, this study's sample included 524 participants.

Measures

We analyzed the following: work perceived as a calling, workaholism, work engagement, burnout, job and life satisfaction, organizational citizenship behaviors (toward employees and the organization), and work-family conflict (WFC). Table 2 summarizes these scales and their features.

Analyses

We iterated a k-means cluster algorithm for 2-through-5-cluster solutions, settling on the 3-cluster solution, as it provided conceptually distinct clusters while maintaining parsimony (see figure 1). We dummy-coded the clusters and individually regressed all outcomes onto them. The results are summarized in tables 3 through 10.

Results

Across most of the tested regression models, the "high calling" cluster showed moderately high to very high mean scores, including for engagement, burnout, life satisfaction, and OCBs (both benefiting employees and the organization). The mean scores for this cluster were moderate to slight for job stress and work-to-family conflict. The general pattern also showed that the second cluster, "high meaning-low call", tended to show lower mean scores compared to the first group. The final cluster, "low/not a calling", generally showed lower (sometimes substantially so) means compared to the "high calling" group. Finally, the probability of having workaholism given cluster membership is roughly twice for those with a high calling compared to the other two clusters. See tables 3 through 10 for details.

Discussion. The positive outcomes of the high calling profile (engagement, life satisfaction, and OCBs) are consistent with prior research (e.g., Duffy & Dik, 2013; Hirschi, 2012; Park et al., 2016). These individuals find purpose in life through their calling, which can explain why they experience more life satisfaction, engage with their jobs, and exhibit more OCBs. The proclivity to over-commit to work may manifest as a demand, leading to job stress, burnout, and WFC. Our results add to the conflicting literature in terms of the relationship between calling and burnout and job stress (i.e. Hagmaier et al., 2013), speaking to the nuance of the profiles.

Additionally, individuals in the high calling cluster were more likely to be categorized as workaholic. There is limited research connecting calling and workaholism (Keller et al., 2016), with no significant relationship established between them, adding value to our findings The over-commitment to work could manifest in workaholism where individuals easily over-commit to their work they see as being their purpose in life and thus feel obligated to engage in work in a compulsive way, leading to workaholic behavior. Calling shares similar implied "uncontrollable" aspects: being summoned to work has an outward locus of control, like workaholism, which is considered an uncontrollable compulsion to work (Matuska, 2010). Thus, both constructs imply an uncontrollable influence to engage in work.

Interestingly, the profile showing meaningfulness of work without the "call" had a different relationship with the outcomes. This profile negatively predicted engagement, life satisfaction, OCBs, and WFC with the relative risk of being categorized as a workaholic only slightly above normal. Overall, the profiles of calling used in this study highlight the multifaceted nature of calling and establish the ability to identify and clarify these empirical relationships.

Hazardous Work Environments and Safety

E-1

The survey for the management of safety and health signs and comprehension level in Korea

Kyungwoo Kim (KOSHA)

A statement of the problem: Recently, a lot of measures have tried to prevent the industrial accident and information delivery and risk communication(Green, Short, Duarte-Davidson, & Levy, 1999) are one of the important factors which can be effected on the level of occupational safety and health activity. Especially, the pictogram of safety and health sign is the measure which can easily and fastly delivery the harmful and risky information to employees in the workplace. So this study as a preliminary level tried to identify the status of management for the safety and health signs at the workplace and the comprehension level of a pictogram to suggest the future interventions.

Procedures and Analysis: 75 workplaces of Korea attended field surveys on the status of safety and health management in 2017 and 150 employees described the meaning of pictograms for the 69 safety and health signs including ISO substitutable signs. The level of comprehension was investigated by evaluating whether the experts were in agreement with the actual meaning of pictograms.

Conclusions. In the results of field survey, the rate for the education of safety and health signs was 77% which was relatively higher level, however, only big-sized workplaces were possible like this systematic management, not small-sized workplaces under 50 employees. In the results of comprehension level for total pictograms, ISO substitutable pictograms were showed relatively higher comprehension level than general pictograms in safety and health acts of Korea. Emergency exit for the left, Emergency exit for the right, No-smoking, Warning for the loss of body balancing were the examples of high level. And several

pictograms which can be substitutable for both ISO pictograms and general pictograms were not showed significant differences between the two types of pictograms.

Practical implications. The more elaborated cognitive psychological approach such as response-reaction time experiment(Roca, Tejero, Insa, 2018; Davies, Haines, Norris, & Wilson, 1998) is needed to improve the comprehension level of employees for the safety and health sign. And the evidence-based field approach(Houdmont & Leka, 2012) based on occupational health psychological perspective is also needed for the effective management of signs.

E-2

Shared Transformational Leadership and Employee Safety: The Moderating Role of Perceived Organizational Support

Zhanna Lyubykh (University of Calgary)

Occupational safety remains a concern for both practitioners and researchers, with unsafe behaviors and injuries resulting in detrimental health consequences for the employees (Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2014) and significant social and economic costs (Brown, Shannon, Mustard, & McDonough, 2007). To date, researchers have examined the role of situational factors and personal characteristics as predictors of employee safety outcomes (Christian, Bradley, Wallace, & Burke, 2009; Nahrgang, Morgeson, & Hofmann, 2011). Special attention has been paid to the role of leaders, in particular transformational leadership, as a determinant of employee safety (Clarke, 2013). Overall, empirical findings demonstrate that transformational leadership exerts a positive effect on followers' safety performance and subsequent safety outcomes such as fewer workplace injuries (Clarke, 2013). However, research in this area has focused almost exclusively on the influence of a single team leader (i.e., supervisor, manager). Some scholars challenge this notion of leadership arguing that leadership is a shared activity among team members (Carson, Tesluk, & Marrone, 2007; Pearce & Conger, 2002) that goes beyond a vertical leader-follower relationship. Shared leadership increases team social capital, provides intangible resources to team members, and may increases collective motivation to take responsibility and share knowledge (Day, Gronn, & Salas, 2004).

The purpose of this study is to examine shared transformational leadership (STL) as a determinant of employee safety. We expect that STL will foster positive safety behaviors and increase safety knowledge not only for individuals, but for the teams as well. We also propose two boundary conditions—perceptions of intragroup conflict and team cohesion—of the shared leadership-safety relationship.

The present study was conducted in an international shipping company. We collected data from 2,143 employees representing 117 vessels. We measured STL with 36 items from the Multifactor Leadership Scale for Teams (MLQ Team Version) (Bass & Avolio, 1996). We used items from Griffin and Neal's (2000) to measure safety compliance, safety participation, and safety knowledge. Perceptions of intragroup conflict were measured with 8 items from Jehn (1995). Finally, we measured group cohesion with 6 items from Podsakoff, Mackenzie, and Fetter (1993). The average age of respondents was 35.2 (SD = 10.5), with an average company tenure of 5.7 months (SD = 5.14).

We calculated interclass correlations (ICCs) for all variables. Although ICCs values were relatively small (STL ICC1 = .09; safety compliance ICC1 = .05; safety participation ICC1 = .04; safety knowledge ICC1 = .03; conflict ICC1 = .06; cohesion ICC1 = .10), the between-vessel variance was significant for all constructs warranting a multilevel investigation. Next, we tested our measurement model using multilevel confirmatory factor analysis in Mplus (Muthén & Muthén, 2012). We used parcelling approach (Little, Cunningham, Shahar, & Widaman, 2002) for scales with a relatively large number of items (i.e., STL, intragroup conflict, and team cohesion). The hypothesized model had an acceptable fit on both within- and between-levels, ¬2 (388) = 1646.90, $p < .001$, CFI = .96; TLI = .96; RMSEA = .04; SRMRwithin = .04; SRMRbetween = .10. We then proceeded to test the direct relationship between STL and safety constructs. The results demonstrated that perceptions of STL were significantly related to safety compliance (B = .47, SE = .04, $p < .001$), safety participation (B = .43, SE = .05, $p < .001$), and safety knowledge (B = .35, SE = .03, $p < .001$) at the individual level. At the vessel-level, we found a similar pattern, with STL positively related to all three safety constructs: safety compliance (B = .72, SE = .12, $p < .001$), safety participation (B = .82, SE = .16, $p < .001$), and safety knowledge (B = .43, SE = .09, $p < .001$). We then separately tested the moderating effects of perceived intragroup conflict and team cohesion. At the individual level, perceptions of intragroup conflict moderated the relationship between STL and safety knowledge. Perceptions of team cohesion moderated the relationship between STL and individual-level safety knowledge. At the vessel-level, team cohesion moderated the relationship between STL and safety compliance.

Our findings extend previous research by demonstrating that the effects of shared leadership (STL) go beyond team performance and effectiveness (Wang, Waldman, & Zhang, 2014), and STL has positive implications for individual employee safety as well as team safety. Furthermore, perceptions of intragroup conflict can impede the positive effects of STL on safety knowledge, while perceptions of team cohesion bolster the effects of STL on individual-level safety knowledge and team-level safety compliance. Given the importance of safety, especially in the shipping industry where a minor incident might result in severe consequences for employee, vessels, or the environment (Hetherington, Flin, & Mearns, 2006), companies could consider implementing team coaching activities as a means of bolstering shared leadership (Carson et al., 2007) and individual- and team-level safety outcomes.

E-3

Using Safety Climate Assessments to Identify Significant Predictors of Mineworkers' H&S Performance

Emily Haas (NIOSH)

Problem. Although safety climate is often studied and referenced as a leading indicator [Haas and Yorio 2016; Juglaret et al. 2011; Mearns et al. 2001a; Payne et al. 2009; Schneider 2017], identifying and implementing tangible methods to improve an organization's safety climate is not well understood. Research continues to suggest that safety climate models can support root cause analyses and trends, particularly to identify vulnerable areas within a company's health and safety management system (HSMS) [Griffin and Curcuruto 2016; Reason 2008]. Specific to mining, the National Research Council's (NRC) National Academy of Sciences (NAS) [NRC 2013] indicated that a positive safety culture is a critical aspect of preparation that needs to be considered within any HSMS.

Procedures. To advance a more tangible understanding of safety climate, NIOSH assembled a safety climate survey to assess workers' perceptions at their respective mine operations. The survey measured

personal and organization constructs using a 6-point Likert scale, with responses ranging from Strongly Disagree to Strongly Agree. Each item relates to one of a series of constructs, and responses were used to calculate a mean score for each construct. A score of 6 represents a high perception of the safety climate construct while a score closer to 1 represents a poor perception of the construct. Data collection occurred between February 2016 and March 2018. Participants consisted of 2,683 mineworkers—both salaried and hourly—at 39 mine sites throughout 17 states. The mines represented nine major companies and three mining subsectors (coal; stone, sand, and gravel, and industrial minerals). Researchers distributed and collected the hard copy surveys and subsequently they were entered into a Statistical Package for the Social Sciences file for cleaning and analysis.

Analyses. The objectives (i.e., determine the most influential personal and organizational constructs on workers' H&S proactivity and compliance) were addressed using relative weights analysis (RWA) [Johnson 2000; Tonidandel et al. 2009; Tonidandel and LeBreton 2011]. RWA was used to examine the relative contribution of the six organizational and four personal safety climate constructs in predicting worker H&S proactivity and compliance on the job. Researchers used processes defined and illustrated by Tonidandel and LeBreton [2011] to derive the relative weights for each of the 10 predictors in the study. Analysis was done in R using the macro developed by Tonidandel and LeBreton [2015]. This developed routine uses a bootstrapping approach to derive confidence intervals and tests of significance for each of the predictor's relative importance parameters.

Results. Regarding the regression analyses, some highlights include:

- All 10 safety climate constructs were significant predictors of proactivity; the overall model fit was R2 = .32, or 32.24%. Thoroughness and sense of control were the highest predictors at 21% and 17% of the total variance, respectively. Workers' personal levels of risk tolerance (13%) and their engagement in H&S activities (12%) were also strong predictors.
- All 10 safety climate constructs were significant predictors of compliance; the overall model fit was R2 = .46, or 46.70%. Workers' risk tolerance was the predominant predictor at almost 31% of the total variance of R2. Workers' thoroughness (23%) and then coworker communication (11%) were strong predictors of workers' compliant behaviors. H&S training, although a significant predictor, only contributed about 5% to the total variance of the 46.7% model. Organizational support for H&S contributed about 4%.

Practical implications. Notably, the results showed that the personal constructs were the most influential safety climate constructs in predicting workers' performance. Results also show the value of organizations accounting for and addressing both the organizational and personal factors where possible. In response, interventions can be employed on an organizational level to influence workers' personal-based factors on the job. Five changes or interventions emerge from these results including the need to: 1.) go beyond annual refresher training; 2.) acknowledge and address workers' risk tolerance; 3.) enhance worker engagement opportunities; 4.) maintain worker thoroughness and improve their sense of control; and 5.) be accountable for communication practices.

Conclusions. Organizational and personal safety climate factors can impact H&S performance to varying degrees. Because other studies have already conveyed the significant, positive relationship between safety climate and safety performance [e.g., Guldenmund 2000; Wiegmann et al. 2002; Smith and DeJoy 2014; Zohar 1980], it was important for NIOSH to further characterize the impact of these indicators to provide support to mine organizations in tailoring their HSMS implementation efforts. Specifically, the study provides guidance for improving organizational factors to help enhance the overall culture. Organizations can start to address a select number of HSMS practices and, over time, scale their system to include additional indicators.

E-4

Emotions at Work: Implications for Psychological Well-being of Prison Officers in Nigeria

Fabian Ugwu (Alex Ekwueme Federal University, Ndufu-Alike)

Evidence abound that emotional labor research has predominantly focused on its negative outcomes (van Gelderen et al., 2011). These lopsided studies on emotional labor resulted in different calls from researchers (e.g., van Gelderen et al., 2011; van Gelderen et al., 2017) to broaden these insights. These researchers advocated that well-being should be included as important aspect in the study of emotional labor. Consequently, these calls provoked several studies, especially in the Western world (e.g., Grandey, Rupp, & Brice, 2015; Kammeyer-Mueller et al. 2013; van Gelderen et al., 2017; Xanthopoulou, Bakker, Oerlemans, & Koszucka, 2018). Despite these studies, much is left to be desired as the universality of the meaning and outcomes of emotional labor is still very limited. Therefore, there is need to compare data across cultures to provide deeper knowledge about emotional labor and its consequences. Emotional labor is defined as strategies (surface acting and deep acting) that individuals employ in the management of feelings in order to create a socially desirable display in accordance with situational demands during service transactions (Hochschild, 1983; van Gelderen et al., 2011). Research (e.g., Brotheridge & Grandey, 2002; Brotheridge & Lee, 2003) demonstrates that even though both forms of acting could have detrimental effects on employee physical and psychological health, surface acting tends to be particularly more harmful. This is because surface acting initiates a resource¬depleting process (Xanthopoulou et al., 2018).

Researchers (e.g., Butler et al., 2003; Richards & Gross, 2000) argued that the effort expended by individuals to conceal or suppress felt emotion heighten stress levels, is cognitively demanding, and may even impair memory. For these reasons, the present study focuses on surface acting that undermines employees' overall well-being. Moving forward therefore, it becomes imperative to examine factors that might help to reduce the negative impact of surface acting on employees' psychological well-being. This present study makes several contributions to the literature. First, it examines surface acting among far less studied professional group, the prison officers in Nigeria. Second, this study is among the first to examine the moderating role of emotional intelligence in the relationship between surface acting and psychological well-being; this study answers the calls made by many researchers for such an investigation (e.g., van Gelderen et al., 2011; van Gelderen et al., 2017). This study contributes to stress coping research and practices by examining a factor (emotional intelligence) that potentially helps in reducing employees' strain (surface acting) and hence improves psychological well-being. Our research provides empirical evidence that facilitates future research trying to better understand the strain-alleviating role of emotional intelligence. It also provides helpful insights for managers regarding organizational intervention programs, such as training and counseling.

Method. Participants and procedure. The participants for the study consisted of officers of the Nigerian prisons drawn from across the Southeast Nigeria. A total number of 307 prison officers (Mage = 39.48; SD = 4.12) participated in the study. The sample was composed of 69% male and 31% female prison officers, with average organizational tenure of 7.49 years.

Analysis and results. Data were analyzed using the moderated multiple hierarchical regression and the results showed that surface acting and emotional exhaustion were negatively related to employees' psychological well-being. It was found that these relationships were weaker when emotional intelligence is higher than when it is lower.

Practical implications. These results imply that management of the Nigerian prisons should be wary of the dangerous prison environment orchestrated by the nature of the job of prison officers. The management should not be inundated by this reality, rather they should design training programs targeted at enhancing the emotional intelligence of these employees. This would imbue in them the skills and capacity to overcome the hassles associated with their job.

Conclusion. For organizations to be competitive and efficient, the well-being of the employees that drive such organization should be supreme. Therefore, insulating employees against adverse work conditions and environments is one way of motivating them to perform optimally. Doing so without unpleasant impact on their psychological well-being of the employees is a task worthy to accomplish.

E-5

Reducing Stress and Improving Health Among Law Enforcement Personnel: Review of the Literature and Directions for Future Research

Jennifer Rineer (RTI International)

Statement of the Problem: Law enforcement, as a profession, often involves exposure to extreme stress. Police officers are regularly exposed to violence, human suffering, and death, and they deal frequently with unpredictable and uncontrollable events (Finn et al., 2000, Sapolsky, 2004). In addition, they often maintain nonstandard work schedules, which relates to increased stress and reduced well-being (Costa, 2003). In combination, these stressors can lead to negative health outcomes for officers, which can influence their interactions with community members and ultimately the safety of the neighborhoods they serve. Unfortunately, empirical research has yet to provide much concrete guidance on how law enforcement agencies can help their employees to manage stress. Extant research on stress interventions for police officers has shown limited effectiveness (Patterson et al., 2014). In this study, we conducted a review of the published literature related to the effects of stress on officers, law enforcement agencies, and communities; examined training and intervention programs for reducing officer stress; and developed recommendations for creating effective wellness and stress management tools for law enforcement agencies. This study was the foundational phase of the Department of Justice Office of Community Oriented Policing Services project, Developing and Validating Self-Guided Wellness and Stress Management Tools for Law Enforcement Agencies.

Procedures. Searches were conducted in January 2018 in PubMed, Web of Science, and PsycINFO using a predetermined list of relevant keywords. The search was divided into two sections: Law enforcement and health-related individual outcomes, and law enforcement and health-related organizational outcomes. Only peer-reviewed, published articles written in English of studies conducted in the U.S. were included (due to substantial differences in police work, criminal justice systems, and socio-political contexts in other countries). There was no limitation on year of publication. Articles were included if they specifically investigated associations between police work exposures and health- and/or work-related outcomes.

Analyses. We reviewed 81 articles examining individual-level outcomes and 44 articles examining organizational-level outcomes. Information about each article was entered into a structured database, including information about the study sample and whether each study used a longitudinal design, pre/post design, control group, random assignment, and lab v. field study setting. We also recorded constructs measured, data collection methods, results, limitations and suggestions for future research.

Results. A considerable body of research has explored the health and wellness effects of policing on law enforcement officers. Exploratory research has demonstrated that a career in law enforcement can have negative impacts on a variety of outcomes, such as interpersonal relationships, drug and alcohol abuse, and mental health. From an organizational perspective, the research suggests that poor officer health may have negative impacts on officer turnover, absenteeism, and performance. Despite a robust understanding of how policing may negatively impact officers, considerably less is known about what can be done about it. There is a very apparent lack of intervention evaluation research on programs designed to improve officer health and wellness. This is especially true of research employing the most rigorous methods with experimental or longitudinal designs. Finally, replication studies remain scarce. Given the highly localized nature of law enforcement, and the considerable variation among law enforcement agencies, much more research is needed to help agencies understand the kinds of programs that work and under what conditions.

Practical implications. Based on our review, we make the following recommendations to improve future research and practice on police officer stress reduction: 1) Utilize a Total Worker Health® approach to prevent worker injury and illness and advance worker health and well-being; 2) Use experimental designs to better understand the relationships between police work and health, and officer well-being and agency outcomes; 3) Examine health and wellness interventions developed outside of U.S. law enforcement, including policing research conducted in other countries and occupational stress interventions conducted in the U.S. in different occupations; 4) Develop "wise," scalable interventions (Walton, 2014). Hone in on the precise psychological processes that lead to behavior change to allow for brief but effective interventions; 5) Improve measurement of key indicators. Collect objective health, wellness and performance data when possible, and use outside sources of information (e.g., from community members, supervisors, peers, or spouses) when appropriate; and 6) Develop tailored interventions that account for the particular stressors officers experience in different regions, agencies, and roles. Consider how officer characteristics, such as officer race/ethnicity, age and gender, may impact the types and amount of stressors experienced.

Conclusions. Improving the quality of research and practice in law enforcement stress reduction is challenging, but a necessary investment. The law enforcement profession deserves tailored, evidence-based approaches that incorporate police input on their needs and preferences. Managing officer stress facilitates better decision-making, fairer treatment, and improved relationships between officers and the community members they serve.

E-6

Association between Safety Climate, Job Satisfaction and Turnover Intention among Workers in the Stone, Sand and Gravel Mining Industry

Abdulrazak Olanrewaju Balogun (Indiana University Bloomington)

Introduction. Safety climate can be described as employee perceptions of safety prioritization and importance in their workplace. It is an important metric that has mostly been evaluated in association with behavioral safety, injury rates and other safety-related outcomes (Smith, 2018). However, there have been less studies regarding the impact of safety climate on non-injury related outcomes such as job satisfaction and turnover intention, which are also important gauges for employee morale and business performance (Judge et al, 2001). Some of the very few studies in this relatively novel area have studied these relationships in a cross-section of employees in different industries (Smith, 2018), or focused on employees in specific industries such as truck driving (Huang et al., 2016) and healthcare (Nuti et al., 2018). Nearly 102,000 employees work in stone, sand and gravel mining (SSGM) operations across 4303 stone mines and 6292 sand and gravel mines in the United States (NIOSH, 2019). There has been no investigation of the impact of safety climate on job satisfaction or turnover intention in the SSGM industry.

Methods. Cross-sectional data from 181 workers employed in the SSGM industry, collected between February and June 2019, were used in the present study. Measures included safety climate, job satisfaction and turnover intention. The safety climate scale derived from Hahn and Murphy (2008) consisted of 6 items assessed on a 5-point Likert scale ($\alpha = .85$). Job satisfaction, two items assessed on a 5-point Likert scale ($\alpha = .86$) and turnover intention one item assessed on a 5-point Likert scale were adapted from previously developed instruments (Hackman & Oldham, 1975 & 1980; Wilson et al. 2004). Age and perceptions about personal health were also included in the analysis. Following data cleaning, data from 171 respondents were included in the analysis. Safety Climate and job satisfaction variables were combined into composite scores and Cronbach's alpha was calculated to measure internal consistency among variables. Pearson's correlation coefficient was used to assess the relationships between all variables. Hierarchical linear regression models were built to assess the impact of safety climate on turnover intention while a single linear regression model was used to assess the impact of safety climate on job satisfaction. Covariates included age, perceptions of health, and job satisfaction in the model with turnover intention as the outcome variable. All analyses were conducted using SPSS Version 25.

Results. Safety climate was positively significantly correlated with job satisfaction ($r = .37$, $p < .001$), but negatively significantly correlated with turnover intention ($r = -.25$, $p < .001$). Positive significant correlations were also observed between age and job satisfaction ($r = .13$, $p < .01$) as well as perception of health and job satisfaction ($r = .14$, $p < .01$). In the hierarchical linear regression models with turnover intention as the outcome variable, safety climate was the most important statistically significant predictor of turnover intention ($\beta = -.237$; $p < .01$) ahead of personal health perception ($\beta = -.213$; $p < .01$) with age ($\beta = -.043$; $p = .568$) not statistically significant. When added to the model, job satisfaction proved to be the most significant predictor ($\beta = -.373$; $p < .001$) of turnover intention.

In the single linear regression model with job satisfaction as the outcome variable, safety climate was the most significant positive predictor of job satisfaction ($\beta = .366$; $p < .001$), ahead of age and personal health perception ($\beta = .148$ and $.141$ respectively, $p < .05$) which were also significant predictors.

Conclusion. The data analysis results show that safety climate is an important predictor of job satisfaction and turnover intention. These results are similar to those observed by Smith (2018) and Huang et al. (2016). These results underscore the importance of safety in the SSGM industry. They show that the benefits of improving the safety climate in the workplace not only includes reductions in workplace injuries and illnesses as observed in previous studies, but also increased job satisfaction and lower turnover intention which will likely also have positive effects on overall employee well-being and business performance.

E-7

HRM Systems and Employee Injuries: Worker Involvement and Work Intensification as Competing Mechanisms

Alyssa Grocutt (University of Calgary)

Can jobs be designed in such a way that fewer employee injuries occur? For several decades, research has explored how human resource management (HRM) systems—the policies, practices, and procedures enacted in organizations to help employees meet the organization's goals—influence employee attitudes and behaviors (Schuler & Jackson, 1987; Guest, 2001; Boselie, Dietz, & Boon, 2005). Understanding HRM is important because it characterizes how organizations value their employees, which has important implications for how employees 'experience' their working lives. This in turn relates to a variety of important employee and organizational outcomes, particularly occupational safety (e.g., accidents and injuries; Tregaskis, Daniels, Glover, Butler, & Meyer, 2013). However, the research on employee-level outcomes has mixed results, giving rise to two empirically supported theoretical perspectives for the relationship between HRM systems and employee-centered outcomes: the mutual gains perspective (i.e., employee and organizational outcomes are consistently maximized) and the conflicting outcomes perspective (i.e., either employee or organizational outcomes are maximized). A likely explanation for this may be in the mechanisms that link HRM systems to outcomes. However, the mechanisms (or mediating factors) that explain these relationships are not well understood.

The current study investigated two potentially competing pathways linking HRM systems and employee injuries: worker involvement and work intensification. These two pathways represent common lived experiences of employees. That is, employees participate daily in how their jobs are carried out (e.g., the extent to employees have control over the timing and methods of their work) but also face on-the-job demands (e.g., amount of work, pace of work, reliability of workflow). How work is experienced in these ways largely comes from how the work is designed—a combination of practices, policies, and procedures that comprise the HRM system. Therefore, we examined these theoretically-informed mechanisms in explaining how HRM systems related to the important employee outcome of workplace injuries.

We used managerial reports of HRM systems from 2,001 Australian organizations (from the 1995 Australian Workplace Industrial Relations Survey referred to as AWIRS95), combined with over 16,000 employee reports from the same organizations of worker involvement, work intensification, and employee injuries to examine the role of our proposed mechanisms. We examined both the between- and within-organization levels to provide insight into the multi-level relationship between HRM systems and injuries experienced by employees since the AWIRS95

data included responses from managers as well as employees. In particular, we conducted a multilevel ordinal logistic mediation model using the Monte Carlo integration in Mplus (Muthén & Muthén, 2017) given the employee injury variable was a trichotomized categorical measure.

We found support for a direct effect of HRM systems on the aggregate worker involvement and work intensification. The greater reliance on HRM systems in organizations relates to higher perceptions of involvement and work intensification among employees. Additionally, we found support for a negative direct effect of individual worker involvement and positive direct effect of individual work intensification on individual employee injuries. While HRM systems had a similar statistical effect size in its association with worker involvement and intensification, the negative effect size between work involvement and employee injuries was meaningfully larger than the positive effect size between work intensification and employee injuries. Finally, support was found for an indirect effect of HRM on employee injuries through worker involvement as well as through work intensification. The findings support both a mutual gains perspective and conflicting outcomes perspective on the effects of HRM on employee injuries.

This study provides insight into the possible ways in which organizations can enhance employee safety. First, implementing organizational systems that involve HRM policies, practices, and procedures can have beneficial effects on the lived experience of employees. Specifically, implementing HRM practices can enhance employee autonomy, which can result in beneficial employee outcomes such as fewer injuries experienced. Due to the observed importance of autonomy on injuries experienced by employees, organizations should work to increase employee autonomy regardless of how this is done. Second, the intensification of work can be detrimental for employees as they may experience more injuries due to greater demands. Therefore, organizations also need to ensure that HRM systems do not enhance the intensity of work as experienced by employees. In sum, HRM systems can both enhance worker involvement and work intensification, each of which serves as a competing pathway through which employees experience workplace injuries. To minimize employee injuries, this study suggests that HRM systems need to bolster employee perceptions of autonomy and mitigate perceptions of work demands.

Workplace Stress and Related Outcomes

F-1

A new investigation of the stability of job satisfaction: An application of second-order growth mixture modeling

Xue Lei (George Mason University)

In the current era of dynamic change in the workplace, it is particularly important for the talent management to maintain or improve employee's job satisfaction overtime. To date, multiple studies have examined employees' job satisfaction from a longitudinal perspective. Overall, they have shown that job satisfaction is relatively stable over time. For example, Schneider and Dachler (1978) examined stability of job satisfaction using the job descriptive index (JDI) and reported an average test-retest reliability of .57 across 16 months. Since this seminal research, more research continues to reveal the stability of job satisfaction with a moderate to high test-retest reliability across a few months or years (e.g., Agho, et al., 1993; Dormann & Zapf, 2001; Johnson & Johnson, 2000). More recently, there have been new attempts to examine employees' job satisfaction and their relationship with covariates using the multilevel approach (Dobrow Riza, et al., 2018; Liu et al., 2012).

Although these studies provide significant insights into understanding the stability of job satisfaction, they predominantly rely on the variable-centered approach (e.g., correlation and hierarchical linear analyses). This approach assumes a population is homogeneous in terms of job satisfaction and any relations among variables are identical to the entire population. Accordingly, previous research ignores any possibilities to identify qualitatively different trajectories of job satisfaction within the population. To fill this gap, we investigated the differential trajectory profiles of job satisfaction and their relationships with covariates using a second-order growth mixture model that allows us to detect unobserved profiles characterized by differential shape and rates of change across time (Muthén & Muthén, 2000).

Participants & Measures

For this purpose, we used a publicly available longitudinal dataset from the Work, Family, and Health Network Study (Kossek et al., 2017). From the dataset, we selected 400 participants in the control group to demonstrate the normal situation. The dataset was collected from four time points (baseline, 6, 12, and 18 months). A job satisfaction measure with 3 items and other predictors and outcome measures were used. The average age and job tenure was 45.47 (SD = 8.91) and 12.87 years (SD = 10.42), respectively. 63% were male.

Analyses & Results

Our study was conducted with a series of steps using the Mplus program. Following Little's (2013) suggestion, we first investigated the longitudinal correlation patterns (see Table 1) and confirmed that longitudinal confirmatory factor analysis (LCFA) was appropriate. Then we identified our data fit to the LCFA very well (RMSEA = .037; CFI = .992; TLI = .982; SRMR = .027). Next, we conducted a longitudinal measurement invariance test and confirmed a strict measurement invariance was satisfied (see Table 2). Then, we tested a second-order growth curve model and found significant variances of the intercept ($\psi_00=0.38, p<.00$) and the slope ($\psi_11=0.02, p<.00$), which indicates the potential heterogeneity in individual trajectories. Based on this result, we conducted a second-order growth mixture model and determined the 3-trajectory-profile as the optimal solution based on the fit indices and the rule of parsimony (see Table 3 and Figure 1). The three profiles are displayed in Figure 2. The majority of the employees (Profile1: 85.1%) have a high level of job satisfaction and are very stable across four time points, whereas a smaller number of employees showed increasing (Profile2: 8.1%) or decreasing (Profile3: 6.8%) trajectory patterns. Finally, to investigate differential relationships between profiles and covariates, we conducted a second-order growth mixture model with time-invariant covariates using the R3STEP and DCON command (Asparouhov & Muthén, 2013). Table 4 shows that a family supportive supervisor behavior and an organizational work-family climate are more significant predictors of Profile1 than other profiles. Table 5 shows that Profile1 had the lowest level of turnover intention and burnout and a higher OCB compared to Profile3. Profile2 also had lower turnover intention compared to Profile3.

Conclusions

From an organizational perspective, it is critical to understand how employees' job satisfaction changes over time. Because this effort not only provides HR personnel or Employee Assistance Program providers with a more comprehensive picture of employees' job attitudes, but also helps to develop more adaptive intervention programs for differently changing subgroups. Nevertheless, there has been little to no research to investigate job satisfaction trajectories and their differential

relationship with covariates from the longitudinal and person-centered framework. We believe this is the first study to fill the gap by applying a second-order growth mixture model. Although our study found the majority of employees belonged to Profile1, a relatively small number of employees still belonged to other profiles and presented differential relationships among variables. These findings suggest that previous research investigating the stability of job satisfaction based on the common variable-centered approach may oversimplify the heterogeneous job satisfaction trajectory of unique sub-populations. In sum, given increasing emphasis on workers' heterogeneity and dynamic phenomena, our research provides organizations with important implications to improve or maintain employees' job satisfaction.

F-2

Internal and External Factors and Weekend Telepressure

Thomas Ayres (University of Tulsa)

Problem Statement. As technologies becomes central to work-related communication, understanding for whom technologies are perceived as unique stressors is of interest to occupational health psychologists. Telepressure describes an individual's preoccupation with or urge to respond promptly to any work-related information and communication technology message during personal time or business hours (Barber & Santuzzi, 2015). Early studies have linked telepressure to outcomes like burnout, poor sleep hygiene, and increased perceived stress (Barber & Santuzzi, 2017). However, the internal factors (e.g., workaholism; Grawitch, et al., 2018) and external factors (e.g., support; Barber & Santuzzi, 2017) that are most predictive of these experiences are not well understood. Consequently, this study explores two predictors of telepressure experienced during a weekend: transformational leadership, an external factor; and self-regulation, an internal factor. Results from this study may point to areas to intervene to prevent or reduce experiences of telepressure.

Transformational Leadership. Research has identified that transformational leadership (TL) may reduce stressful job demands (Fernet, et al., 2014), provides resources necessary to manage stress (Breevaart et al., 2014), and reduces employee burnout, an outcome of weekend telepressure (Arnold, 2017). It is relevant for reducing telepressure during off-work hours because TL has been shown to influence work-family conflict/enrichment (Hammond et al., 2015). Despite these positive results, some transformational leader behaviors may lead to more telepressure. Thus, three dimensions of TL are of interest in relation to weekend telepressure. High performance expectations is expected to increase weekend telepressure through individuals feeling the pressure to respond to work communication in order to achieve the excellence expected from them, Fostering goal acceptance is expected to increase weekend telepressure through individuals feeling the pressure contribute to the cooperation amongst members to achieve their common goal. Individual support is expected to reduce weekend telepressure through leaders showing concern for the needs and feelings of employees and thus support them in disconnecting from work communication over the weekend. Therefore, we propose:

H1: (a) High performance expectations, and (b) fostering goal acceptance will positively predict weekend telepressure.

H1c: Individual support will negatively predict weekend telepressure.

Self-Regulation. In addition to external factors that contribute to the exposure and response expectations for tech-based communication, recent research suggests internal factors, such as individual differences in self-control, may affect telepressure too (Grawitch et al., 2017). Trait-based self-regulation is expected to be relevant to predicting telepressure because it determines the extent to which individuals can regulate their emotions and actions. Thus, self-regulation may help employees resist compulsive tendencies like the urge or preoccupation to respond to work-related messages after hours. Therefore, we propose:

H2: Self-regulation will negatively predict weekend telepressure.

Method. Participants for this study include 86 Mechanical Turk Workers. The average age of the workers were 39.23 years and 52.8% were male. The sample was 75.3% Caucasian, 9% African American, 6.7% Asian, 3.4% Hispanic, 3.4% Multi-ethnic, & 1% other and workers averages a 41.8-hour work week. The study included three surveys over the course of one week. The first survey asked about trait self-regulation using the self-regulation scale (Schwarzer, Diehl, & Schmitz, 1999).The second, administered on Thursday, assessed transformational leadership using the Transformational Leadership Inventory (Podsakoff, Mackenzie, Moorman, & Fetter, 1990).The third, administered on Sunday evening, assessed telepressure using the telepressure scale developed by Barber and Santuzzi (2014).

Results

Results of a two-tailed multiple regression analysis show that both individual and external factors predict telepressure [$F(4,81) = 4.30$, $MSE = 1.11$, $p < .01$]. Fostering goal acceptance significantly predicted weekend telepressure ($\beta = -.29$, $sr2 = .04$, $p < .05$), but was negative. At one-tailed, High performance expectations ($\beta = .21$, $sr2 = .04$, $p < .10$) and individual support ($\beta = .27$, $sr2 = .04$, $p < .10$) were significant positive predictors of weekend telepressure. Thus, hypothesis 1a was supported, while hypotheses 1b and 1c were not. Self-regulation was the strongest predictor and accounted for the most variance in weekend telepressure ($\beta = -.37$, $sr2 = .12$, $p < .05$), supporting hypothesis 2.

Discussion

Our findings indicate that both external and internal factors are important predictors of individual's weekend telepressure. Notably, the internal factor, self-regulation was the strongest predictor. One could expect this finding because controlling one's feelings and actions may directly influence the impulse to respond to work communication. Another notable finding is that while fostering goal acceptance and individual support did significantly predict telepressure, they were opposite of the hypothesized directions. Indeed, a two-tailed test confirms fostering goal acceptance as a negative predictor of telepressure while individual support was not significant. These findings could result when leaders promote involvement and followers have positive responses to being contacted, or increased pressure resulting from feeling obliged to reciprocate leaders investment in the follower by responding to work communication. High performance expectations positively predicted weekend telepressure as expected. These findings support further investigation into internal and external factors that predict individual's weekend telepressure.

F-3

Visiting the Good Soldier Syndrome in Its Original Context: Antecedents of Organizational Citizenship Behaviors (OCBs) Role Definitions

Alper Kayaalp (South Dakota State University)

The objective of the present study was to investigate the potential antecedents of OCB role definitions in the Turkish working context as these are not included in the dominant OCB theoretical frameworks.

In the quest to clarify the operationalization of OCBs, examining the factors that influence OCB role definitions seems like a necessary path for research. As contradictory findings are found, some researchers have suggested that additional research is needed to understand the conditions that prompt individuals to define OCBs as in- or extra-role (Tepper & Taylor, 2003; Zellars, Tepper, & Duffy, 2002). Responding to these calls, a theoretical model was developed to examine the factors of OCB role definition determinants. Drawing from social exchange theory (Adams, 1965; Blau, 1964), the question of how transformational leadership and job satisfaction relates to OCB role definitions was investigated by identifying psychological processes of followers' role definitions with moderation effect of procedural justice. Further, although there are many OCB studies in civilian organizations, little attention has been paid to OCBs from a military perspective (Gurbuz, 2009), which is surprising as OCBs were first conceptualized as "good soldier syndrome" (Bateman & Organ, 1983). OCBs may be exceedingly important in a military environment where personnel are expected to put their lives on the line when necessary.

The focus in the present study is on job satisfaction as an attitudinal, individual antecedent and leadership perceptions as a relational antecedent of OCB role definitions. Additionally, procedural justice (as a contextual factor) was investigated as a boundary condition for these relationships. The model draws from social exchange theory (Adams, 1965; Blau, 1964) and its central tenet, the norm of reciprocity which states that (1) a positive work environment is formed by an organization and/or its leaders and (2) that beneficial actions towards individuals create an impetus (i.e., a social force) on employees to reciprocate in positive ways through their attitudes and/or behaviors (Coyle-Shapiro et al., 2004). As OCB role definitions are a discretionary act similar to extra-role OCB, it can be expected that this sense of obligation towards positive treatment is reflected in broader role definitions. That is; job satisfaction and positive leadership perceptions might influence how employees define their jobs and might also have a more prominent effect on employees who have a high level of procedural justice perception. Additionally, the effect of leadership on role definition has been scarcely examined. However, supervisor–subordinate relations are of particular importance in organizations as supervisors' central role is as figures that enact organizational policies and procedures (Kamdar et al., 2006). As such, leadership behaviors, such as transformational leadership, may influence subordinate beliefs about their job-role limits (Ogurlu & Sevim, 2017).

Furthermore; procedural justice seems to be an important and theoretically relevant contextual boundary condition of the relationship between the selected antecedents and OCB role definitions because both job satisfaction and transformational leadership have, to some extent, fairness aspects (Karakus, 2018). From this viewpoint, it is expected that employee procedural justice perceptions can attenuate or enhance the effects of job satisfaction and transformational leadership on OCB role definitions.

A randomly selected sample of 320 personnel from the Turkish military were sent questionnaires. Participants were given general information about the purpose of the study and confidentiality was assured. Of 274 questionnaires returned, 11 were eliminated due to extensive missing data. As such, the final sample consisted of 263 individuals (82%) of which 90.88% were male and 9.12% percent were women. The average age was 31 years (SD = 6.59), and the average tenure was 10 years (SD = 6.57).

With regard to role definitions, both OCB-Individual and OCB-Organization role definitions values had mean values below the mid-point of the scale implying that OCBs were more frequently defined as in-role. Using correlation, job satisfaction and transformational leadership were found to be positively related to how broadly subordinates define their OCB-Individual Role Definitions. Moderation analysis found that procedural justice climate had a moderator effect on the relationship between job satisfaction and OCB-Individual and OCB-Organization role definitions. Additionally, procedural justice climate had a moderator effect on the relationship transformational leadership and OCB-Organization role definitions. This moderation shows that these relationships are stronger when the subordinates have a higher level of procedural justice perceptions. That is; a satisfied employee will likely define their job broadly; more so, when that individual perceives that they have been treated fairly. Similarly, an employee who is motivated and inspired by a transformational leader will likely define their job broadly; more so, when that individual also perceives that they have been treated fairly.

Overall, the current study adds to the OCB literature by investigating military personnel and provides additional support by indicating the importance of employees' perceptions of role definitions. The most noteworthy implication of this study is that supervisors/organizations can directly influence employees' OCB role definitions.

F-4

A study on the main occupational stress factors in Brazil

Paulo Domingues Junior (UFRRJ)

The present research aimed to verify the levels of stress in the organizational environment, identifying the main factors which cause professional stress in Brazil. Therefore, 608 economically active people from different Brazilian states and from different work sectors were surveyed. This study can be characterized as quantitative and descriptive, considering that "it is a research methodology which seeks to quantify data and applies some form of statistical analysis" (MALHOTRA, 2012, p. 111).

For the data collection phase, a questionnaire containing 40 questions was elaborated and applied, using the 23 stress factors of the Occupational Stress Scale (OSS), validated by Paschoal and Tamayo (2004), and widely used in research on this theme in Brazil. According to Malhotra (2012), the questionnaire is a "structured technique for data collection that consists of a series of questions, written or oral, which a respondent must answer" (MALHOTRA, 2012, p. 243). According to Gray (2012), "when the public is relatively large and where standardized questions need to be asked, the questionnaire is ideal and will allow, if necessary, an analytical approach exploring the relationships between variables" (GRAY, 2012, p. 274).

The questionnaire was accessible on the online platform Google Forms in Brazil, aiming to reach a large number of participants so as to increase the reliability of the sample. The survey was applied recently and its data have been finalized. The questions used a 5-point agreement scale similar to the Likert scale, with the following variations: 1 - Strongly disagree; 2 -Disagree; 3 –Partially agree; 4 - Agree; 5 -Totally agree. All factors have negative direction, indicating that the higher the degree of agreement with the factor, the higher the level of stress relative to the factor.

The analyses of this research were carried out with the aid of statistical tools available in the IBM SPSS 21.0 software (Statistical Package for Social Sciences) and in the Microsoft Excel 2010 spreadsheet.

The assigning scale scores from 1 to 5, to indicate stress levels, allowed for descriptive measures such as mean and mode, as well as measurements of dispersion, such as variance and standard deviation. In addition, statistical analyses were performed based on Cronbach's Alpha calculation and factorial analysis.

Based on the analyses, it was possible to observe that the responses, obtained for the 23 OSS stressors, present an acceptable internal data reliability, based on the Cronbach Alpha test. Regarding the factorial analysis, it was verified that the 23 factors can be grouped into four major stress groups. Another point of importance in this study was the measurement of the stress mean in the value of 2.54, which, within the adopted classification, represents average level of stress. It somehow explains the fact that we constantly hear professionals say that they feel stressed in Brazil.

Results demonstrated that the professional stress level of the Brazilian population, according to the established cut-off points, is of medium degree, and may vary according to each profession. Factors such as autonomy and control at work, disclosure of information, superior reliance at work, discrimination and favoritism at work, competition in the work environment presented average levels of stress.

Regarding the main stressors we emphasize that few perspectives of career growth, deficiency in training for qualification and the way the tasks are distributed are the main causes of work stress in Brazil. We also emphasize that these three main factors of professional stress are the same both in the public and in the private sectors.

Given the results revealed, we believe that Brazilian companies must provide policies and tools capable of fostering professional growth, generate future expectations, intensify opportunities for training and qualification, and share tasks more evenly.

F-5

Patterns of Insecurity: Predicting Latent Job Insecurity Profiles

Anthony Naranjo (University of Central Florida)

Job insecurity (JI) research has taken a variable-centered approach to learn more about the nature of cognitive job insecurity (CJI) and affective job insecurity's (AJI) relationship as well as the relationship of each with various antecedent and outcome variables (e.g. Huang et al., 2010; Huang et al., 2012; Pienaar et al., 2013; Jiang & Lavaysse, 2018). JI studies utilizing a variable-centered approach traditionally operate under the assumption that CJI and AJI are linearly related, which suggests the greater the likelihood of anticipated job loss, the more individuals are expected to experience concern or worry (Jiang & Lavaysse, 2018). However, from a person-centered approach, this may not be the case. For instance, employees who experience similar levels of CJI may differ greatly in their AJI with some expressing significant concern and others showing moderate to little concern. Thus, the purpose of this study is to go beyond the variable-based explanation to identify patterns in individuals' experiences of CJI and AJI (especially profiles where these don't align) and examine how JI profiles can be explained by factors that shape employees' reaction to JI based on Shoss's (2017) discussion.

Shoss (2017) noted that some of these factors might not only impact reactions to JI, but also the extent to which employees perceive job loss as a likely occurrence. The current study will utilize three groups of factors identified by Shoss (2017), namely psychological vulnerabilities, subjective economic vulnerabilities, and objective economic vulnerabilities, as predictors of the likelihood of CJI/AJI profile membership.

Psychological vulnerability factors (e.g. work related self-esteem and work centrality) are expected to predict greater levels of AJI as these factors may exacerbate stress related to JI (Shoss, 2017). However, employees most connected to work are likely to be the most valuable to organizations. Thus, while job loss may be unlikely, consequences for the self are large, so these employees likely experience lower CJI yet higher AJI.

Some objective (e.g., gender and years of schooling) and subjective economic vulnerability factors (e.g., perceived employability and intentions to quit) may also increase probability of membership in a JI misalignment profile (moderate to high CJI and low AJI). Both objective and subjective economic factors (e.g., gender, years of schooling, intentions to quit, and perceived employability) have been shown to be associated with higher JI (Anderson & Pontusson, 2007; Emberland & Rundmo, 2010; De Cuyper et al., 2012). However, although these economic factors may increase chances that employees inherently perceive continued employment with their organization to be at risk (CJI), the affective component associated with the JI process may not be felt as strongly. In contrast, some objective factors (e.g. lower education degree and age) may increase chances employees are aligned in degree of perceived CJI and AJI. These objective factors may contribute to perceived labor market insecurity, feelings of anxiety over job threats, and greater AJI (Shoss, 2017).

The sample (N = 934) and survey items for the current study were obtained from the 2015 International Social Survey Programme Work Orientation archival dataset. Following the three-step procedure described by Asparouhov and Muthén (2014), we utilized latent profile analysis (LPA) to identify latent JI profiles using CJI/AJI indicators; then, we used multinomial logistic regression to predict the latent JI profiles.

Results provided support for emergence of JI misalignment profiles as well as a JI alignment profile. The best fitting model was a three-class solution, see Table 1 for the LPA results. The three-class model had a significantly better fit than the one and two class solutions. The three-class solution had higher entropy than the four-class solution and contained no spurious classes (i.e., less than 5% of sample; Hipp & Bauer, 2006), which was detected in the four-class model. Results from the multinomial logistic regression revealed significant predictors from each of the three identified groups of predictors, see Table 4 for full results. In addition, results provided support for the hypothesized direction for most of the significant predictors (e.g., high perceived employability was shown to significantly increase probability of membership in high CJI, low AJI class compared to JI alignment profile and moderate CJI and high AJI misalignment class), with the exception of intentions to quit.

The current study is one of the first studies to take a person-centered approach to examine patterns of cognitive and affective JI. Theoretically, results provide support for a shift in how organizational researchers currently view the relationship between cognitive and affective JI, which is an alignment relationship. From a practical standpoint, organizational leaders can gain a better understanding on which factors may increase probability that employees experience these various patterns of job insecurity. Future research should build on the current study by examining additional predictors of JI misalignment profiles, as well as outcomes that may be predicted by these various profiles.

F-6

Politically Skilled Employees Can Alter Their Jobs So That They Stay and Are Healthier

Minseo Kim (Griffith University)

Job crafting is employees' self-initiated proactive behaviors changing characteristics of their jobs in personally meaningful ways, including social resources, structural job resources, and challenging demands (Tims, Bakker, & Derks, 2012). It leads to better person-job fit, and recent meta-analyses showed crafting produces favorable outcomes (Lichtenthaler & Fischbach, 2018; Rudolph, Katz, Lavigne, & Zacher, 2017). We propose that crafting leads to fewer withdrawal behaviors via feelings of ownership (based on psychological ownership theory; Pierce, Kostova, Dirks, 2001), but also leads to employee strains through perceived stress based on common stress theories (e.g., Kahn & Byosiere, 1992).

A few studies began investigating potential antecedents of employees' crafting behaviors. Job characteristics of autonomy (e.g., Niessen, Weseler, & Kostova, 2016) and leadership styles (Kim & Beehr, 2018; Wang, Demerouti, & Le Blanc, 2017) are examples. A few personal characteristics predicting job crafting have been also found: self-efficacy (Tims, Bakker, & Derks, 2014) and proactivity personality (Bakker, Tims, & Derks, 2012). We propose that job crafting may also depend on individual competencies, namely political skills, which may be necessary to have one's crafting activities accepted by superiors. We expect that politically skilled employees are likely to craft their jobs, so that they develop feelings of psychological ownership for the job and less perceive work stress, which consequently affects their withdrawal intentions and subjective well-being (Figure 1).

Political skill is "the ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives" (Ferris et al., 2005, p. 127) and consists of social astuteness, interpersonal influence, networking ability, and apparent sincerity. It has a broad effect on a range of positive outcomes (Munyon, Summers, Thompson, & Ferris, 2015). Politically skilled employees can secure resources to accomplish tasks and have well-developed understandings of social interactions and contexts, which enable them to adjust their behavior appropriately (Ferris, Davidson, & Perrewé, 2011). Overall, because politically skilled individuals navigate the social context of work, assess and understand situations well, and perceive themselves as masters over their work environment (Ferris et al., 2007), they should be able to craft their job/environment to do work well.

Employees who engage in job crafting redefine their jobs to incorporate their motives, strengths, and passions, which make them more attached to work and feel control and ownership toward their jobs (Brown, Pierce, & Crossley, 2013). Job-based psychological ownership represents the attachment between employees and the job itself (Peng & Pierce, 2015; Van Dyne & Pierce, 2004), resulting in less withdrawal (intention to leave and absence). Employees who engage in job crafting align their working conditions to their own needs and abilities, creating greater person-job fit, which is linked to lower job stress (e.g., Park, 2018), which results in fewer physical and psychological problems.

Overall Mediation Hypothesis. Job crafting, and then job-based psychological ownership and perceived work stress, serially mediate the relationships of political skill with withdrawal behaviors and well-being.

Full-time U.S. employees working in a variety of industries were recruited from TurkPrime, selecting only those holding at least a 95% approval rating from previous assignments, consistent with existing recommendations for best practices (Mason & Suri, 2012). Data were collected four times with one-month intervals (Figure 1) to reduce effects of common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). After removing non-purposeful and failed attention-check responses across four surveys, 322 responses remained (50.3% female, 81.6% white, 68.6 % college-educated, mean age = 39.82). Measures of the eight variables in the model were all previously used in published sources.

Table 1 contains correlations and descriptives, and Table 2 shows fit indices. Both the measurement and hypothesized models fit the data well. An overall structural equation model with LISREL 8.8 (Jöreskog & Sörbom, 2006) was used to test the hypothesis and verify the indirect effect of political skill on withdrawal behaviors and well-being. We then tested alternative models in two ways for further evidence about mediation. None of new direct paths in the two alternative models were significant (Figures 3 and 4), and fit indices were unchanged (Table 2) however, emphasizing the mediating mechanisms.

Overall results suggested that job crafting in the first part of the model, and job-based psychological ownership and perceived work stress in the second part, are important intervening variables linking employees' political skill to their withdrawal behaviors and well-being. Political skill serves as a key antecedent of employees' job crafting, and job crafting behaviors predict their withdrawal behaviors and well-being through job-based psychological ownership and perceived work stress. Political skill is believed to develop through training, mentoring, and socialization (Ferris et al., 2008). Therefore, if an organization provides employees with enough resources and support to develop political skills, it would help in creating productive and healthy workplace by reducing withdrawals and ill-being.

F-7

Organizational Citizenship Behaviors and Work Stress: Preliminary findings in Workers in Chile

Edmundo Varela (Pontificia Universidad Católica de Valparaíso)

Background. Organizational citizenship behaviors (OCBs) as voluntary contributions of collaborators (e.g., support new colleagues, attending committees to address a problem) benefit to the organization (e.g., increased sales, better organizational climate). However, lack of clarity about its association with work stress exists. Along with coining the concept of OCBs, Organ and Ryan (1995) suggested effects on work stress in those who do them, but the available evidence is rather mixed. Some studies suggest that OCBs increase work stress (Bolino, Turnley, Gilstrap & Suazo, 2010; Cooper & Barling, 2008), and others do not strongly support this association (Agheli, Roshangar, Parvan, Sarbakhsh & Shafeh, 2017; Van der Meer, 2010). This study suggests that those differences between studies could be associated with different influences of OCBs dimensions. The dimensions of OCBs (Organ, 1997, 1988) are (a) altruism, which refers to help behaviors to colleagues or the organization; (b) conscientiousness, which refers to abide by the organization's rules; (c) sportsmanship, which refers to devoting greater constructive efforts to the organization; (d) courtesy, which refers to consulting other people before making decisions; and (e) civic virtue, as actions that show concern for common good in the organization. Altruism, courtesy and civic virtue seem associated with greater work overload. But conscientiousness and sportsmanship are less, because of its association with implementing strategies and

tolerating frustration. Few studies address OCBs from the perspective of negative effects, and less from the relationship between their dimensions and work stress. According to Berber and Rofcanin (2012), is required more theoretical and empirical evidence of between OCBs and work stress relationship.

Objectives and Hypothesis: This study aims to evaluate if OCBs dimensions have different influence over work stress. The general hypothesis is OCBs dimensions would influence work stress differently. Specifically, that altruism, courtesy, and civic virtue would increase work stress, and conscientiousness and sportsmanship would decrease it.

Method and Results. The sample is composed by 270 Chilean workers (48% males, Mage = 37.6 (11.7)). 44% are professionals (e.g., Engineer, Psychologist, Journalist), 53% work in a small enterprise, and 41% would be medium socioeconomic status (SES). Participants responded voluntarily to a questionnaire with 5-level Likert scales. About 5% of contacted refused to participate. The preliminary results of a multiple regression analysis using SPSS 18.0 statistical software partially support the general hypothesis. Such as was postulated, altruism ($\beta = .330$, $p = .000$, $\alpha = .78$; e.g., "I help others who have heavy workloads") and civic virtue ($\beta = .205$, $p = .004$, $\alpha = .79$; e.g., "I attend meetings that are not mandatory, but considered important") would increase work stress ($\alpha = .69$; e.g., "I have so many things to do, that I have to work outside of my working day", "I have so many things to do, that I leave part of them without realizing"), and conscientiousness ($\beta = -.205$, $p = .043$, $\alpha = .64$; e.g., "Notice in advance when I cannot attend work") and sportsmanship ($\beta = -.163$, $p = .024$, $\alpha = .68$; e.g., "I complain a lot about trivial matters" (reversed)) would decrease it. Different has been estimated, courtesy ($\beta = -.175$, $p = .071$, $\alpha = .68$; "I informed myself before taking any important action") would not influence according to the data of this study. The variance explained was moderate ($R2 = .180$). The analysis included gender ($\beta = -.008$, $p = .930$), age ($\beta = -.009$, $p = .027$) and SES ($\beta = -.005$, $p = .939$) as control variables.

Discussion: This study evidence that OCBs dimensions would influence differently on work stress. These findings would collaborate with a better understanding of the results in earlier studies (e.g., Agheli et al., 2017; Bolino et al., 2010; Van der Meer, 2010). Although positive emotions had been linked to prosocial and cooperative behaviors (Carlson, Charlin and Miller, 1988), altruism and civic virtue would have a counterpart in work stress. This study supports a negative association of sportsmanship (Van der Meer, 2010), but also for conscientiousness. Work-related stress is one of the most common and costly challenges in the workplace (Sauter et al., 1999), and the findings contribute to precise the OCBs' influence. Some limitations are associated with the few measures of work stress included. Reliability of some scales are little less than .70 necessary. Future studies should include more comprehensive measures of work stress. Bolino et al. (2010) found that people who felt pressured to do OCBs manifested higher levels of stress. Future studies should also propose more complete models of OCBs and work stress, which blend factors that increase or decrease (e.g., control, mediation) the intentions of performing OCBs.

F-8

A Latent Profile Analysis of Giving and Receiving Organizational Citizenship Behaviors toward Individuals

Seulki Jang (Penn State Mont Alto)

Introduction. In the OCB literature, the focus has been on giving OCB, and receiving OCB has been understudied. Given that OCB is based on social exchange interactions (e.g., Konovsky & Pugh, 1994), it is important to study those who benefit from OCB as well as those who perform OCB to holistically understand OCB phenomena. Therefore, the proposed research investigates both giving and receiving OCB. Specifically, we focus on OCB toward individuals (OCB-I) because the aims of the proposed research are to investigate giving and receiving among individuals versus exchanges between the individual and the organization.

The purpose of the proposed research is threefold. The first is to identify individual-level giving and receiving OCB-I latent profiles. The second is to examine whether theoretically relevant individual-level antecedents significantly differentiate the profiles. Based on theoretical reasons and empirical evidence, dispositional variables (i.e., conscientiousness, positive affect, and other-oriented empathy), one task characteristic variable (i.e., task interdependence), and one attitudinal variable (i.e., job satisfaction) were selected as antecedents. The third is to investigate how the identified profiles relate to different individual-level physical and psychological strain. Our study contributes to theory and research that investigates health-related outcomes associated with OCB-I. This is important in that recent studies have examined the potential health costs and benefits associated with helping others (Lanaj et al., 2016). We extend this line of research by examining both physical and psychological strain associated with both giving and receiving OCB-I.

Method. We collected three time point survey data through Qualtrics online panels. A total of 1,062 employees participated in Wave 1, 615 employees in Wave 2, and 417 participants in Wave 3. The average time intervals were 9.84 days (SD = 3.81) between Wave 1 and Wave 2, and 9.48 days (SD = 2.72) between Wave 2 and Wave 3.

In Wave 1, we collected participants' demographic information, conscientiousness (Goldberg, 1992), positive affect (PANAS; Watson et al., 1988), other-oriented empathy (Penner et al., 1995), task interdependence (Van der Vegt et al., 2001), and job satisfaction (Cammann et al., 1979). In Wave 2, we assessed participants' giving OCB-I (Settoon & Mossholder, 2002) and receiving OCB-I (modified Settoon & Mossholder, 2002; see Appendix A). In Wave 3, we collected participants' physical strain (Larsen & Kasimatis, 1991) and psychological strain (OLBI; Demerouti et al., 2010) information.

Results and Discussion. Latent Profile Analysis (LPA). LPA, specifically the three-step approach of LPA, was performed in Mplus 7.4. Table 1 presents the fit statistics. In consideration of all fit indicators, the three-profile model was selected as the optimal model. We named the three groups vigorous, moderate, and passive OCB-I groups (see Figure 1). Each group contained more than 5% of participants.

Based on the three-profile model, we investigated relationships between the proposed antecedents and the three profiles (see Table 2). Positive affect, other-oriented empathy, task interdependence, and job satisfaction contributed to differentiating the profiles, and specifically other-oriented empathy most effectively differentiated the three profiles, showing the largest effect sizes.

Furthermore, physical strain and psychological strain differences were examined among the vigorous, moderate, and passive OCB-I profiles (see Table 3 and Figure 2). Regarding physical strain, the passive OCB-I group showed the lowest, the moderate OCB-I group showed moderate, and the vigorous OCB-I group showed the highest physical strain. However, the means were not significantly different. For psychological strain, the vigorous OCB-I group showed the lowest,

the moderate OCB-I group showed moderate, and the passive OCB-I group showed the highest psychological strain. The mean scores of the vigorous and the passive OCB-I groups were significantly different and the mean scores of the vigorous and the moderate OCB-I groups were significantly different.

Implications. In this study, incomparable results were found between physical and psychological strain. Specifically, results insinuated that engaging in high levels of giving OCB-I and receiving OCB-I (the vigorous group) would be beneficial for psychological health, but not beneficial for physical health. This discrepancy between physical and psychological health outcomes might be the cause of inconsistent conclusions across studies in the relationship between OCB and health. This study provides a clue for the inconsistent conclusions across studies regarding OCB-health relationship. Additionally, the discrepant results between physical and psychological strain infer that giving and receiving OCB-I might affect health through two separate pathways: physical and psychological. This inference calls for more theoretical papers that can explain the two separate pathways and offers empirical evidence for future theories.

F-9

Emotionally Smart, Successful Teams

Catalina Ruiz (Albizu University)

This Study examined the relationship between Teamwork and Emotional Intelligence in the workplace. According to Ashforth and Humphrey (1995), emotions are highly attached to the work setting. Successful work teams have certain specific attributes that characterize them or differentiate them from others. These particularities have been defined as communicative, cohesive, innovative and grounded with individual member support. Studies in The Emotional Intelligence (EI) field have identified that individuals with a high level of emotional intelligence have the characteristics mentioned before. These individuals know how to communicate assertively and sympathized with others, which leads to generating relationships based on support and greater group cohesion (Thoits, 1989, Abraham, 1999). In addition to this, the individuals that possess these qualities have shown a high capacity for invention and innovation that benefits their environment (Scott and Bruce, 1994). For this study, 323 participants were conveniently sampled, and were asked to complete a questionnaire concerning Teamwork and Emotional Intelligence. In the sample collected there was a larger number of female participants (26% male, 74%female) with the ages ranging from 18 to 81 years, mode being 25. The key findings on this study showed a small correlation between Teamwork and Emotional Intelligence.

F-10

The impact of interpersonal locus of control on interpersonal conflict-work engagement relationships: An initial investigation

Ashley Nixon (Willamette University)

Interpersonal conflict is a frequently reported job stressor (Bolger, et. al., 1989; Keenan & Newton, 1985). Three distinct types of interpersonal conflict have been identified (see Barki & Hartwick 2004; Bruk-Lee & Nixon, 2011). Relationship conflict refers to conflict emerging from personal incompatibilities or issues, while task conflicts are over task related issues, such as differing opinions regarding the objectives of a work task. Non-task organizational (NTO) conflict arises from disputes over issues that are organizational in nature, such as organizational policies or power hierarchies. The stressor-strain process is often conceptualized as a stimulus-response process. When job stressors are perceived, such as interpersonal conflict, they can lead to negative emotional responses. These responses lead to strains, such as diminished engagement (Jungst & Blumberg, 2016).

A critical variable in many theoretical conceptualization of how job stressors affect employee strain involve the role of control (Spector, 1998). Most research on control in stressor-strain research has concentrated on work related locus of control (LOC), or the control one has over the work domain (Spector & O'Connell, 1994). The role of interpersonal LOC has received limited evaluation in the work conflict literature. Interpersonal LOC refers to the extent to which individuals feel they have control over interpersonal contexts, such as communicating their views to others and developing social relationships (Paulhus, 1983). We anticipate that nurses with higher interpersonal LOC will experiences less conflict, as well as reduce negative emotions and strain associated with conflict, including the sub dimensions of work engagement: absorption, dedication, and vigor.

The goal of this project was to examine the impact of interpersonal LOC on interpersonal conflict – work engagement relationships. Drawing on a sample of nurses, we examine direct relationships and a model, in line with the control model of the job stress process (Spector, 1998), in which interpersonal LOC impact the experience of relationship, task, and NTO conflicts at work, which impact negative emotions, and finally, through negative emotions, work engagement.

Method. Participants for this study were employed nurses who were contacted vie email and completed a questionnaire posted on a web-based service. They were primarily female (93%), Caucasian (79%), and working in direct patient care (68%). The average age was 44.6 years, and ranged from 23 to 71 years. The survey included demographic information as well as scales for relationship and task conflict (Jehh, 1995), NTO conflict (Bruk-Lee & Nixon, 2011), interpersonal LOC (Paulhus & Van Selst's, 1990), the negative affect subscale of the job-related well-being scale (Van Katwik, Fox, Spector, & Kelloway, 1999), and work engagement (Schaufeli, Bakker, & Salanova, 2006).

Results & Discussion. Results are presented in Table 1. Consistent with prior research, intercorrelations among conflict types were moderately high (see Barki & Hartwick, 2004; Simons & Peterson, 2000). Interpersonal LOC was negatively related to relationship, task, and NTO conflict, as well as positively associated with absorption, dedication, and vigor. Task and NTO conflict were negatively related to absorption, dedication, and vigor, although relationship conflict was unrelated any engagement subscale. Negative emotions were positively related to all conflict types, as expected based on stressor-strain process models (Spector, 1998), and positively related to interpersonal LOC, absorption, dedication, and vigor.

Mplus Version 7.4 software was used to evaluate the hypothesized path model using a full maximum likelihood estimator with missing data estimated. The initial model showed marginally adequate fit based on common criteria (see Hu and Bentler, 1999; Kline, 2005), $\chi2$ (13) = 86.24, p = .00; CFI = .92; RMSEA = .13; SRMR = .09. Two modifications were adopted based on modification indices and conceptual fit. First, interpersonal LOC was allowed to co-vary with negative emotions. Second, relationship conflict had a direct and indirect impact on absorption. The final model showed adequate fit ($\chi2$ (11) = 39.35, p = .00; CFI = .97; RMSEA = .09; SRMR = .05. Based on R2 values, the variables in the model explained 2% of the variance in relationship conflict, 5% in task conflict, 7% in NTO conflict, 29% in negative emotions, 23% in

vigor, 33% in dedication, and 5% in absorption. All of the paths in the proposed model were significant (see Figure 1).

Based on these findings, we conclude that interpersonal LOC is a valuable individual difference variable to consider with regard to the conflict-engagement relationship, as it was negatively related to both to the experience of relationship, task and NTO conflict as well as to employees' work-related negative affect and engagement. Furthermore, using path analysis we found support for a model in which the impact interpersonal LOC on work engagement was mediated by relationship, task and NTO conflict and negative emotions. This research is limited in that it is cross-sectional and self-report. Future research can address these issues, and continue clarifying how interpersonal LOC fits into workplace stressor-strain models, as well as applied implications.

F-11

Factors Associated with Job Satisfaction among Local Health Department Employees

Aishwarya Viswanath (NYC Department of Health and Mental Hygiene)

Problem: Due to recent technological and social advances, workplaces have widely trended toward offering employees increased flexibility and competitive pay as incentives for recruitment and retention (source: GlobalWorkplaceAnalytics). However, in government offices operating under more rigid labor policies, Human Resources departments must rely on other predictors of employee job satisfaction that are within their control to retain talented staff. Particularly given funding constraints in local government offices, the high cost of employee turnover—estimated to range between 20% - 213% of a mid- to senior-level employee's annual salary (Boushey & Glynn, 2012)—is especially damaging to the effective performance of critical government programs.

Staff's level of job satisfaction is a known predictor of employee retention (Wright & Bonett, 2007, Collins et al, 2000, Perrachione et al, 2008, Liu et al, 2019). The importance of job satisfaction in promoting employee health has also been widely documented; job satisfaction is associated with self-esteem issues, anxiety, depression, and burnout (Faragher et al, 2005, Yilmaz, 2018, Oliveira et al, 2018). Job satisfaction and its predictors therefore make favorable targets for intervention when seeking to improve employee retention and well-being, when other incentives are not feasible.

Procedures. Our agency—a large, urban local health department—is organized into Divisions (largest level of organization), split into Bureaus (middle level), containing Units (smallest level). As part of a 2018 intervention to promote staff retention and well-being, our Division held learning sessions around diversity and inclusion and devoted a workgroup to advancing workforce equity in our office. This workgroup developed guidance for supervisors, researched retention indicators for future tracking, and analyzed staff compensation data. Prior to these activities, our Division emailed a 10-minute anonymous baseline survey to its employees (N=101), measuring select job-related factors (e.g. staff's perception of receiving equitable compensation) held to be associated with job satisfaction . These factors were measured on a 4-point Likert scale (strongly agree – strongly disagree).

Survey content was cleared through the agency's Human Resources office and waived by the Institutional Review Board. Responses were collected over two weeks in March–April 2018.

Comparisons of 2018 baseline pre-intervention data to future follow-up survey responses are planned to assess the impact of our intervention activities.

Analyses. We compiled summary statistics for key respondent demographic and job characteristics, and for our factors of interest. These factors were dichotomized (agree-disagree). Due to sample size and confidentiality limitations, race (white respondents vs. persons of color) and job level (staff at Director-level or higher vs. staff lower than Director-level) were also dichotomized.

Based on significant ($p < 0.05$) chi square associations and Fisher's exact test results, we explored unadjusted bivariate logistic regressions to identify factors associated with job satisfaction in our sample.

Results. We received n=85 completed responses (84% response rate). Table 1 summarizes employee demographic and job characteristics in our sample.

In bivariate analyses, job satisfaction was significantly associated with: feeling one could provide input at the Unit level (OR: 12.80, 95% CI 2.75 – 59.58) and the Bureau level (OR: 3.43, 95% CI 1.08 – 10.87); comfort engaging in discussions with one's supervisor (OR: 12.64, 95% CI 3.08 – 51.90); belief that the office's career advancement processes were fair (OR: 5.26, 95% CI 1.46 – 18.96); and with belief that one was fairly compensated relative to coworkers (OR: 4.54, 95% CI 1.29 – 15.96). Reportedly experiencing and/or witnessing biased treatment based on age (OR: 0.27, 95% CI 0.08 – 0.87) or race (OR: 0.30, 95% CI 0.10 – 0.93) resulted in lower odds of job satisfaction compared to not reporting the corresponding type of biased treatment.

Job satisfaction was not significantly associated with race, ethnicity, age, gender, or job level.

Practical implications. Despite a modest sample size, we detected significant associations between job satisfaction and our variables of interest. These associations offer actionable insights into promoting employee retention and well-being in our office.

Bivariate associations indicate that feeling one could provide input into work at the Unit level and comfort with one's supervisor, had the greatest impact on promoting employee job satisfaction. Reportedly experiencing and/or witnessing biased treatment relating to age or race significantly lowered the odds of job satisfaction, highlighting that addressing these biases specifically could increase job satisfaction. These factors may therefore offer the most effective foci for promoting employee retention.

Conclusions. Although limited in generalizability, our small-scale baseline assessment highlights valuable opportunities for improving employee job satisfaction.

Based on our findings, we intend to: (1) Prioritize conducting an annual salary analysis of staff performing similar job roles to ensure equitable compensation; (2) Provide management training to supervisors—with an emphasis on managing for diversity and inclusion—to help them motivate, lead, and connect with their staff; (3) Include additional factors associated with employee retention on future surveys. We will also monitor actual retention data.

F-12

Relationships between nurse demographic characteristics and sickness and job-stress-related presenteeism

Jessica Rainbow (University of Arizona)

Problem. Presenteeism has been widely studied in business and occupational health literature (Garrow, 2016; Johns, 2010). Presenteeism

is when an employee is physically at work, but not fully engaged or performing (Rainbow & Steege, 2017). Presenteeism costs the United States Economy $150 billion annually and can lead to negative consequences for the employee's health and well-being (Bergström et al., 2009; Hemp, 2004). Presenteeism can be caused by sickness and job-stress (Johns, 2010). Sickness presenteeism focuses specifically on presenteeism due to illness, most often a chronic health condition (Gunnar, Aronsson & Gustafsson, 2005), while job-stress-related presenteeism considers the role of the work environment and its related stressors in presenteeism (Gilbreath & Karimi, 2012). High rates of both types of presenteeism have been found in the nursing population (Rainbow, Gilbreath, & Steege, 2018). Presenteeism in nursing, and other healthcare professions, has been linked to negative outcomes for patients and providers (Lui, Andres, & Johnston, 2018).

Research has also found that certain characteristics may be linked to higher presenteeism. These characteristics may include: gender, level of education, age, and childlessness (Garrow, 2016). This research has also found that nurses have higher rates of presenteeism than other professions (Aronsson, Gustafsson, & Dallner, 2000). However, no study has yet looked at whether there are specific nurse demographic characteristics that are linked to higher rates of presenteeism. Understanding the possible relationships between nurse demographic characteristics and the two types of presenteeism could provide valuable information for future intervention development. Therefore, the purpose of this secondary analysis is to explore the relationships between nurse demographic characteristics and both job-stress-related and sickness presenteeism levels.

Aim 1: To examine the relationships between nurse demographic characteristics and job-stress-related presenteeism.

Aim 2: To examine the relationships between nurse demographic characteristics and sickness presenteeism.

Procedures. We utilized an existing dataset from the Presenteeism in Nursing study (Rainbow et al., 2018). The purpose of the original study was to measure presenteeism prevalence, evaluate psychometric fit of existing measures, and test a model of presenteeism risk factors and consequences. Nurses were recruited from across the United States to participate in the online survey. Inclusion criteria for participation were: 1) be a registered nurse, 2) work on an inpatient hospital unit, and 3) provide direct patient care. Job-stress-related presenteeism was measured using the 6-item job-stress-related presenteeism scale (JSRPS) (Gilbreath & Karimi, 2012). Sickness presenteeism was measured using the 6-item Stanford Presenteeism Scale (SPS-6) (Koopman et al., 2002). For the purpose of this secondary analysis, both scales were transformed, so that more presenteeism is indicated by a higher score on the 6 to 36 point range for each scale. Both scales have previously been used in the nursing population and have been found to be reliable and valid (Karimi, Cheng, Bartram, Leggat, & Sarkeshik, 2015; Turpin et al., 2004). Chi-Square and ANOVA analyses were conducted to explore relationships between sickness and job-stress-related presenteeism and nurse sex, age, number of dependents, marital status, day or night shift, current student status, years of experience as a nurse, and ethnicity.

Results. The majority of participants were white (94%), had baccalaureate degrees in nursing (52%), and were female (94%). The mean age of participants was 38, mean number of dependents was 1, and mean years of experience as a registered nurse was 11. Mean total presenteeism scores were 16.5 on the SPS-6 and 12.5 on the JSRPS. The only significant relationship was between the number of dependents and job-stress-related presenteeism. The relationship between job-stress-related presenteeism and sickness presenteeism was also significant. All other relationships between nurse demographic characteristics and presenteeism were insignificant.

Implications. No demographic characteristics were significantly correlated with either job-stress-related or sickness presenteeism. The high levels of both job-stress-related and sickness presenteeism means that both types should be studied, and interventions should be developed to address both (Rainbow et al., 2018). Job-stress-related presenteeism is of particular interest for future interventions because both individual and organizational interventions may be developed to address job stressors leading to presenteeism.

Conclusions. Research on presenteeism has identified specific groups as being more prone to presenteeism; however, we did not find many of these relationships in our sample of nurses. Further exploration of the relationships between presenteeism levels and demographic characteristics may reveal ways to tailor future interventions.

F-13

Job Characteristics, Burnout, and the Role of Emotional Labor

Bret Arnold (University of Tulsa)

Problem Statement. The modification of job characteristics can be an effective way of reducing burnout (Bakker, Schaufeli, Leiter, & Taris, 2008). Autonomy and feedback, in particular have been linked to decreased burnout symptoms (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Maslach, Schaufeli, & Leiter, 2001) and increased engagement (Crawford, LePine, & Rich, 2010). However, research has shown that even core job characteristics can have differential effects depending on contextual factors like job demands, role ambiguity, and physical context (Oldham & Fried, 2016). For nursing professionals, emotional labor (Hochschild, 1983) is a contextual feature directly related to burnout (Diefendorff, Erickson, Grandey, & Dahling, 2011) but whether emotional labor diminishes the effects of core job characteristics remains unclear. This study examines a sample of nurses to determine whether the burnout ameliorating effects of autonomy and feedback hold in the presence of emotional labor.

Procedures. Sample and Data Collection. Data was collected via online survey from 148 American hospital nurses. Links to the survey were posted to online social media websites, online hospital bulletins, and online bulletins of nursing associations. Participants received a $5 Amazon giftcard for completing the survey and optionally assisted 'snowball' sampling efforts by supplying emails of colleagues to whom we sent the survey directly.

Measures. We analyzed results of four scales for this study, all of which indicated acceptable internal consistencies (αs range from .71 to .87).

The Glomb and Tews' (2004) Discrete Emotions Emotional Labor Scale (DEELS) was used to assess nurses' levels of emotional labor. Emotional labor scores were computed as the sum of the frequencies of faking positive emotional expressions (e.g., surprise, joy) and suppressing negative emotional expressions (e.g., anger, disgust), as previously operationalized by Grandey (2003).

Autonomy was measured using the 10-question Factual Autonomy Scale (FAS; (Spector & Fox, 2003). Questions concerned the latitude of decision-making power and frequency of interjecting supervisor directives about how work should be done.

The 5-item personal feedback subscale of the Communication Satisfaction Questionnaire (CSQ; Downs & Hazen, 1977) was used to

measure the nurse satisfaction with supervisor feedback. This 5-item subscale captures whether or not superiors understand the problems faced by nurses, provide clear evaluation criteria, and provide quality feedback regarding nurses' performance.

Occupational burnout was measured with the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996). The MBI captures emotional exhaustion, cynicism, and lack of self-efficacy. Burnout scores are the average of these three subscales scores.

Analysis and Results. To test our hypotheses, we conducted two moderated regression analyses. In each analysis, a job characteristic and emotional labor were included in the first step of regression model. The second step of each model included the interaction term to test for moderation.

Results indicated that feedback satisfaction ($\beta = -.29$, $p < .001$) and emotional labor ($\beta = .459$, $p < .001$) were predictive of burnout ($F(2, 145) = 31.14$, $p < .001$, $R2 = .30$). Furthermore, the interaction term was also significant ($\beta = .16$, $p = .025$) in the second step of the model ($\Delta R2 = .02$, $p < .001$), indicating that the positive effects of feedback satisfaction were attenuated as emotional labor increased.

Results for the autonomy model indicated that autonomy ($\beta = -1.59$, $p = .01$) and emotional labor ($\beta = .263$, $p < .001$) were both predictive of burnout in the first step ($F(2, 144) = 24.19$ $p < .001$, $\Delta R2 = .02$), but the interaction term ($\beta = .05$, $p = .27$) in the second step was not significantly predictive over the first model ($\Delta R2 = .01$, $p = .27$).

Practical Implications and Conclusion. Three practical implications arise from this study. First, we have further support for the ameliorating effect of feedback and autonomy on nurse burnout (Maslach et al., 2001). This demonstrates that while modifying some characteristics like nurse to patient ratio (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002) may be beyond the organization's control, more cost-effective means of designing jobs for burnout reduction also exist. Second, the beneficial effects of burnout are hampered when employees experience high levels of emotional labor. In these cases, employers must reduce excessive emotional labor loads (Diefendorff et al., 2011) before nurses experience the ameliorating effect of feedback. Otherwise emotional labor will have the direct effect of increasing burnout and also neutralize the positive effects of job resources like feedback. Third, because autonomy is not subject to this attenuation, job crafting for autonomy may still prove effective approach to burnout reduction.

The burnout mediation model (Leiter & Maslach, 2009) suggests that the on-going US nurse shortage (Lynn & Redman, 2005) is at least partly explained by burnout among nursing staff. These findings shed light on how cost-effective job design changes may result in decreased burnout symptoms and identifies when alterations may be ineffective in a nursing environment.

F-14

Context Matters: The Moderating Effects of Healthy Value Congruence

Krystal Roach (Central Michigan University)

As motivational-cognitive states, values might shape an employee's felt experiences in the organization and, as a result, frame their experiences of stressors and reactions to those stressors (Sagiv & Schwartz, 2000). Sagiv and Schwartz (2000) asserted that healthy values (e.g., achievement, benevolence, self-direction, stimulation, or universalism values) would positively correlate with subjective well-being, whereas unhealthy values (e.g., conformity, power, security, or tradition values) would negatively correlate with subjective well-being. Further, value congruence (i.e., the degree of fit between individual and organizational values) may influence stressor-outcome relationships, as value congruence has been shown to directly predict outcomes such as commitment, engagement, positive emotional well-being, and low intention to leave (Verquer, Beehr, & Wagner, 2003), and value incongruence positively relates with anxiety, burnout, and intention to leave (e.g., Boamah & Laschinger, 2016; Edwards & Cable, 2009). We propose that, because healthy value congruence is expected to be linked to several favorable conditions, it can buffer the potential negative effects of role stress on employee strains.

Hypotheses. H1. (a) Role ambiguity, (b) role conflict, and (c) role overload at T1 will each positively relate with burnout and turnover intention at T2.

H2. Each personal healthy value will negatively relate with burnout and turnover intention, and each unhealthy personal value will positively relate with burnout and turnover intention.

H3. Healthy value congruence will moderate the stressor-outcome relationships, such that when healthy values are congruent, the positive relationship between role stressors and outcomes (i.e., burnout and turnover intention) will be weaker than when healthy values are incongruent.

Method. Sample. Data were collected from 98 U.S. hospital nurses twice, separated by five weeks. Participants' mean age was 50.10 (SD = 9.70) years, most were female (93.9%), and many identified as White (66.3%) or Asian (16.3%).

Measures. Ten role stressor items relating to ambiguity ($\alpha = .88$), conflict ($\alpha = .75$), and overload ($\alpha = .89$) were gathered at T1and three items on turnover intention ($\alpha = .86$) were gathered at T2. These measures were adapted from Glazer and Beehr (2005) and were rated on a 7-point Likert-type scale ranging from 1, "strongly disagree" to 7, "strongly agree." Ten items were used to assess burnout (T2; $\alpha = .87$) (aka. Tedium; Pines & Aronson, 1988). Items were rated on a 7-point Likert-type scale ranging from 1, "never" to 7, "always." Finally, values were assessed with 57 items from Schwartz's (1992) Values Survey (SVS) at T1. On a 9-point rating scale from "opposed to my values or to my organization" (-1) and "not important" (0) to "of supreme importance" (7), nurses first rated their own values on the extent to which they are "a guiding principle in my life" and then rated the organization's values on the extent to which they are guiding principles for the organization. Ten personal values (PV) and 10 organizational values (OV) were then calculated. Reliability coefficients ranged from .63 to .80.

Results

H1 received mixed support. Of the six correlations, four were significant and in the hypothesized direction (see Table 2). Bivariate correlations failed to support H2, however. Although benevolence significantly correlated with turnover intention in the direction proposed ($r = -.26$, $p < .05$), a general trend of correlations for the healthy versus unhealthy values was not identifiable (see Table 3).

H3 proposed healthy value congruence would moderate the stressor-outcome relationships; only two of the three-way interactions were significant at $p < .05$ or $p < .10$ (see Tables 4 to 5 and Figures 1 to 2) and partially supported the hypothesis. We also tested unhealthy value interactions in exploratory analyses. Congruence regarding conformity exhibited a significant three-way interaction (Table 6 and Figure 3).

Implications and Conclusion. Results revealed no clear demarcation of Sagiv and Schwartz's (2000) proposal of healthy versus unhealthy values in relation to outcomes. Moreover, congruence between the person and organization on healthy values yielded only

two relationships (congruence of benevolence and universalism values) that partially supported H3. However, congruence of conformity values also revealed (healthy) protective consequences.

The results suggest that when considering Schwartz's (1992) ten value types in the context of hospital settings, benevolence, universalism, and conformity values may be the most important for nurses and hospitals to endorse in order to ensure the least nurse burnout and turnover—and thereby the best prognosis for patients. These values emphasize care for people, trust and compassion, and compliance with social norms. Thus, it appears that congruence with context-relevant values were supported and that what makes for a healthy or unhealthy value is the context. Categorizing a value as healthy without taking context into account may be problematic. Endorsement of a particular value may be unhealthy in one context but yield positive outcomes in another (Sagiv & Schwartz, 2000). Thus, not only might value congruence play a role in moderating stressor-outcome relationships, but so might the type of value in context, too.

F-15

Can psychoeducation programs reduce emotional distress and psychological burnout?

Dong-Uk Yoon (Seoul National University Hospital)

Introduction: Flight attendant is one of the occupations with high emotional labor, also experiences a lot of psychological burnout. Previous studies have reported that emotional labor and psychological burnout have adverse effects on individual mental health and further company management. Several strategies have been suggested to reduce the psychological distress of flight attendants, but they have not been fully studied. The purpose of this study is to investigate whether a psychoeducation program is effective to emotional labor and psychological burnout among Korean flight attendants.

Methods. One hundred flight attendants who work on major and low-cost airlines participated in the baseline questionnaire survey. Some of them responded again to the questionnaire concerning emotional labor and psychological burnout after completing 4 sessions of psychoeducation program. The psychoeducation program was developed by authors based on cognitive behavioral therapeutic approach, which is consists of psychoeducation of emotion, cognition reconstruction, corrective coping strategy, and relax technique training. In order to compare emotional labor and psychological burnout before and after the program, paired t-test was performed.

Results. In the baseline survey, flight attendants would show considerably high scores of emotional labor and psychological burnout scale. Especially, the subgroup with less than five years of working experience would have the highest levels of emotional labor and psychological burnout. We also predict that the emotional labor and psychological burnout scores would be lower after completing the psychoeducation program.

Conclusion. These results suggest that a psychoeducation program might help flight attendants to deal with emotional labor appropriately and reduce emotional distress. The effectiveness of the psychoeducation program should be demonstrated through further studies with comparing the control group.

NIOSH Centers of Excellence for Total Worker Health

G-1

The Center for Promotion of Health in the New England Workplace: A Total Worker Health® Center for Excellence

Suzanne Nobrega (University of Massachusetts Lowell)

G-2

Advancing worker safety, health and well-being through improved working conditions: Research, policy and practice from the Harvard T.H. Chan School of Public Health Center for Work, Health and Well-being

Glorian Sorensen (Center for Community-based Research, Dana-Farber Cancer Institute)

G-3

Impacting the Health of Workers in Precarious Jobs - How the Center for Healthy Work Engages in Participatory Action Research

Elizabeth Fisher (University of Illinois at Chicago)

G-4

Healthier Workforce Center of the Midwest: Advancing research and practice of Total Worker Health

Diane Rohlman (University of Iowa)

G-5

A NIOSH Center of Excellence for Total Worker Health®: Advancing Health, Safety and Well-being of Workers through Research, Education and Practice

Liliana Tenney (Center for Health, Work & Environment, University of Colorado)

G-6

Oregon Healthy Workforce Center

Anjali Rameshbabu (Oregon Health & Science University)

NIOSH Programs

H-1

NIOSH—Addressing Current Needs In The Healthcare And Social Assistance Industry Sector

Megan Casey (NIOSH)

Work in the Healthcare and Social Assistance (HCSA) industry sector is associated with high levels of stress and burnout resulting in multiple adverse health and safety outcomes. The American Nurses Association found that 74% of surveyed nurses had concerns about the effects of stress and overwork. The incidence of burnout among registered nurses

has been shown to be as high as 70%. Other professions within the HCSA sector also experience high prevalence of stress and burnout. Male veterinarians have been found to be 1.6 times more likely and female veterinarians 2.4 times more likely to die from suicide than the general population. In addition, temporary, contract, as-needed, on-call and other contingent job arrangements are common in healthcare settings. These work arrangements have been associated with adverse psychological outcomes and performance.

To address these issues, the NIOSH Healthcare and Social Assistance Industry Sector Program worked with other NIOSH cross-sectors to draft strategic research goals to understand stress, depression, anxiety, cognitive impairment and suicide among HCSA workers. In November 2018, NIOSH delivered a statement of support for efforts addressing healthcare personnel burnout as part of the National Academies of Sciences, Engineering, and Medicine's Systems Approaches to Improve Patient Care by Supporting Clinician Well-Being initiative. In addition, NIOSH attended the "Healthcare Thought Leader Meeting" held by the Occupational Safety and Health Administration (OSHA) and the Institute for Healthcare Improvement to initiate efforts to improve safety culture in healthcare settings in May 2019.

The National Occupational Research Agenda (NORA) HCSA Sector Council hosted a two-day conference in Washington DC, called "Healthy Work Design in the Healthcare and Social Assistance Sector". As a result of the workshop, the NORA Sector Council created a web-based resource in March 2019 that compiled tools and resources for improving safety culture in the HCSA Sector.

Efforts are currently underway to develop a curriculum to educate healthcare personnel on workplace safety culture and a systematic review to understand the evidence linking patient and worker safety. NIOSH researchers are also engaged in projects to understand psychosocial stress among applied behavior analysis workers and suicide among veterinarians.

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H-2

NIOSH—Public Safety Sector Program

Maryann D'Alessandro (NIOSH)

Public safety workers are employed in some of the most dangerous occupations in the world. Every day across the nation, emergencies occur that threaten people's life, well-being, property, peace, and security. During these events, society relies on public safety workers to respond, protect, and restore the safety, security, and routine to our lives. Every time these public safety workers respond, they may be putting their health, safety, and even lives on the line.

A variety of occupational hazards potentially affect the health of public safety workers. Due to a variety of risks and stressors, emergency response activities expose public safety workers to the possibility of serious injuries from traumatic injuries, workplace violence, exposure to hazardous drugs, and acute and chronic diseases.

NIOSH has several new and ongoing research and intervention efforts in the Public Safety Sector that fall in the Healthy Work Design and Well-Being Cross Sector. Three relevant areas of emphasis will be presented: 1) a study to understand the perceived risk of injury of public safety workers from the opioid crisis, 2) a study to collect data on nonfatal on-duty injuries among law enforcement officers to analyze injury events and collect data on risk factors, injury types, job activities, recovery experiences, and possible prevention factors, and 3) the outcome of the Public Safety Sector results from the NIOSH Forum held in September 2019 to discuss research gaps regarding working hours, sleep and fatigue among American workers across seven industry sectors.

Participants will develop a broader understanding of the depth and breadth of the Public Safety Sector research and intervention work underway at NIOSH through collaborative efforts with a variety of partners.

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H-3

NIOSH—Transportation, Warehousing, and Utilities Program

Dawn Castillo (NIOSH)

The NIOSH Transportation, Warehousing and Utilities (TWU) Program works with partners in industry, labor, trade associations, professional organizations, and academia to address the leading causes of work-related injuries, illnesses and fatalities among TWU workers. The Transportation sector includes industries that transport passengers and cargo, scenic and sightseeing transportation, and support activities for transportation. The Warehousing sector covers industries providing warehousing and storage of goods. The Utilities sector includes industries which provide, service, and distribute electric power, natural gas, steam supply, and sewage removal. Although TWU workers account for 5.3% of the workforce (approximately 8.3 million workers in 2017), they accounted for 17.8% of the fatalities for all U.S. workers that year. They also sustained approximately 103,800 occupational injuries and illnesses involving days away from work in 2017, 9.9% of the total for all US workers that year. The goals of the TWU program are; (1) reducing transportation incidents and related injuries among TWU workers; (2) addressing human-machine interaction to reduce injuries and illnesses among TWU workers; and (3) reducing obesity and chronic disease among TWU workers. The TWU program strives to fulfill its mission through high quality research, practical solutions, partnerships, and Research to Practice (r2p).

Transportation incidents are the leading cause of work-related injury death among all major industry sectors, and the burden is especially high in TWU. In 2017, 32% (666) of all work-related fatalities associated with transportation incidents occurred in the TWU sector, the highest percentage of any industry sector. The greatest burden of transportation-related fatalities was in the truck transportation sector (455). Numbers of nonfatal injuries due to transportation incidents are similarly high. Fatigue, long hours of work, and irregular work schedules are contributors to transportation-related injuries among TWU workers. Transportation-related injuries of TWU workers can result in pain and suffering to the workers, and sometimes long-term disability that impacts future employment. Employers bear workers' compensation costs and lost productivity in addition to other associated costs such as replacement and training. There are also societal impacts given how critical TWU workers are to the nation in delivering goods and services. In 2017, the rate of occupational injuries and illnesses resulting in days

away from work from transportation incidents was 26.9 per 10,000 workers in transportation and warehousing sectors, the highest rate in 5 years, and 5 times the rate for all private industry workers.

Interactions between workers and machines in TWU have been beneficial to the employer and worker by reducing workload, repetitive tasks, and increasing production capabilities. The International Federation of Robotics reports sharp increases in sales and is projecting that a new type of robot, collaborative robots that work alongside and in conjunction with human workers, will have a market breakthrough in the next several years. Wearable robotics, such as exoskeletons to reduce physical loads on workers, are being marketed and have the potential to reduce musculoskeletal disorders among TWU workers. Vehicles increasingly have automated safety features, and fully autonomous vehicles, including commercial trucks and transit vehicles, are currently being piloted on U.S. roadways. Technologic advances have the potential to improve safety in many areas. However, the pace of these technologic advances increases the potential for unforeseen hazards being introduced in the workplace.

The demands of many TWU jobs make it difficult to lead a healthy lifestyle. Psychosocial stressors and the work demands of TWU workers create special challenges: tasks may be sedentary in nature, limited options may be available for where and when to eat, including access to healthy food choices, sleep periods may be suboptimal, and work arrangements may be nonstandard. TWU workers have a high prevalence of obesity. Obesity is a risk factor for chronic disease that manifests itself in health conditions such as metabolic syndrome, cardiovascular disease, obstructive sleep apnea, and diabetes; premature death and disability; increases in health care costs; lost productivity; and social stigmatization. From 2004 to 2013, 34% of TWU workers reported being obese (Body Mass Index >30) and 26% reported ever being diagnosed with hypertension, and just 45% of TWU workers met CDC guidelines for physical activity. These same data showed that only 74% of TWU workers had seen a primary health care provider in the 12 months prior to being interviewed.

The TWU program collaborates with partners to identify relevant research and to help disseminate research findings and translate them into practice. The program publishes research in scientific journals and translates findings into materials that can be used by a variety of partners and stakeholders to improve the safety, health, and well-being of TWU workers. Products include scientific journal articles, fact sheets, blogs, infographics, and social media messages.

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H-4

NIOSH—Wholesale and Retail Trade Program

Deborah Hornback (NIOSH)

The National Institute for Occupational Safety and Health (NIOSH) Wholesale and Retail Trade (WRT) Program provides leadership to prevent diseases, injuries, and fatalities in wholesale and retail trade workers. Through our partnerships with industry, labor, trade associations, professional organizations, and academia and research efforts, we focus on the following areas:

- Reducing injuries and illnesses from overexertion and adverse bodily reactions especially among aging workers and those who are exposed to the safety risks from emerging technologies
- Preventing injuries from slips, trips, and falls
- Reducing motor vehicle-related injuries

In 2017, the WRT sector employed over 20 million workers in 1.4 million establishments. In 2017, the WRT sector accounted for 553,800 injuries and illnesses or 19% of the total injury/illness cases reported to the Bureau of Labor Statistics (BLS) by private industry employers. Over 60% of those recordable cases, about 337,000, were severe enough that employees experienced combinations of illnesses and injuries that require days away from work, job transfer, or restriction. The disproportionate number of recordable nonfatal injuries and illnesses, given the size of the work population, may be attributed to a set of high-risk subsectors within the WRT sector. These subsectors may include: food and beverage stores, general merchandise (stores), grocery and related product merchant wholesalers, motor vehicle and parts dealers, and building/gardening materials and supplies, among others. BLS selected events or exposures that attributed nearly 90% of recordable nonfatal injuries and illnesses are from overexertion and bodily reaction, contact with objects, or falls, at all levels. WRT had higher incidence rates for these events or exposures than all private industry.

The WRT sector experienced 461 fatalities in 2017. The highest number of fatalities in wholesale were due to transportation incidents and in retail were due to violence, and other injuries by person or animal. We conducted an evaluation of BLS data in whole years from 2006 through 2016 for workplace fatalities and recordable nonfatal injuries and illnesses by selected events or exposures. The wholesale sector incidence rate was consistently higher than all private industry during the eleven-year interval. The retail sector recordable nonfatal injuries and illnesses incidence rates were also higher than all private industry during this time. We analyzed BLS demographic data on age, race and ethnicity, and gender to determine the characteristics of the WRT population and how they compare to other industry sectors.

This study is the most up-to-date and comprehensive assessment of WRT morbidity, mortality and injury. It will serve as the basis for future research and prevention efforts.

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H-5

NIOSH—Chronic Disease Cross Sector of NORA Council: Identification and Prevention of Occupational Disease

Todd Stueckle (NIOSH)

Occupational chronic diseases, including cancer and cardiovascular disease (CVD), remain an important source of economic cost and suffering. Similarly, some reproductive, neurologic, and renal diseases have occupational associations. The mission of the Cancer, Reproductive, Cardiovascular and Other Chronic Disease Prevention Program (CRC) is to provide national and international leadership for the prevention of work-related diseases using a scientific approach to gather and synthesize information, create knowledge, provide recommendations, and deliver products and services to those who can affect prevention. CRC includes projects addressing a wide variety of health endpoints. The concentration of the program's projects includes work-related research related to many types of 1) occupational cancer, 2) adverse reproductive outcomes related to work, and 3) CVD among workers. Additionally, CRC is the NIOSH program that includes projects related to occupational neurologic and renal diseases as well

as other chronic conditions or illnesses not identified elsewhere in the program portfolio. Evidence of burden, need, and impact are used to identify priorities to help guide research efforts towards preventing occupational disease.

Occupational carcinogens include single agents, complex mixtures, and high-risk occupational groups. Numerous epidemiological studies of specific exposures or specific industries have documented elevated risks for cancer among workers. Data for exploring occupation-related cancers is available via surveillance systems. For example, the NIOSH National Occupational Mortality Surveillance System allows investigators to identify associations of cause-specific mortality with occupation and industry. A vast number of carcinogens possess either unknown or understudied cancer risk. Cohort tracking can assess how interventions succeed to reduce exposures and subsequent effects. New data on emerging hazards, such as nanomaterials, are continuously sought after by the CRC to evaluate for cancer risk. Exposure, mechanism(s) of adverse effects, and risk from studies of high-priority agents are provided for quantitative risk models and recommendations. NIOSH continues to identify links between workplace exposures and cancer. A recent study of 30,000 firefighters reported higher rates of several cancers compared to the whole US population. Subsequently, a National Firefighter Registry was initiated in 2018 to improve understanding of cancer risk among firefighters.

Occupational exposures and the potential effects on reproductive health are of significant public health concern. Heavy metals, solvents, sterilants, gases, and pesticides are known agents that can impact reproductive outcomes in workers. Currently, 10% to 20% of pregnancies result in spontaneous abortion with 3% of live births possessing major malformations. Toxicant, multiple factors, and unknown causes are attributed to these effects. Some progress has been made to identify and separate occupational hazards from other etiologic factors associated with adverse reproductive outcomes. Many substances have suspected detrimental effects on reproductive processes, however, sufficient data are lacking. Laboratory studies inherently cannot keep pace to identify potential hazards and the underlying biological mechanisms. Recent advances in technology and methodology in reproductive health research are improving researchers' ability to 1) overcome obstacles, 2) improve understanding of causation, mechanism, and affected populations, and 3) reduce reproductive adverse outcomes.

Heart disease is the largest contributor to mortality in the U.S. totaling >647,000 in 2017. Little information exists, however, on how occupational hazards contribute to CVD risk and mortality rate. Although several agents in the workplace can affect heart health, clear links between occupational factors and disease development are not clear. For example, elevated rates of CVD death exist in non-smoking workers exposed to environmental smoke. More epidemiological research with available worker populations and collected biological specimens is clearly needed to identify occupational factors contributing to CVD among workers. Improved monitoring and measures of stress were recently shown to identify and improve understanding of key factors in the work environment contributing to CVD risk. New method development in exposure measurements, Quality of Work Life Surveys, and laboratory effects studies continue to improve detection of exposure and identify sub-clinical effects on the cardiovascular system. Research is improving our knowledge on how occupational factors impact biological mechanisms underlying workplace-associated CVD development.

Neurotoxicity leading to clinical syndromes represents one of the leading occupational disorders in the U.S, with a large proportion of hazardous agents possessing potent neurotoxic effects. Neurodegenerative diseases, peripheral neuropathies, and chronic encephalopathies have known associations with occupational exposures, such as pesticide and welding fume exposures. Also, a global epidemic of chronic kidney disease with unknown cause (CKDu) is occurring. Agricultural and other high work load industries are the most affected and factors including heat stress, dust, and pesticide exposures may play a role. Both exposure and chronic effects studies are needed that span across job tasks, genetic susceptibilities, and pesticide class. Evidence-based interventions, such as practices and programs, is needed to help minimize and prevent pesticide exposures. NIOSH-sponsored surveillance programs are beginning to elucidate the level of CKDu burden and etiologic mechanisms in U.S. workers. Partnerships, including researchers, workers, and industries, are starting to make progress in basic etiology, prevention, and translation research to reduce morbidity in affected occupational sectors.

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H-6

NIOSH—Development of the National Occupational Research Agenda (NORA) for the Immune, Infectious and Dermal Disease Prevention Program

Stacey Anderson (NIOSH)

NORA is a program sponsored by NIOSH to stimulate innovative research and workplace interventions. NORA councils are a venue for individuals and organizations with common interests to come together to identify national occupational safety and health research objectives. These build from advances in knowledge, address emerging issues, and are based on council member and public input.

The Immune, Infectious and Dermal Disease Prevention Program (IID) focuses on work-related diseases such as irritant and allergic contact dermatitis, allergic rhinitis, asthma and infectious disease, caused by work-related exposures. Also included are exposures to chemicals that can be absorbed from contact with skin that may result in adverse health impacts.

The NORA Council for IID has identified 6 objectives. (1) Investigate effects of recurring low-level occupational exposures on dermal, immune, and infectious diseases, including the role of perturbations on skin microbiome in maintenance of skin barrier function and toxicity resulting from xenobiotic metabolism by the skin and skin microbiome. (2) Investigate the contributions of skin exposure to the overall body burden of toxic substances including advancements in skin permeation measurements, modeling and refinement of skin exposure and risk assessment strategies. (3) Improve current skin exposure measurement methods including the quantification of chemical loading on the skin surface, characterization of dermal absorption or permeation, efficacy of workplace controls for dermal exposures and skin and surface decontamination methods. (4) Reduce the incidence and transmission of infectious disease in the workplace though assessment of exposure pathways, quantitative models, surveillance and intervention and preparedness. (5) Reduce the incidence of allergic disease in the workplace through the identification of allergens, understanding of the mechanisms of allergic disease and through surveillance, intervention and dissemination. (6) Investigate autoimmune disease risk associated with occupational and environmental exposures through

increased workplace hazard evaluations, development and improvement of animal models, and identification of biomarkers of disease.

Potential impact resulting from these objectives include: identification of occupational hazards; identification of factors that can influence occupational exposure to chemicals which will help to determine the most appropriate ways to prevent or minimize exposure; an understanding of the mechanisms of occupational diseases which will allow for proper treatment and/or prevention; and hazard identification that will lead to risk assessment which will ensure safe working environments.

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H-7

NIOSH—Traumatic Injury Prevention Program

Christine Schuler (NIOSH)

The National Institute for Occupational Safety and Health's (NIOSH) Traumatic Injury Prevention (TIP) Program aims to reduce and prevent work-related injury and death, across all industries, due to acute trauma or violence. To achieve this mission, we conduct high-quality research using the public health approach to identify the most compelling risks to workers through surveillance, analytic epidemiology, and field investigations. We also leverage protective technology, and engineering science as a means to improve personal protective equipment, tools, and workspaces, to keep workers safe on the job.

The TIP Program is committed to the development of practical solutions to address the complex problems that cause traumatic injuries and deaths among workers. To do this, the TIP Program's research is focused on:

- Preventing injuries and deaths from falls at work, on-the-job motor vehicle crashes, workplace violence, and the use of machines and industrial vehicles to perform work duties.
- Recommending strategies and solutions to reduce risks associated with work-related injury and death from falls, motor vehicle crashes, workplace violence, and contact with machines.
- Identifying and evaluating ways to reduce traumatic injuries among high-risk jobs and vulnerable worker groups.
- Addressing emerging issues such as robotics and drug overdoses.

There are three key research activities that support the TIP Program's aim to reduce worker injury and death. Those activities are:

- Surveillance to identify and track traumatic injury problems in specific worker populations, prioritize research needs, target prevention efforts, and monitor work-related injury and death trends.
- Field research to determine the causes of and risk factors for work-related injuries, and evaluate the efficacy of interventions, best practice solutions, and engineering controls.
- Lab research to examine everything from workplace equipment to human behavior and decision-making skills in a safe and controlled environment.

Some examples of the TIP Program's recent research efforts include:

- Publishing findings on the effectiveness of a no-cost-to-workers slip-resistant footwear program to reduce falls among food services workers.
- Publishing a Morbidity and Mortality Weekly Report on suicide rates by major occupational groups.
- Contributing surveillance data from the National Electronic Injury Surveillance System-Occupational Supplement (NEISS-Work) and Childhood Agricultural Injury Surveys to a Government Accountability Office report with recommendations for improving Department of Labor efforts to keep children who work safe.
- Convening the 7th National Occupational Injury Research Symposium (NOIRS) in October 2018 with more than 330 researchers, safety professionals, and students in attendance.

In addition to conducting research, the TIP Program works closely with partners from industry, labor, trade associations, professional organizations, other government agencies, and academia. Through our program partnerships we are able to address the difficult challenges facing today's workforce. Our partners contribute to building a safer workforce by providing:

- Valuable input for setting research priorities through the National Occupational Research Agenda (NORA).
- Specialized expertise to support the research, analysis, interpretation, and communication of results.
- A means of putting information into every day practice at the worksite.

Individuals and organizations interested in reducing and preventing work-related traumatic injuries are encouraged to join the NORA TIP Program Council, which serves as the venue to bring those with similar interests together to address the national agenda through information exchange, collaboration, and enhanced dissemination and implementation of solutions that work.

Collective efforts from the TIP Program's research activities and partnerships are vital to ensuring the effective promotion and transfer of findings into practices, products, and technologies that keep workers safe on the job. Some examples of how the TIP Program has worked to support adoption of our research—or move research to practice—includes the development of:

- A free mobile app to help workers who use ladders set up a ladder at the appropriate angle,
- A toolkit that includes 40 safety messages to promote safe driving practices among law enforcement patrol officers,
- An online, interactive training course to aid healthcare workers in better understanding the scope and nature of violence in the workplace, and
- A hazard alert prepared by the Washington State FACE Program, a TIP Program partner, to notify employers and workers of the dangers involved in using remote-controlled demolition robots.

To learn more about the TIP Program, visit our website: https://www.cdc.gov/niosh/programs/ti/default.html. To join the NORA TIP Program Council, please contact Dr. Christine Schuler at CSchuler@cdc.gov

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H-8

NIOSH—An Overview Of The NIOSH Healthy Work Design And Well-Being Cross Sector

Jeannie Nigam (NIOSH)

The National Institute for Occupational Safety and Health (NIOSH) Healthy Work Design and Well-Being (HWD) Program seeks to improve the design of work, work environments, and management practices in order to advance worker safety, health, and well-being. HWD partners with industry, labor, trade associations, professional organizations, and academia to accomplish its goals. Current priorities include: improving the organization of work in order to reduce job stress; advancing the safety and health of workers in non-standard work arrangements, such as temporary staffing agency, contract, and gig arrangements; and protecting workers from the adverse health and safety consequences of shift work, long work hour schedules, and other factors that contribute to work-related fatigue.

This poster highlights recent HWD accomplishments and products including information on: the fifth administration of the NIOSH Quality of WorkLife survey, which gathers data from a nationally representative sample of employed adults in order to track changes in the organization of work and understand their impacts on worker health, safety, and well-being; and a satellite meeting of experts at the 24th International Symposium of Shiftwork and Working Time aiming to identify gaps and needs surrounding working hours, sleep, and fatigue among U.S. industries. We also highlight key international presentations including: one on the association between precarious employment and workplace mistreatment, including harassment and discrimination, at the 11th International Conference on Workplace Bullying and Harassment; one on work flexibility in the U.S. and the associated work-related well-being at the 2019 Congress of the European Association for Work & Organizational Psychology; and another at the 5th International Conference on Well-being at Work, on the NIOSH-RAND worker well-being framework that characterizes well-being among workers through individual health and work-related environmental, organizational, and psychosocial factors which, when optimized, enable workers to thrive and achieve their full potential.

Lastly, the poster highlights a few recent HWD publications on opioids, fatigue, and comprehensive approaches to achieve worker safety, health, and well-being. We developed resources that address the "full lifecycle" of the opioid crisis through the lens of industry, occupation, and other work-related factors and provide actionable information and recommendations for workers and employers. In addition, we published on suicide and drug-related mortality following occupational injury and on comprehensive recommendations to reduce fatigue associated with sleep deficiency and work hours in nursing, in collaboration with the American Academy of Nursing. We also published guidance on organizational approaches for designing, implementing, and evaluating policies, programs, and practices that comprehensively address worker safety and health, including through Total Worker Health.®

H-9

NIOSH—Total Worker Health® Program: Exploring new research horizons for worker well-being

Sarah Mitchell (NIOSH)

Today, there is increasing evidence of a strong connection between the work environment and overall health, safety, and well-being of the workers within it. Diminished health or injury, whether caused by work or resulting from non-work activities, reduces quality of life, opportunity, and income for workers and those dependent upon them. Conversely, workplaces with enhanced opportunities for the total health of workers can lead to a vibrant, engaged and high-performing workforce. Employers, workers, and their communities all have a stake in promoting the design of healthy jobs and advancing the well-being of workers.

Traditional workplace health promotion, wellness, and safety programs have often remained siloed, focusing on promoting worker health through reduction of individual risk-related behaviors, or minimizing workers' exposures to job-related risks, including exposures to physical, biological, and chemical hazards. There is increasing evidence that this fragmented approach is not as effective as coordinated and comprehensive organizational-level interventions that consider all aspects of work. New approaches will focus on ensuring the safety of workers while looking more broadly at how work and the workplace can advance worker health and productivity on and off the job. The National Institute for Occupational Safety and Health (NIOSH) believes that a holistic approach that promotes the integration of all conditions of work and employment that impact worker safety is key to protecting workers and designing safer, healthier jobs.

NIOSH defines Total Worker Health (TWH) as "policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being." The NIOSH TWH Program has articulated a need for further research to expand the relevant evidence base and move research into practice. The TWH Program at NIOSH supports the development and adoption of ground-breaking research and best practices of integrative prevention approaches that address health risks arising from work-related and non-work related factors. The TWH Program carries out its aim to prevent worker injury and illness and to advance health and well-being through 1) an intramural research program and an extramural research program comprised of six Centers of Excellence for Total Worker Health; 2) active engagement with partners from labor, industry and the federal, state and local government; 3) dissemination of research results through publications, presentations, and scientific meetings; and, 4) motivating trans-disciplinary collaboration among national and international investigators focused on preserving and improving the health of all people who work.

Sarah Mitchell, MPH; CDR Heidi Hudson, MPH; L. Casey Chosewood MD, MPH; on behalf of the NIOSH Office for Total Worker Health®

H-10

NIOSH—Center For Motor Vehicle Safety: Keeping Workers Safe On The Road

Stephanie Pratt (NIOSH)

Motor vehicle crashes are the leading cause of work-related deaths in the United States (U.S.). From 2003-2017, more than 27,000 workers in the U.S. died in a work-related motor vehicle crash. Crashes affect workers in all industries and occupations, whether they drive heavy trucks, emergency vehicles, pickup trucks, or cars, and whether driving is a primary or occasional part of the job. To address this important worker safety issue, the National Institute for Occupational Safety and Health's (NIOSH) Center for Motor Vehicle Safety (CMVS) conducts research and develops strategies to prevent work-related motor vehicle crashes and injuries. Using a multidisciplinary approach, CMVS researchers and communicators across NIOSH work with partners to identify crash risk factors, develop and evaluate workplace interventions to prevent crashes and injuries, and share the results with employers, workers, and others. The poster presentation will convey the scope and purpose of the CMVS and provide highlights of recent

accomplishments. It will also share information about CMVS strategic planning, which is intended to ensure that resources are directed toward highest-priority topics and worker groups.

In September 2019, the CMVS published an evaluation of progress on its 2014-2018 strategic plan, which identified numerous research and communication products focusing on high-priority worker groups: truck drivers, emergency medical services workers and firefighters, law enforcement officers (LEOs), oil and gas extraction (OGE) workers, and light-vehicle drivers. For example, research on motor vehicle crashes among LEOs led to development of trade journal articles on prevention of officer-involved crashes and a toolkit for use by departments and officers. Research findings about the role of fatigue in crash fatalities of OGE workers, coupled with strong interest from industry partners, led to development of fact sheets on driver fatigue directed toward employers and workers. Research findings on non-use of seat belts by truck drivers led to NIOSH's first CDC Vital Signs, a suite of communication products to promote trucker safety and injury prevention by encouraging belt use. Research on the safety of workers in the ambulance patient compartment led to development of ambulance design and testing standards and to changes in performance specifications for ambulance purchases. CMVS research findings have also contributed to NIOSH comments to regulatory agencies and to national and international standards on fleet safety management that provide critical guidance where no regulations exist.

Building on the evaluation of its 2014-2018 plan, the CMVS is developing a 10-year plan which will go into effect in 2020. The draft plan is informed by input from internal and external partners, the public, and research agendas from other organizations. Following the NIOSH strategic plan for 2019-2023, the CMVS plan will emphasize four industry sectors for which motor vehicle safety is a priority: oil and gas extraction; public safety; transportation, warehousing, and utilities; and wholesale and retail trade. Research and communication activities will center on three strategic areas: (1) crash and injury risk factors; (2) engineering and technology-based interventions; and (3) motor vehicle safety management programs and practices. A continuing balance between research and communication positions the CMVS to effectively and efficiently work toward our overarching goal of preventing work-related motor vehicle crashes.

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H-11

NIOSH—Occupational Health Equity Program

Michael Flynn (NIOSH)

Not all workers have the same risk of experiencing a work-related health problem, even when they have the same job. The way societies configure social and economic arrangements influence workers' exposure to occupational hazards (differential exposure) as well as their ability to cope with adverse consequences of an occupational injury or illness (differential susceptibility). These arrangements are commonly referred to as social determinants of health (SDOH). Three types of social arrangement particularly salient for the distribution of occupational injury and illness include: social group/identity along axes such as race, class and gender; organizational and industry practices such as competitive bidding, unionization, and sub-contracting; and employment characteristics such as job security, shift work, and pay structures. The Occupational Health Equity program seeks to identify and eliminate avoidable differences in work-related disease incidence, injury, mental illness, and morbidity and mortality that are closely linked with social, economic, and/or environmental disadvantage.

The United States' workforce is undergoing dramatic demographic and structural shifts. The fastest growing groups in the workforce (such as racial minorities, immigrants, and contingent workers) are also those who are at an increased risk of occupational injuries and illnesses as a result of social, economic, and/or environmental disadvantage. The direct and indirect cost of occupational injury and illness in the United States in 2007 was $250 billion, up from an inflation-adjusted $217 billion in 1992. If the disadvantages that contribute to increased occupational injury and illness are not addressed, the costs to society will increase as workers from these high-risk groups make up an increasing percentage of the workforce. Occupational health equity research and practice is essential if we are to maintain the gains in safety and health of the past half-century.

One of the largest challenges facing occupational health equity is that the same social and economic structures that contribute to higher risks of occupational injury have often also excluded these workers from efforts to understand and prevent workplace illness and injury. As a result, existing surveillance systems often have incomplete information, making the occupational health status of some underserved worker populations unclear. Similarly, research methods that work well for understanding majority populations are often not as effective for working with many racial/ethnic minority groups. Tailored research methods and interventions need to be developed and adopted. Occupational safety and health professionals and organizations need to continue developing the internal capacity and institutional relationships to work effectively with these communities.

The Occupational Health Equity program is working to integrate a social determinants of health approach to occupational safety and health. This work includes:

1. Improving surveillance and research methods to more precisely identify which social, economic, and/or environmental disadvantages contribute to higher rates of occupational injury and illness in which industries.

2. Promoting research that explains how barriers to safety and health related to these factors occur at the worksite and how they can be overcome.

3. Developing and evaluating tailored occupational safety and health programs, policies or other changes that directly address these barriers either by themselves or in combination (Overlapping Vulnerabilities)

4. Improving institutional infrastructure to address these risk factors through internal capacity building and partnership development.

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H-12

NIOSH—Center for Occupational Robotics Research: Program, Goals, and Research

Hongwei Hsiao (NIOSH)

The National Institute for Occupational Safety and Health (NIOSH) conducted extensive robotics research when robots began appearing

in the workplace in the mid-1980s. Increased use of robots and breakthroughs in human-robot collaboration during recent years require a new level of scientific efforts to guide the development and use of robots that enhance worker safety, health, and well-being. NIOSH established the Center for Occupational Robotics Research (CORR) in September 2017. The CORR addresses the safety of today's workers who use, wear, or work near robots by working in partnership with academic researchers, trade associations, robotics manufacturers, employers using robotics technology, integrators who set-up robotic systems in workplaces, labor organizations, and other federal agencies.

The proposed poster will focus on NIOSH efforts on (1) the potential for robotics technologies to prevent worker injuries and musculoskeletal disorders, (2) increasing understanding of human and robot interactions to ensure human worker safety, (3) improving the ability to identify and track injuries involving robotics technologies, and (4) providing guidance on working safely with robotics technologies. The materials will be organized by (1) the concept of human-centered robotics, (2) NIOSH's role in robotics research, (3) current NIOSH robotics research projects, and (4) NIOSH laboratory capacity for robotics research on worker safety, health, and well-being. The subjects of work, stress, and health are integrated in the poster presentation.

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H-13

NIOSH—National Center For Productive Aging And Work

Bermang Ortiz (NIOSH)

This poster will present strategic goals for the National Center for Productive Aging and Work (NCPAW), a description of current activities, and a model of productive aging.

Workers 55 or older are increasing in number and will account for nearly 25% of the labor force in 2024. The aging of the U.S. workforce has implications for the safety and health of all workers. Aging can be a process of decline and loss as well as a course of development and growth. For example, although the likelihood of fatal occupational injuries increases with age, older workers tend to experience fewer non-fatal workplace injuries than their younger coworkers. The US workforce is also becoming increasingly age diverse, with many workplaces having up to five generations working side by side.

The National Center for Productive Aging and Work (NCPAW) at the National Institute for Occupational Safety and Health (NIOSH) advances lifelong well-being for workers of all ages and supports productive aging across the working life through: a) research activities that advance the understanding of workplace factors that contribute to the productive and healthy aging of workers; b) research translation that effectively engages stakeholders and intermediaries in the reduction and prevention of work-related injuries and illness in the aging workforce; and c) partnership development and capacity building with occupational health and safety researchers, organized labor, employers, intermediaries, and other stakeholders. Current NCPAW projects include develop educational products to prevent WMSDs in construction workers across age groups; develop educational products to prevent WMSDs and falls among aging retail workers; and develop fact sheets about important occupational and safety affecting aging workers.

NCPAW's concept of productive aging is informed by the Work Ability approach first developed by the Finnish Institute of Occupational Health, and Total Worker Health®. Productive aging takes a comprehensive, integrated approach to understanding the aging process across the life span, including the physical, mental, and social aspects of a worker's well-being. In particular, NCPAW's approach to productive includes four attributes: (1) a life-span perspective, (2) a comprehensive and integrated framework, (3) outcomes that recognize the priorities of both workers and organizations, and (4) a supportive work culture for multi-generational issues. These attributes illustrate the emphasis of productive aging on meeting the needs of all workers as they age.

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H-14

NIOSH—Safe ▪ Skilled ▪ Ready Workforce Program

Rebecca Guerin (NIOSH)

Globalization and advancements in technology have generated new demands for the knowledge and skills required for job and life success. The World Economic Forum suggests that cross-sector competencies, such as critical thinking, are in higher demand by employers than are "narrow" technical skills. No international consensus exists about the skills required for tomorrow's workers or if competencies related to occupational safety and health (OSH) are included in this vision. Yet ensuring that future jobs are also safe and healthy jobs is a critical, and often missing, component of efforts to develop the future workforce. The societal and economic costs of work-related injuries and illnesses are a serious and persistent public health problem in the United States. A 2011 analysis suggests that the cost of work-related fatalities and nonfatal injuries and illnesses, based on medical costs and productivity losses, at over $250 billion per year. This exceeds the cost of cancer and cardiovascular disease.1 Young and contingent workers suffer disproportionately from workplace injury and illness.2,3 Young people between the ages of 15 and 19 are more than twice as likely than workers ages 25 and over to experience a work-related injury that requires treatment in a hospital emergency department.2 Workplace incidents may result in lifelong disabilities that impact young workers' health, well-being, and financial future. Contingent workers are another population at high risk for experiencing a work-related injury.3 One of many contributing factors to this high burden of injury among new (including young and contingent) workers is a lack of sufficient safety and health training.3,4 Thus, OSH knowledge and skills should be part of every effort to prepare the future workforce.

In 2013, NIOSH launched the Safe Skilled Ready Workforce (SSRW) Program to build on two decades of young worker research at NIOSH and advance science for the design, implementation, and evaluation of programs that prepare young and contingent workers for safe and healthy employment. The Program's mission is to ensure that all people, before they join the U.S. labor force or start a new job, have essential OSH competencies that pertain to hazard recognition and control in the workplace; employer responsibilities and worker rights and roles; actions to take in a work-related emergency; and communication with others when feeling unsafe or threatened.5 These cross-sector

competencies are designed to be general, portable to all jobs and industries, compatible with existing work readiness initiatives, and transferable to other settings where risk-based decisions are made. The NIOSH Core Competencies are currently delivered to middle school and high school students through the Youth@Work–Talking Safety curriculum from NIOSH and its partners. Talking Safety is a free, fun, and interactive curriculum customized for all U.S. states and several territories, and is available in Spanish. Talking Safety is updated regularly and has been downloaded more than 30,000 times from the NIOSH website since 2015. The curriculum is currently being adapted for contingent workers in the construction sector.

SSRW investigators conduct research on, and support activities related to, the delivery of foundational workplace safety and health knowledge and skills, including through the Talking Safety curriculum, to young, contingent, and other high-risk workers. The evidence base for Talking Safety is being established through two large intervention/implementation studies in Miami-Dade County Public Schools and Oklahoma City Public Schools. Approximately 18,000 students have received Talking Safety as a part of SSRW research. Results have shown that students demonstrated statistically significant increases in workplace safety knowledge, attitude, norms, self-efficacy, and behavioral intention after instruction.6

Examples of the public health impact of the program include the Employment and Training Administration, within the U.S. Department of Labor, integrating the NIOSH competencies as part of the "Health and Safety" building block in their Generic Building Blocks Competency Model. These models are widely used by the workforce development sector to identify employers' skills needs. As an outgrowth of SSRW partnerships, the states of Oklahoma and Texas passed laws promoting OSH training for youth while in middle school and high school; 13 more states are in the pipeline. The American Federation of Teachers (AFT)—with 1.7 million members in more than 3,000 local affiliates nationwide—passed a resolution to protect Next-Gen Workers by promoting the use of the Talking Safety curriculum. Finally, Talking Safety has been adopted and adapted by NIOSH Global partner SESI (Serviço Social da Indústria) for use in schools in Southern Brazil.

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H-15

NIOSH—Small Business Assistance Program

Brenda Jacklitsch (NIOSH)

There are approximately six million workplaces in the U.S. that have employees. Eighty-nine percent of them have fewer than 20 employees, and 79% have fewer than 10 employees. Although not clearly illustrated in national injury and illness statistics, several studies show the smaller a business is, the more likely workers are to experience injuries, illnesses and fatalities. Smaller businesses engage in fewer occupational safety and health activities than larger businesses for various reasons, and there is a clear need for delivering occupational safety and health assistance.

The mission of the NIOSH Small Business Assistance Program is to decrease occupational diseases, injuries, and fatalities in smaller businesses by encouraging and supporting research, outreach, and prevention activities. The Small Business Assistance Program activities include: (a) researching the work environment in small businesses and the barriers to prevent workplace illness, injury, and death; (b) researching the role of intermediaries (such as insurance companies, trade associations, and chambers of commerce) and the best way to partner with them to connect with small businesses; (c) conducting outreach by giving presentations to small business groups; (d) fostering international collaborations with other small business safety and health leaders through large scientific conferences and informal networking; and (e) collaborating and providing support (such as translation or outreach) to other NIOSH programs and outside partners that do research that may be helpful to small businesses.

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H-16

NIOSH—Oil and Gas Extraction Program

Kyle Moller (NIOSH)

During 2018, the oil and gas extraction industry, which is comprised of oil and gas operators, drilling contractors, and well service companies, employed approximately 470,000 workers. During 2003–2017, 1,566 oil and gas extraction workers were killed on the job, resulting in an annual fatality rate more than six times higher than the rate among all U.S. workers. The National Institute for Occupational Safety and Health's (NIOSH) Oil and Gas Extraction Program works with partners in industry, trade associations, professional organizations, government, academia, and labor to improve the health and well-being of oil and gas extraction workers. Traditionally, the program has sought to reduce or eliminate injuries, illnesses, and fatalities through epidemiologic surveillance, identifying and characterizing physical and chemical exposure hazards, developing and evaluating engineering controls, and disseminating high-impact communication products. Recently, the NIOSH Oil and Gas Extraction Program has recognized the need to expand the program's research to examine work organization factors, especially as they relate to fatigue, prescription and illicit drugs, and substance use/misuse in the industry. Oil and gas extraction activities often involve physical labor; occur around the clock and often in remote locations; outside in all weather conditions; and with employees and contractors from multiple employers working simultaneously. In addition, employees often work a 12-hour shift for two weeks at a time and, when working, may live in temporary or shared housing at or near the well site making quality sleep difficult. The need to address these and other workplace factors has culminated in the development of a new intermediate goal in the NIOSH Strategic Plan that addresses fatigue, work organization, and substance use/misuse in the oil and gas extraction industry. The purpose of this poster presentation is threefold; (1) to inform partners of the expanded research into work organization factors in the oil and gas extraction industry, (2) solicit information related to that new line of research, and (3) identify potential collaborative research partners to address these research needs.

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H-17

NIOSH—Surveillance Program: Healthy Work Design Priorities

Sara Luckhaupt (NIOSH)

The National Institute for Occupational Safety and Health (NIOSH) Surveillance Program works with partners in industry, labor, trade associations, professional organizations, government agencies, and academia. The program focuses on:

- Expanding awareness, knowledge, and use of occupational safety and health (OSH) surveillance data;
- Building capacity for state-based OSH surveillance;
- Integrating OSH variables into general health surveillance systems;
- Supporting industry sector and health and safety cross-sector surveillance needs and addressing cross-cutting surveillance issues.

The goals of the NIOSH Surveillance Program support all 7 of NIOSH's strategic goals. The Surveillance Program service goals reflect ongoing efforts to identify and track workplace injuries, illnesses, hazards, deaths and exposures in the United States. The Surveillance Program research goals focus on new surveillance methods, tools, and analytical techniques. The NIOSH Surveillance Program research goals are integrated into the various sectors and cross-sectors of the NIOSH Program Portfolio. Surveillance research goals relevant to the Healthy Work Design Cross-sector focus on work arrangements, workplace psychosocial exposures, mental health outcomes, and substance abuse.

Specific goals include conducting surveillance research to...

- ...better characterize the risk factors for contingent workers and workers in non-standard work arrangements in the construction, services, and wholesale and retail trade sectors.
- ...better track work practices, work factors (psychosocial and safety climate), and health and safety outcomes among healthcare workers, including those in contingent work arrangements and veterinary medicine/animal care workers.
- ...develop new methods to systematically measure and report fatigue issues among mining workers.
- ...identify the relationship between occupational exposures and PTSD, substance abuse, and depression among public safety workers.
- ...better understand risk factors for chronic disease among transportation workers.
- ...better characterize risk factors for musculoskeletal disorders and for preclinical musculoskeletal pain symptoms among wholesale and retail trade workers.

Recent accomplishments in these priority areas include:

Work arrangements and Workplace psychosocial exposures: We incorporated data on 41 outcomes from the National Health Interview Survey (NHIS) core (2004-2013) and 23 outcomes from the 2015 NHIS Occupational Health Supplement (OHS) into the Worker Health Charts (WHC). These include the prevalence of Frequent Night Work, Non-Standard Work Arrangement (Independent Contractor or Freelance, Temporary Agency or Subcontractor), Shift Work (Any Alternative Shift), Supervisory Responsibility, High Job Demands, Hostile Work Environment, Low Job Control, Low Supervisory Support, Poor Safety Climate, Work-Life Interference, Workplace Perceived as Unsafe, Worry about Losing Job. The prevalence of these job characteristics ranged from 2.8% for work arrangement as a temporary worker or subcontractor to 32.4% for supervisory responsibility.

Mental health outcomes: We added 14 health/behavior outcomes from 2013-2015 Behavioral Risk Factor Surveillance System surveys to WHC. These include the prevalence of depression, which ranged from 8.4% among workers in architecture and engineering occupations to 19.7% among workers in healthcare support occupations.

Substance abuse: We published an article on drug overdose deaths by occupation using

National Occupational Mortality Surveillance (NOMS) data. We found that during 2007–2012 proportional mortality ratios (PMR) for heroin-related overdose deaths (1.46) and methadone-related overdose deaths (1.34) were highest for the construction occupation group. PMRs for natural and semisynthetic opioids were highest for the extraction (1.39) and health care practitioner (1.81) occupation groups.

Opportunities for collaboration: Aggregate data from the NHIS and BRFSS can be explored on the WHC website. Aggregate NOMS data can be explored on the NOMS query website. NHIS datasets, including variables relevant to healthy work design, are publicly available for download on the NHIS website; relevant BRFSS and NOMS data are available for analysis through data use agreements. NIOSH epidemiologists would be happy to collaborate on specific analyses.

Other relevant topics and data sources of recent publications:

- Availability of and participation in workplace health promotion programs, 2015 NHIS-OHS
- Prevalence of workplace discrimination and mistreatment, REGARDS cohort
- Trust in the work environment and CVD risk, Gallup-Sharecare Well-being Index
- Prevalence and expenses of outpatient opioid prescriptions, Medical Expenditure Panel Survey

Future plans: NIOSH will sponsor the administration of an occupational health supplement (OHS) to the 2021 NHIS. The 2021 NHIS-OHS will build on the 2010 and 2015 NHIS-OHS's sponsored by NIOSH, but will have a narrower focus. The 2021 NHIS-OHS questions will focus on characteristics of healthy work design, emphasizing detailed characterization of work arrangements, work schedules, and workplace psychosocial exposures. Data will be publicly available in the summer of 2022. NIOSH will continue to work to increase the number of states that include industry and occupation questions in the BRFSS and update the data in WHC. NIOSH is expanding and modernizing NOMS to provide data from more states in a more timely manner. This will allow for more timely analyses of deaths due to drug overdoses, suicides, and other causes of concern among workers.

Sara E. Luckhaupt, MD, MPH*, Marie Haring Sweeney, PhD, Teresa Schnorr, PhD, National Institute for Occupational Safety and Health, Health Informatics Branch, Division of Field Studies and Engineering, 1090 Tusculum Ave., MS R-17, Cincinnati, OH 45226, USA

KEYNOTE ADDRESS

9:15 AM - 10:15 AM
Liberty Ballroom A

What Will It Take for People to Stop "Dying for a Paycheck"? CEP

JEFFREY PFEFFER, PhD
Stanford Graduate School of Business

The workplace is the fifth leading cause of death in the U.S., and many workplace practices such as layoffs and other forms of economic insecurity, long hours, and an absence of job control coupled with high job demands are as harmful to health as second-hand smoke, a known—and regulated—carcinogen. Worse than the enormous physical and psychological toll on people and the enormous economic costs to companies and society—one study estimated that presenteeism costs the s $1.5 trillion per year—is that no one seems to care as work arrangements move toward less, rather than more, healthful environments.

After briefly reviewing the many ways that workplaces are inflicting harm on both their people, those people's families, and themselves through increased turnover, absenteeism, and low employee engagement, and the enormous costs imposed on society, Dr. Pfeffer will describe what he has learned in the 18 months since *Dying for a Paycheck* was published. The short answer to the question posed in the title of this talk: It will require legislation, regulation, and litigation. How could it not—how could remedying the work environment catastrophe be substantially any different than what was required decades ago to clean up the physical environment?

10:30–11:45 a.m.

Concurrent Sessions 1

Salon 3 & 4

Workload and Stress

PAPER SESSION

Comparing Self-Perceived Stress With Objective Measures of Workload—A Longitudinal Study

Bozana Arapovic-Johansson (Karolinska Institute)

High workload is one of the factors that may influence the experiences of stress (Häusser et al., 2010). Therefore, measuring workload and allocating resources according to it is one possible way of preventing stress. However, the use of subjective measures of workload raises the question of individual differences in perceptions of high or low workload, as positive and negative emotional states may influence the answers (Nielsen et al., 2017). One way of avoiding this uncertainty is to measure the objective workload and to relate it to employees self-reported stress (Shirom et al., 2008). Research on objective workload measures and work related self-reported stress is to our knowledge still scarce and findings are inconsistent. For example, the relationship between long working hours, health and well-being is ambiguous and the effects of long working hours depend on which aspects of physical or mental health are examined, but also on cultural differences, etc. (Ganster et al., 2018). Relating the number of working hours to productivity data is one possible way to further develop the objective workload measures as this gives an indication of the relative workload i.e. adjusted to working hours. The aim of this study is to examine the association between the individual experience of stress and the group level objective organizational measures of quantitative workload.

Method. This study is a part of a two armed randomized controlled trial in a primary health care setting (Bozana Arapovic-Johansson et al., 2018). At baseline, the total sample consisted of 118 employees. The individual experience of stress was measured by a single item stress question "Stress means a state in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his/her mind is troubled all the time. Do you feel this kind of stress these days?" (Arapovic-Johansson et al., 2017; Dallner et al., 2000). The question was administered with the help of weekly text messages and the sample of this sub study consisted of employees who responded to weekly text messages at least 80% of the weeks.

Aggregated data on objective workload (hours worked, amount of tasks, number of patient visits, number of administrative tasks, and number of phone calls answered) were collected every month, from the central administration office of the county council. The data were aggregated on the level of health care unit. These data were used in the analysis both as raw data and computed into four quantitative workload ratios. These were the ratios between the monthly total number of working hours as a nominator, and the following denominators: (a) the number of tasks, (b) the number of phone calls answered, (c) the number of patient visits, and (d) the number of administrative tasks. We used generalized estimating equations (GEE) to examine the association between the quantitative monthly workload at health care unit level and the monthly experience of stress at individual level (i.e. the monthly mean was calculated for every individual from their weekly ratings).

Results. The GEE analysis showed that the quantitative work load on a group level is associated with the monthly experience of stress on the individual level. The stress experience increases with higher numbers of patient visits, administrative tasks, etc. The associations between the four ratios and the stress experience gives somewhat different information. The higher the monthly four ratios, i.e. the fewer the tasks accomplished on a group level per hour worked, the higher the monthly stress on the individual level. In other words; the lower the productivity at a group level, the higher the feeling of stress on individual level. Table 3 displays parameter estimates for the SMS for both the raw objective data and for the ratios.

Conclusion. This study showed that the objective monthly group level workload data correlated highly with the stress experience on individual level. The relationship between the stress experience and the workload expressed as the ratio of time and objective raw data gives interesting and possibly important information. The fewer core tasks (visits, administration, phone calls, etc.) accomplished per hour worked on group level, the higher the experience of stress on individual level. This could suggest that some other processes, possibly other group or organizational tasks, not directly related to the core tasks, may be "steeling time" and act as a basis for a "hindrance appraisal" (Liu & Li, 2018). In other words, the studied primary health care employees might feel stressed as they feel inefficient on a group level (or get the statistical feedback that they are inefficient), i.e. not accomplishing what they planned or should have done in relation to their core tasks.

The Relationship of Choice Overload and Psychological Well-Being Among Upper-Level Managers

Sabrina Zeike (University of Köln)

Problem. The shift towards the information and technology age has brought a growth of options and opportunities for choice. Choice overload can occur, when a person can't adequately handle the quantity and/or quality of options. Especially for managers, who must frequently deal with rapid changes and complex decisions, this may be the case. We assume that excessive options and complex choices may be perceived as a burden and may negatively influence psychological well-being. Our hypothesis goes along with the choice overload hypothesis, which states that too much choice causes adverse consequences. Multiple studies support the validity of this construct. However, investigations of the choice overload hypothesis in managers are rare, and the association between psychological well-being and the perceived stress of having many options and/or (complex) decisions to make is also not well understood. The aim of the current study was to analyze the association between perceived choice overload and psychological well-being in upper level managers. In the context of this study we tested three main aspects of choice overload: burden of leadership decision, agony of choice, and complexity of decisions.

Method. The study was part of a broader project on digitalization and health. A survey on upper-level managers from a German IT-company was conducted to (a) identify specific burdens of the upper level managers in the context of digitalization and (b) ask the

managers about their view on the current status of and relationship between digitization and health. Upper level managers, in this context, are executives who are responsible for managers in lower management. As one specific burden in the context of a digitalized workplace, choice overload was one aspect in the project. Participation in the survey was voluntary. The data were collected and analyzed anonymously. Participants gave their consent for the survey and permission to analyze all information from the questionnaire and publish it in anonymised form for research purposes.

Psychological well-being in managers was assessed by using the German version of the World Health Organization Well-Being-Index (WHO-5). Based on literature and interviews with managers, we developed three items, assessing three main aspects of choice overload in managers: burden of leadership decision, agony of choice, and complexity of decisions. We pretested the questionnaire with upper-level managers and conducted an online-survey with a sample of 368 upper level managers. The cross-sectional study lasted from June to July 2017.

Responses for well-being were scored and dichotomised into groups of high and low well-being, according to the well-established cutoff score of <13 for the WHO-5. To assess possible statistical differences between the group of managers with low well-being and the group with high well-being, chi-square and t-tests were conducted. A multivariate logistic regression analysis was performed to examine the relationships between well-being and choice overload.

Results. Of the 368 study participants, 76.9% were male and 23.1% were female. The average score for psychological well-being was 15.73, with a standard deviation of 4.6 and a range from 0 to 25. Results show that 21.5% of the surveyed managers were classified with poor well-being (n = 72) and 78.5% with high well-being (n = 263). The average of perceived choice overload among all participants was medium to high (M = 2.48, SD = 0.738 for burden of leadership decision; M = 2.37, SD = 0.824 for agony of choice; and M = 2.77, SD = 0.804 for complexity of decisions).

Bivariate comparisons between the groups of low and high well-being using a t-test revealed a p value <0.001 for the variable 'complexity of decisions' and a p value <0.05 for 'agony of choice'. In a chi-square test we found p values < 0.001 for the variables sex, age and number of employees responsible for.

Model 1 of the multivariate analysis shows the unadjusted model (crude analysis). Models 2–4 show the models for burden of leadership decision, agony of choice, and complexity of decisions, adjusted for the covariates. Model 5 shows the full model with all variables included. Nagelkerke's R square is 0.101 for this model, which, according to Cohen (1992) corresponds to a moderate effect. The results of multivariate regression analyses show that a higher degree of perceived agony of choice and complexity of decisions is significantly associated with low psychological well-being (agony of choice: $p < .05$, OR = 1.401; complexity of decisions: $p < .01$, OR = 1.844).

Discussion and Conclusion. Choice overload is a concept that has not yet been well researched. The findings serve as a starting point for further investigations on the phenomenon and occupational health-related outcomes. Although the topic is still barely explored, managers' choice overload should be considered in the practice of health promotion because of its possible negative effect on psychological well-being. Limitations of our study were the cross-sectional design and the response rate (20.5%).

Effort-reward imbalance, over-commitment, and risk of work disability: A 10-year prospective cohort study from Germany

Jian Li (University of Dusseldorf, UCLA)

How to prevent work disability among employed people is a challenge to all countries, given substantial direct and indirect costs, productivity losses, and high burden of disease. In recent decades, psychosocial factors in the workplace have been recognized as important risk factors of disability retirement. To a large extent, respective research was conducted in Scandinavian countries, and many investigations used the job strain model as a respective predictor. This model focuses on distinct job task characteristics, where the combination of high demand and low control is considered to be particularly stressful. As a complementary approach, the effort-reward imbalance (ERI) model was developed that is based on the norm of social reciprocity in gainful employment. More specifically, psychosocial stress at work is defined as an imbalance between high efforts spent and low rewards received in turn as it violates this basic principle of social exchange. The ERI model includes an intrinsic component, termed over-commitment, which identifies a pattern of critical coping with demands at work. So far, few studies only tested this latter model with regard to work disability.

Research on this topic is complicated by the fact that pathways from disabling working conditions to health-related work exit (mainly as disability retirement) are complex, given a number of interfering factors, such as features of national retirement policies as well as personal and family conditions. Despite its ambiguity, most studies used 'disability retirement' as the outcome measure. Yet, it seems more accurate to analyze 'work disability' as outcome measure that is more closely linked to preceding working conditions.

With this study we set out to test the contribution of the ERI model towards predicting elevated risks of work disability in a prospective cohort design. We used data from the 2006-2016 waves of the German Socio-Economic Panel (G-SOEP). The G-SOEP is a large, nationally representative longitudinal study, collecting annual information about personal, economic, social, and political aspects. In 2006, a validated 16-item ERI questionnaire was applied in the G-SOEP study to measure psychosocial work environment. Work disability was assessed every year, based on legal certificates that quantify the extent of disability. More specifically, participants were asked "Have you been officially assessed as being incapable of work due to medical reasons?" "If yes, what is the degree of your reduced capability to work?" The work disability score ranges from 0 (no any disability) to 100 (complete disability). Within the German legal context, moderate work disability has been defined as a disability score >= 30, entitling workers to apply for disability benefits; severe work disability has been defined as a disability score >= 50, entitling workers to apply for early retirement.

In total, 8971 workers were followed up at least once during 2006-2016. In order to minimize reverse causation, we excluded 403 participants with moderate work disability at baseline in 2006, leaving an analytic sample of 8568 workers. During the 10-year follow-up, 660 incident cases of moderate work disability were identified. Using Cox proportional hazards regression to determine whether work stress assessed in 2006 predicted work disability during the 10-year follow-up, hazard ratios (HRs) and 95% confidence intervals (CIs) were estimated, adjusted for age, sex, marital status, education, income, smoking, alcohol drinking, and body mass index at baseline. Compared with the low level (bottom quartile), high level (top quartile) of imbalance between effort and reward was associated with an elevated risk of moderate work disability (HR = 1.56, 95% CI=1.26-1.95) after

taking the relevant covariates into account; high level (top quartile) of over-commitment also predicted onset of moderate work disability (HR = 1.54, 95% CI=1.23-1.94). Clear dose-response relations were observed. Similarly, both high levels of imbalance between effort and reward as well as over-commitment were associated with risk of severe work disability (HR = 1.32, 95% CI=1.02-1.70; HR = 1.35, 95% CI=1.04-1.75, respectively).

In conclusion, to our knowledge, this is the first study to reveal prospective evidence of associations of work stress in terms of ERI with two outcome measures of work disability in a large sample of German employees. If supported by further research, worksite interventions should be intensified, instructed by these theoretical models of stressful work.

Salon 5 & 6

Understanding and Mitigating the Impact of Occupational Stress on Professional Firefighters

PAPER SESSION

Chair: Nathan Kimbrel (Duke University)

Firefighters frequently place themselves at risk to provide critical services to the public, including responding to fires, medical emergencies, and natural disasters. As a result of their highly-demanding jobs, firefighters are often exposed to high levels of occupational and traumatic stress, both of which have been found to contribute to behavioral and physical health problems in firefighters.

The objectives of this symposium are to: (a) Identify common sources of occupational stress among firefighters as well as their effects on the mental health and occupational functioning of professional firefighters; (2) Examine the impact of different types of traumatic stress on firefighters' risk for PTSD and suicidal behavior; (3) Describe professional firefighters' access to behavioral health services as well as their attitudes and preferences for behavioral health service providers; and (4) Highlight a promising new peer support training program that has been developed and implemented by the International Association of Fire Fighters (IAFF) to help address behavioral health problems in firefighters by bridging the gap between available resources and those who need them.

Dr. Nathan Kimbrel will chair this symposium and will provide an introduction to the symposium and to each of the speakers. In the first presentation, Dr. Suzy Gulliver will describe findings from a series of studies regarding common sources of occupational stress among firefighters as well as a state-of-the-art instrument that enables clinicians and researchers to quickly identify firefighters' current levels of occupational stress. Dr. Gulliver will also discuss the impact of occupational stress on firefighters' job satisfaction, work-related morale, and degree of conflict at work as well as the relationship between occupational stress and risk for PTSD, depression, and substance use. In the second presentation, Dr. Kimbrel will discuss the impact of different types of traumatic stress on firefighters' risk for PTSD and suicidal behavior. In the first study, Dr. Kimbrel will describe how firefighter cadet's baseline levels of personality interact with their exposure to traumatic events during their first year of fire service to predict their level of PTSD symptomatology at the end of their first year of service. Next, Dr. Kimbrel will describe the high level of cumulative exposure to suicide attempts and deaths that his team has observed across multiple studies of firefighters as well as the association between cumulative exposure to suicide attempts and risk for suicidal behavior. Finally, Dr. Kimbrel will present recent findings that suggests that suicidal behavior is most likely to be present when firefighters experience acute stress disorder symptoms following suicide exposure. In the third presentation, Ms. Michelle Pennington will describe findings from a large national survey of firefighters aimed at identifying their access to behavioral health services as well as their attitudes and preferences for behavioral health service providers. Among other findings, this survey revealed that firefighters with fewer years of service were more likely to go to family members, co-workers, or officers for help with a behavioral health problem, whereas those with more years were more likely to seek private professional services. Additionally, clinicians who understood firefighter work culture rated as one of the most important components to a successful behavioral health program, whereas a lack of such clinicians was rated as one of the most significant barriers. Finally, in our fourth presentation, Ms. Sarah Bernes will describe a standardized peer support training program that has been developed and implemented by the IAFF to help address the impact of occupational and traumatic stress and behavioral health problems common among firefighters by bridging the gap between available resources and those who need them. To date, the IAFF has trained more than 3,200 peer support specialists across the country. An iterative process of program development yielded a curriculum designed to equip IAFF-trained peer supporters to effectively aid their peers, educate the public and colleagues, and bridge the gap between available resources and those who need them. The 2-day Peer Taught training course uses interactive methods that improve participants' abilities in multiple areas, including crisis intervention, listening skills, and awareness of local behavioral health resources. In addition, the IAFF is actively developing advanced trainings for participants on a variety of topics, including a specialized training on suicide prevention.

The symposium will conclude with a 20 minute discussion period between audience members and presenters that will be facilitated by Dr. Kimbrel.

Sources of Occupational Stress among Professional Firefighters

Suzy Gulliver (Baylor Scott & White Health)

Firefighters are exposed to a wide variety of occupational stressors. The objective of the current presentation is to describe findings from a series of studies regarding common sources of occupational stress among firefighters as well as a state-of-the-art instrument that enables clinicians and researchers to quickly identify firefighters' current levels of occupational stress. This instrument quickly and efficiently assesses health habits, discrimination, management/labor conflict, financial concerns, lack of control, job skills concerns, past critical incidents, general stress, tedium, substandard equipment/employees, coworker conflict, sleep disturbance, family concerns, and apprehensions regarding personal safety. Across multiple samples of professional firefighters, we find that this instrument exhibits good factor structure, good internal consistency reliability, good test-retest reliability, and good predictive validity. In particular, we find that this instrument is strongly associated with firefighters' job satisfaction, work-related morale, and degree of conflict at work as well as PTSD symptoms, depression symptoms, and substance use symptoms. We conclude that regular assessment of occupational stress over time could help administrators and

clinicians to identify and intervene with fire fighters at risk for the development of serious behavioral health problems.

Evaluating the Impact of Traumatic Stress on Firefighters

Nathan Kimbrel (Duke University)

Firefighters are frequently exposed to a wide array of potentially traumatic experiences, including fires, natural disasters, car accidents, and medical emergencies. The objective of the current presentation is to examine the impact of different types of traumatic stress on firefighters' risk for PTSD and suicidal behavior across multiple samples of professional firefighters. The objective of our first study was to examine if firefighter cadets' baseline levels of personality interact with their exposure to traumatic events during their first year of fire service to predict their level of PTSD symptomatology at the end of their first year of service. As expected, we found that firefighter cadets' baseline levels of negative emotionality interacted with their level of exposure to traumatic stressors during their first 8 months of fire service to predict their level of PTSD symptom severity at the 1-year follow-up, $\beta = .22$, $p = .009$, after accounting for main effects, other personality variables, baseline levels of traumatic exposure, and demographic characteristics. Study 2 describes the high rates of cumulative exposure to suicide attempts and deaths that we have observed among professional firefighters as well as the strong association that we have observed between exposure to suicide attempts and deaths and suicidal behavior. Specifically, we have found that firefighters typically report more than 10 exposures to suicide deaths and attempts over the course of their lifetime and that cumulative exposure to suicide deaths and attempts is positively associated with risk for suicidal behavior among firefighters, $r = .38$, $p = .004$. In addition, our most recent findings indicate that suicidal behavior is most likely to be present when firefighters experience acute stress disorder symptoms following suicide exposure. Specifically, using path analysis, we find that suicide exposure is predictive of acute stress disorder symptomatology, which is, in turn, associated with PTSD symptoms, which are, in turn, associated with suicidal behavior (all p's $< .05$). We conclude that routine assessment and monitoring of firefighters' exposure and reactions to traumatic experiences is warranted.

A Survey of Professional Firefighters' Views on Behavioral Health Programs in Fire Service

Michelle Pennington (Baylor Scott & White Health)

While it is well-established that firefighters are at increased risk for a variety of behavioral health problems, relatively little research has been conducted on firefighters' attitudes and preferences towards behavioral health services using an online survey. The objective of this presentation is to present findings from a large national survey of firefighters aimed at identifying their access to behavioral health services as well as their attitudes and preferences for behavioral health service providers. Among other findings, this survey revealed that while many professional firefighters reporting having access to behavioral health services through their fire departments, many reported that they would prefer to utilize family members of private professional services. Firefighters with fewer years of service were more likely to go to family members, co-workers, or officers for help with a behavioral health problem, whereas those with more years were more likely to seek private professional services. Additionally, clinicians who understood firefighter work culture rated as one of the most important components to a successful behavioral health program, whereas a lack of such clinicians was rated as one of the most significant barriers. Taken together, these findings suggest that greater exploration of stigma in fire service is warranted, and that greater attention toward training culturally competent clinicians to work with firefighters is needed.

Implementation of a National Peer Support Training Program for Professional Firefighters

Sarah Bernes (International Association of Fire Fighters)

Because of the prevalence of behavioral health problems in fire service and the growing backing for peer support training programs, the International Association of Fire Fighters (IAFF) has developed and implemented a standardized peer support training program. An iterative process of program development yielded a curriculum designed to equip IAFF-trained Peer Supporters to effectively aid their peers, educate the public and colleagues, and bridge the gap between available resources and those who need them. The 2-day peer taught training course uses interactive methods that improve participants' abilities in multiple areas, including crisis intervention, listening skills, and awareness of local behavioral health resources. To date, 36 trainers have trained more than 3,200 peer support specialists across the United States and Canada. An initial look at the first 200 peer support training evaluations suggests that peers are satisfied with the training and that they believe that they are learning important new skills. In fact, 96% agreed that the information presented in the training was useful and effective. In addition, 95% agreed that they were prepared to begin working as a peer support specialists and that their knowledge of peer support had substantially increased as a result of the training. The IAFF is currently working to develop multiple advanced training programs for peer support specialists, including a training that is focused on the use of the safety planning intervention to reduce firefighters' risk for suicide. The presentation will conclude with a description of the current status of the IAFF peer support training program as well as lessons learned from this important national implementation project.

Independence Ballroom A

Working Conditions and Mental Health

PAPER SESSION

Impact of work-related psychosocial factors on mental health: A cross-sectional study in the French working population

Oumou Salama Daouda (Conservatoire National des Arts et Métiers)

Background. According to Organization for Economic Cooperation and Development, mental health problems, such as depression and anxiety disorders, affect more than one in six people across the European Union in any given year. In the past few decades, mental health problems have increasingly contributed to sickness absence and long-term disability, and return to work is often complicated even if re-employment programs have a modest effect on the quality of life. Mental disorders lead to higher rates of absenteeism and constitute a leading cause of early retirement in Europe and have a direct impact on workplaces through reducing productivity, and increasing healthcare costs. A better understanding of work-related psychosocial factors (PSF) associated with employee's mental health is important to help decision-makers and public authority to consider specific actions.

AIMS. The aim of this study at first, is to determine the exposure of the French work population to work-related PSF and second, to measure the impact of PSF on mental health.

DATA. The present work is based on a cross-sectional study conducted in march 2018 on a sample of 3200 workers, representative of the French working population. The sample has been randomly drawn from the French database "Ipsos Access Panel" and data were collected within a questionnaire administered during a computer assisted web interview (CAWI).

To measure the level of mental health for each individual, the validated General Health Questionnaire (GHQ-28 items), constructed by Goldberg is used. GHQ-28 items, which is surely the most internationally used, is a self-administered screening questionnaire designed to detect probable psychiatric disorder in primary care settings. The questionnaire doesn't give any information on the basic health status of the subject. It allows to know if the interviewee is better or worse than usual at the time of the questionnaire. The French version of the questionnaire, used in our study, has been validated.

In order to measure psychosocial factors (PSF) at work, 44-item questionnaire is developed. These factors were inspired by major theoretical works from Karasek, Siegrist and Greenberg, and the French report by Michel Gollac. In addition, fifty individual covariates about socio-demographic situation, health and life hygiene conditions, job characteristics and work environment were measured. In our study, we focused only on some of them. Indeed, only nine variables were extracted in the database that could be important in the prediction of mental health. These variables are: gender, age, work duration per week, working on the week-end, working at night, work on staggered hours, commuting duration, previous experience of unemployment and chronic medical condition.

METHODS. A multiple logistic regression is used to estimate the impact of each work-related PSF on employee's mental health, adjusted on the nine confounders.

RESULTS. This study analyzed French 2803 employees, among them 48.6% women, with a mean age of 41.4 (11.13). According to the literature and to the distribution of GHQ-28 score in the sample, we choose a threshold of 24 to identify potential psychiatric cases. This was 22.2%, IC95[20,6; 24.0]. Ten PSF remains significantly associated with mental health. "Having problems to handle professional and personal responsibilities" was reported by 15% of the population and has the strongest association with mental health (Odd Ratio OR=1.97, Confidence Interval 95% [1.52; 2.54]). Among people exposed, 45% were potential psychiatric cases whereas 18% among unexposed. 52% of the sample reported having an unsatisfactory job compensation (OR=1.42 [1.15, 1.77]). Job insecurity (OR=1.44 [1.15; 1.78], 42% exposed), lack of social support (OR=1.63 [1.29; 2.06], 27% exposed) were also identified, as well as the emotional burden of the job (OR=1.43 [1.13; 1.79], 43% exposed), and the absence of symbolic compensation of the job in terms of self- esteem (OR=1.32 [1.03;1.69], 22% exposed). The other PSF were unsatisfactory communication at work (OR=1.39 [1.11; 1.75], 43% exposed), feeling afraid when doing the job (OR=1.53, [1.21; 1.93], 28% exposed), doing repetitive tasks (OR=1.29 [1.04; 1.60], 38% exposed) and having a highly cognitive demanding job in term of concentration (OR=1.35 [1.08; 1.70], 32% exposed). In addition, four individual covariates were associated to mental health: having a bad medical condition, being woman, being over 45 years old and work more than 50 hours per week.

CONCLUSION. Our study identified 10 PSF associated with mental health with an important exposition rate among employees. The study provided an initial look at the mental health disorders for French employees and the urgency to address mental health at workplace. As correlation does not imply causality, a causal analysis should also be performed before generating recommendations for work conditions.

Impacts of Organizational Changes at Work on Subsequent Prescription for Psychotropic Medication among Healthcare Employees in Denmark

Johan Jensen (The Capital Region of Denmark)

Problem. The impacts of organizational changes at work on clinical mental-health outcomes among employees remain unclear. Previous studies found that staff downsizing was associated with higher risk of prescription for psychotropic medication (Kivimäki et al., J Epidemiol Community Health, 2007; Magnusson et al., Epidemiol, 2015; Blomqvist et al., PLoS ONE, 2018) among the remaining employees. Another study indicated that organizational changes targeting different dimensions may impact employees' mental health differently and that broader changes occurring simultaneously were particularly associated with excess prescription rates of psychotropic medication (Dahl, Manage Sci, 2011). The present study aims to examine the longitudinal impacts of various types of organizational changes on prescription for psychotropic medication among employees.

Procedures. Work-unit organizational changes occurring through 2013 were assessed according to the first prescription for psychotropic medication in 2014. The study population included 15,038 employees nested within 1,284 work units, which again, were nested within 13 healthcare institutions in the Capital Region of Denmark (i.e., public healthcare organization). Each employee worked 18.5 weekly working hours in the same work unit throughout 2013. From April through June 2016, managers provided information on occurrence of organizational changes in their work unit during 2013 (59% responded), viz., mergers, split-ups, relocation, change in management, employee layoff, and budget cuts. We created indicator variables at the work-unit level on any organizational changes (yes, no changes), each type of organizational change (yes, no changes), and the number of organizational changes occurring simultaneously (0, 1, 2 or ≥3 changes). Daily information on prescription for psychotropic medication (WHO ATC codes: N05B [anxiolytics], N05C [hypnotics/sedatives], and N06A [antidepressants]) were extracted through linkage to national registers. Background information were obtained from company and national registers.

Analyses. Multilevel mixed-effects parametric survival Weibull models were developed to assess the hazard ratios (HR) of prescription for psychotropic medication following exposure to organizational changes relative to no changes. Employees (level 1) were nested within work units (level 2). Each exposure variable on organizational changes were analyzed in separate models. Employees were followed on the day-scale from baseline at January 1, 2014, to prescription for psychotropic medication (outcome), death (censoring) or end of study by December 31, 2014, whichever came first. We adjusted for the following a priori covariates: age, sex, occupational group, manager status, personal income, working hours, contractual employment, seniority, previous sickness (employee level), number of employees within work unit, and other types of changes as appropriate (work-unit level). In total, 1,616 employees were prescribed psychotropic medication throughout the follow-up period. In null models, intraclass correlation coefficients (ICC) assessed the relative importance of the work-unit level for the prescription outcome.

Results. Relative to no organizational changes, there was a higher risk of prescription for psychotropic medication throughout 2014 after exposure to any changes (HR: 1.14, 95% CI: 1.02-1.26) and employee layoff(s) (HR: 1.23, 95% CI: 1.07-1.41) at the work-unit level. Splitting this 12-month follow-up period into two halves showed stronger associations in the latter 6-month period following any changes (HR: 1.25, 95% CI: 1.11-1.41), mergers (HR: 1.26, 95% CI: 1.06-1.50), changes in management (HR: 1.42, 95% CI: 1.22-1.65), employee layoff(s) (HR: 1.23, 95% CI: 1.03-1.46), and budget cuts (HR: 1.19, 95% CI: 1.00-1.41). Exposure to a higher number of change types occurring simultaneously was not associated with higher risk estimates. The work-unit level explained 6% of the total variance in prescription for psychotropic medication among employees (ICC=0.06, $p<0.01$) indicating its importance to employee mental health.

Practical implications. The present findings highlight organizational change at work as a heterogenous risk factor for employee mental health that unfold over time. Policy and decision makers should recognize and prioritize the need for strategies to prevent long-term detrimental employee effects of organizational changes.

Conclusions. Various types of organizational change—especially change in management—may be associated with higher risk of prescription for psychotropic medication among employees relative to no changes. The present findings suggest a latency period before observation of adverse effects regarding use of psychotropic medication.

Characteristics of Work Environment predict Latent Profiles of Depression, Life Satisfaction, and Workaholism among Finnish Employees

Katja Upadyaya (Research Center for Group Dynamics (RCGD) at the University of Michigan)

Recent research in organizational psychology has shown that different aspects of employees' general well-being (e.g., life satisfaction, depressive symptoms) develop over long time periods and are often associated with one's work-related well-being (e.g., workaholism) (Hakanen & Schaufeli, 2012; Hakanen, Schaufeli, & Ahola, 2008; Insstrand, Langballe, & Falkum, 2011; Upadyaya, Vartiainen, & Salmela-Aro, 2016). For example, general life satisfaction and depressive symptoms may spillover to subsequent work-related well-being (e.g., work engagement, burnout) sometimes eventually leading to occupational health problems or workaholism (Hakanen & Schaufeli, 2012; Upadyaya et al., 2016). Workaholism often reflect the dark side of engagement (Salmela-Aro, 2015), of which some highly engaged employees who simultaneously experience high burnout symptoms may suffer, and which often leads to impaired job performance and well-being (Shimazu & Schaufeli, 2009). However, less is known about the extent to which workaholism develops among employees' general well-being. Moreover, it is possible that variation exists in the associations between work-related and general well-being, and that different subgroups of employees experience varying levels of general and work-specific well-being and ill-health. For example, some employees may experience an overall high work engagement and low burnout symptoms, whereas smaller groups of employees may experience increasing burnout symptoms and lower levels of work engagement (Upadyaya & Salmela-Aro, 2019). However, only few studies have examined the associations between work-related and general well-being and ill-health in a longitudinal design and using person-oriented approaches. Consequently, the present study examined the latent profiles of employees' general well-being (e.g., life satisfaction, depressive symptoms) and workaholism across two measurement times. In addition, the associations between work environment characteristics (e.g., experiences of workload, control, rewards, community, fairness, and similarity of values; Leiter & Maslach, 2003) and employees' personal characteristics (e.g., gender, age) in predicting the latent profiles were examined.

The data was gathered twice from 1 415 Finnish employees through their occupational health services. The employees filled in a questionnaire concerning their life satisfaction, depressive symptoms, workaholism, work environment, and demographics. The research questions were analyzed with latent profile analyses (LPA) using Mplus statistical package. The results indicated that two profiles of general well-being and workaholism could be identified (Figure 1), one characterized by a high level of life satisfaction, low depressive symptoms, and an average level of workaholism (94% of the participants) and the other characterized by increasing depressive symptoms, and an average level of life satisfaction and workaholism (6%). These profiles were named as high life satisfaction and increasing depressive symptoms groups. Further, when examining the role of work environment in predicting employees' belonging to these latent profiles, the results showed that employees who experienced appropriate workload and control, and good work community, workplace fairness, and similarity of values more often belonged to the high life satisfaction rather than the increasing depressive symptoms profile. Finally, women more often than men belonged to the increasing depressive symptoms profile.

Overall, the results of the present study suggested that even most of the employees experience high general well-being, a small amount of employees suffer from increasing depressive symptoms and simultaneously relatively high workaholism. Employees' general well-being was also reflected in their work-related well-being (e.g., workaholism). Moreover, different characteristics of work environment contribute to employees' general well-being (e.g., life satisfaction and depressive symptoms) as well as workaholism. More studies in the field would be needed to examine ways to promote employees' general well-being and reducing both work context-specific and general ill-being.

Organizational and psychosocial working conditions and their relationship with mental health outcomes in patient-care workers

María Andrée López Gómez (Harvard University)

Problem. Nurses and patient-care assistants in acute-care settings are often exposed to working conditions that impact both physical and psychological health. The prevalence of mental disorders in nursing population is higher than the general population. Depression and anxiety are the most common mental disorders often comorbid with other physical illness. Identifying which work factors are associated with adverse mental health outcomes in the hospital work environment could lead to workplace interventions that improve health for both nurses and, by extension, the patients for whom they care. Additionally, in the U.S. context of employer-sponsored health insurance programs, improving mental health could reduce healthcare costs.

Scholars have found strong associations between working conditions and mental health outcomes. Assessing which organizational working conditions may be related to an improved psychosocial environment may identify efficient and sustainable ways to improve workers' mental health and reduce employer health care costs. This study investigates the relationship between organizational and psychosocial working conditions with both self-reported and administratively-derived measures of mental health.

Methods. The study used survey and administrative data from the Boston Hospital Workers Health Study (BHWHS), a cohort of patient-care workers in two major academic hospitals in the Boston metropolitan area. In September 2012, 2,000 patient-care workers from the BHWHS were randomly selected to complete a survey which measures working conditions and worker health and well-being outcomes. Eligible workers included registered nurses, patient-care associates and nurse specialists who worked at least 20 hours per week. The BHWHS is a database of worker information that can be merged directly with survey data with the use of secure study ID codes. This administrative database contains health care utilization by employees under the employer-sponsored health plan, managed by a third party. We measured psychological distress using the K6 questionnaire which was included in the worker survey. The K6 identifies community cases based on severity of symptoms common to mental disorders. We measured utilization of health care services using medical claims data. Mental health services included those under the Current Procedural Terminology (CPT) codes for: diagnostic interview, outpatient interactive psychotherapy, inpatient interactive psychotherapy and other psychiatric services. Mental health expenditures included the above-mentioned procedures performed the year following survey administration, from October 4th, 2012 to October 3rd, 2013. Statistical Analyses. We analyzed predictors of psychological distress using generalized linear models (GLM) looking at individual associations of working conditions and psychological distress. Using a forward stepwise hierarchical approach, we assessed the relationship of sociodemographic variables, meal practices and working conditions and their relation to psychological distress. To assess mental health use and expenditure, we included claims data for 902 workers who completed the survey and were enrolled in the employer-sponsored health plan. We used two-part GLM models to assess the probability of having any mental health expenditure and, conditional on any expenditure, the second part of the model predicts the mean amount spent on mental health services.

Results. From the 2,000 workers who were sent the survey, 1,594 completed at least 50% of the survey and were included in the analyses. GLM models controlled for age, gender, ethnicity and job title showed significant associations of each individual working condition with psychological distress: job flexibility, people-oriented culture, decision latitude, supervisor and co-worker support were negatively associated with psychological distress (i.e. high decision latitude was associated with less psychological distress) while job demands were positively associated. Taking a full meal break was negatively associated with psychological distress. We then repeated analyses but used mental health expenditures, rather than self-reported psychological distress. Results from two-part models showed that workers who perceived higher levels of co-worker support had significantly lower odds of having any mental health expenditure (OR: 0.84, 95% CI: 0.73-0.96) and conditional on any expenditure, they spent $48.50 less than their counterparts with low supervisor support. Results also showed that conditional on any expenditure, workers with higher scores on people-oriented culture spent $80.50 less than their counterparts with lower scores.

Implications and conclusions: Psychosocial factors, organizational factors, and having a full meal break were associated with better mental health as measured by both self-report and by health plan expenditures on mental health diagnoses. These results point to multiple ways that employers can improve workers' mental health (and resultant expenditures by their employers) by addressing various dimensions of the work environment.

Salon 10

Engaging Students in OHP Courses

SYMPOSIUM

Chairs: Ashley Nixon (Willamette University), Irvin Schonfeld (City University of New York

Presenters: Joseph Mazzola (Meredith College), Stephanie Andel (University of South Florida), Valentina Bruk-Lee (Florida International University), Jennifer Dimoff (Portland State University)

This symposium submitted by the SOHP Education and Training Committee is part of a three-part series that targets issues relevant for education and training in occupational health psychology (OHP) as well as career development. This series follows a tutorial session that describes the knowledge and skills needed in today's occupational safety and health workforce. This session focuses on developing and implementing OHP curriculum effectively at every level of university education, whereas the others focus on development and changes research programs and opportunities and challenges in careers outside of academia.

Occupational safety and health (OSH), especially occupational health psychology, is a rapidly expanding interdisciplinary field that focuses on enhancing the quality of working life through promoting, developing, and evaluating workplace health and safety-related initiatives. OHP scholars are being called on to offer courses at all levels of the university to offer courses that advance students knowledge. This task can be daunting, as OSH curriculum often includes (but is not limited to) psychology, occupational and preventive medicine, public health, epidemiology, engineering, industrial hygiene, ergonomics, health physics, nursing, and law to fully integrate theory and practices for protecting and promoting worker safety, health, and well-being. Given the interdisciplinary nature of the OSH field, and the growing range of career opportunities available, implement dynamic classroom experiences are important to ensure education professions continue to enter by the academic and applied markets. The purpose of this panel is to bring together individuals who have taught OHP courses at various institutions and for diverse populations, including undergraduate and graduate students from all over the U.S. This panel aims to provide insights and address challenges with designing and implementing OHP related curriculum. Each panelist will present for approximately 7-8 minutes, followed by a 10-15-minute general discussion with the audience. The session will end with a 25-minute break out session, where the audience can network with individual panelists, and each other, for additional tips and discussion. Specifically, there are three learning objectives designed in this panel.

1. Attendees will learn about a variety of best practices to guide their development and implementation of OHP-related curriculum.

2. Attendees will learn how to engage students with dynamic classroom activities.

3. Attendees will be able to network with others of similar interests through the break out sessions, and be presented with v opportunities to initiate new professional network connections.

Philadelphia Ballroom South

Organization Readiness for Total Worker Health Programs

PAPER SESSION

Development of an organizational readiness tool for Total Worker Health® integrated occupational safety, health and well-being programs

Michelle Robertson (Harvard T.H. Chan School of Public Health)

Problem Statement. Implementing a new occupational safety and health program can be considered a major organizational change initiative, and as with any change of this magnitude, the change process needs to be carefully managed to avoid delays and reduce the potential for failure. Few tools, however, are available to assist with implementing programs that are comprehensive in nature (Hannon, et al., 2017; Sorensen, et al, 2018). Determining an organization's readiness for the upcoming changes would appear to be a useful first step. A review of the theoretical and empirical peer-reviewed literature, however, revealed widespread ambiguity surrounding the concept of organizational readiness for change. Thus, the present study was motivated by the need to develop a tool for assessing an organization's readiness to implement a participatory Total Worker Health ® (TWH) program for benefiting the safety, health and well-being of its employees. As a research-to-practice effort, a tool like this would provide information to organizations that would help implement a participatory TWH program more efficiently and effectively.

TWH programs are relatively new and consider all aspects of work and seek to integrate work-related safety and health protection with the promotion of worker well-being (NIOSH, 2016). Although engaging employee participation in occupational health programs is a common organizational practice in Europe, research findings and practices that can be used to guide implementation of participatory TWH programs in an efficient and cost-effective manner remain rather limited (Nielsen & Noblet, 2018).

Organizational readiness for change becomes a concern whenever a new workplace initiative or program is at risk of not being successful. The peer-reviewed literature on organizational readiness for change offered a number of different ways to measure readiness in a context-specific manner. However, there is a fair amount of disagreement across the various conceptualizations of organizational readiness for change in this literature, as well as how this could be defined and then operationalized to benefit actual organizational change efforts.

Methods. A systematic literature review was conducted to find articles related to organizational readiness for change. A keyword search of four electronic bibliographic databases was used to identify candidate articles. The following databases were searched: PsycINFO, PubMed, ABI Inform Global, and Google Scholar. Inclusion criteria identified 29 relevant publications. Analysis revealed eight key organizational characteristics and predictors of successful organizational change: 1) culture, 2) communication, 3) leadership, 4) change history, 5) job design, 6) teams and relationships, 7) flexible organizational practices and policies, and 8) positive organizational climate. These results lay the foundation for designing an organizational readiness survey and assessment guide that would indicate how ready an organization is to adopt a participatory program to improve its safety and health practices in accordance with TWH principles. We developed a conceptual model of eight key indicators of organizational readiness for a major programmatic change (See figure 1). These eight areas were used to create a conceptual framework that subject matter experts used to generate prospective survey items.

In designing the organizational readiness for change survey, we tested the instrument through two rounds of cognitive interviews with 10 healthcare employees at four hospitals in Massachusetts and Maine. Participants represented a variety of healthcare occupations and educational backgrounds. The purpose of conducting these cognitive interviews was twofold; to evaluate face validity of the survey items, and to refine the wording of survey items so they could be easily understood by any hospital employee regardless of which level of the organization they worked in.

Results. Further development of the survey included testing the psychometric properties. The survey was administered across 5 facilities, and on average, 11-12 participants completed a survey in each facility (N= 57). Cronbach's alpha values for Domains 2-8 ranged from .67-.95 providing strong evidence that each domain effectively sampled the theoretical domain of interest (see Table 1). Additionally, site-specific summary reports were prepared for each facility to help identify their strengths as well as areas where resources and/or training is needed to build readiness in order to successfully implement a participatory TWH program.

Conclusions. Analysis of the extant literature was used to create a conceptual framework for organizational readiness for a participatory TWH program and was then used to guide item generation for an assessment tool. Items were organized into eight readiness domains and pilot tested through cognitive interviews with specified end users. Initial internal consistency of the assessment tool was demonstrated following administration at multiple organizations prior to implementation of a participatory TWH program that was designed to support continuous improvement of employee safety, health and well-being.

Organizational assessment to engage leaders and increase readiness for a participatory, Total Worker Health® program

Suzanne Nobrega (University of Massachusetts Lowell)

Problem Statement. Implementing an organization-level intervention requires commitment and continuous support from organizational leaders, starting from program initiation. Organizational leaders control material resources and set formal expectations for employee roles and their time commitment to intervention activities. Therefore, assessing leaders' perspectives about potential organizational barriers and addressing these early in the implementation process may provide key information relevant to overcoming the research-to practice-gap in occupational health that often prevents successful program adoption (Dugan and Punnett, 2017). This assessment could also help determine which aspects of the organizational context may be more amenable to change during the early phases of an organizational intervention, and which ones need remedial attention.

Procedures. We used a dissemination and implementation (D&I) framework (Chaudoir, Dugan and Barr, 2013; Wandersman, 2008) to guide a mixed-methods prospective assessment of potential organizational facilitators and barriers prior to implementing a participatory Total Worker Health® (TWH) program (Nobrega et al., 2017).

A 45-item organizational readiness survey (Robertson et al. 2018) was administered using Qualtrics™ software to 8 to 16 upper and mid-level clinical, administrative, and union leaders at each of five

public-sector healthcare facilities in the New England region of the USA between September 2017 and October 2018. The survey domains included current program approaches, resources available for safety and health, management communication, readiness for change initiatives, use of teams, and employee participation. All questions used Likert scales.

After survey completion, leaders were interviewed for 30-60 minutes using a semi-structured interview guide that introduced the research intervention study and collected leaders' perspectives on employee safety and health priorities, hoped-for study outcomes, and potential obstacles to program implementation and success. Open-ended questions and relevant probes were used to facilitate a participant's recall of relevant past intervention experiences at their facility. Interview discussions were recorded and notes were typed for later thematic analysis.

Following baseline data collection, a visual report template was created to summarize aggregate results of the survey responses and the key interview themes. The report format provided bar graphs and plain language explanations of what was measured in each survey domain and its relevance. The report findings were presented in person to leaders at the time of program initiation. The goal was to identify gaps in resources or skill areas that were necessary for implementation and maintenance of the participatory TWH program. Leaders were able to see the strengths of the various organizational facilitators and barriers, as well as the degree of agreement between survey takers on each item.

Follow-up interviews are being conducted 6 and 12 months after baseline assessment, with a subset of three key leaders responsible for coordinating implementation of the TWH intervention. These interviews assess actions taken (if any) to address barriers or low-scoring domains from the baseline readiness survey.

Analyses. Baseline responses were exported to SPSS and converted to numerical scores (e.g. 1 = strongly disagree to 4 = strongly agree; no neutral value). Within each facility, responses to each item were averaged. Notes from baseline and follow-up interviews with key leaders were imported into NVivo™ 12 software for content analysis (QSR International Pty Ltd. Version 12, 2018). The text was coded independently by two analysts, with an interrater reliability of 81%. Raters subsequently reviewed coding results together to reconcile any discrepancies. Reconciled codes were used to summarize each theme in the node structure. Analysis of follow-up interviews will follow the same protocol; results will be compared to baseline to assess changes within each site in the status of barriers and facilitators.

Results. Study participants (Table 1, n=55) were mostly White (84%), and almost half had a role in clinical services (46%). Some leaders were union representatives (35%).

The major program implementation facilitators identified were: engagement and commitment from leadership; alignment of TWH intervention goals with facility's mission; strong teamwork culture; and desire to implement positive changes. Main barriers reported were limited resources in terms of time, staff and funding (for interventions), poor history of successful change efforts, poor management communication, and (in some sites) perceptions that worker suggestions are not considered equally with those of supervisors.

Results of planned 6- and 12-month follow-up interviews will be reported, along with the action steps taken to address low-scoring domains of the readiness survey.

Readiness for use of teams (Table 2) was similar among the sites, except for the two items regarding staff availability for weekly meetings. Figure 1 illustrates aggregate responses (dichotomized) for one site for this same survey domain.

Conclusions. The combination of leadership surveys and interviews provided organizational leaders with specific feedback about skills development and resource allocation needed to successfully adopt a participatory Total Worker Health program in five US public-sector health care facilities. The present study contributes more generally to dissemination and implementation science by improving our understanding of the underlying obstacles and facilitators to participatory interventions.

Engaging unions in public sector workplaces through participatory design in Total Worker Health interventions

Mazen El Ghaziri (University of Massachusetts Lowell)

Background and Context: According to the U.S. Bureau of Labor Statistics (2018), in 2017 public sector workers were more than five times more likely to be in a union than private sector workers (34.4% vs. 6.5%). A key foundational characteristic of the public sector is being oriented toward service in the public interest. Providing for the "public good" is often connected to the values and beliefs of those who seek employment in this sector (Ariza-Montes, et al., 2015). Unions play a major role in bringing attention to worker complaints of workplace hazards, and as such they may be able to negotiate changes in practice to address safety, health, and well-being through collective bargaining agreements. However, there has been decline in union membership and bargaining powers internationally.

The public sector is also characterized as bureaucratic and more resistant to change than the private sector; this might be attributed to procedures for protecting job security and the impact and power/influence of union bargaining units (Grant-Smith & Colley, 2018). In the last two decades, the public sector in a number of regions (e.g., Australia, New Zealand, Europe-Scandinavia, United Kingdom, Asia, Middle East, the US) has been influenced by the philosophy of New Public Management (NPM) (Brunetto & Teo, 2018; Omari & Paul, 2017; Plimmer, Proctor-Thomson, Donnelly, & Sim, 2017; Teo, Omari,& Blackwood, 2018). This has led to managerial and market changes toward productivity, efficiency, effectiveness (outcomes), and transparency.

Problem Statement. This paper illustrates some lessons learned about facilitators and barriers to engaging unions in Total Worker Health participatory interventions within two workforces in the public sector. The current research projects from the Center for the Promotion of Health in the New England Workplace (CPH-NEW) partner with six public-sector healthcare facilities in New England as well as the Department of Corrections (DOC) in Northeastern State.

Procedures. The CPH-NEW Healthy Workplace Participatory Program (HWPP) is an employee-led problem-solving and priority-setting process for improving worker health, safety, and well-being. The HWPP is currently in use in three healthcare facilities and three correctional facilities. At the healthcare sites, "Design Teams" (DTs) are joint labor-management committees with both direct care and non-direct care workers, including union representatives, and facility leadership teams with decision-making authority comprise the "Steering Committees" (SCs). At the correctional facilities, DTs are comprised of Correctional Officers only, again including union representatives. A facility steering committee at each site is made up of supervisory and administrative staff, and there is one study-wide SC made up of

DOC leadership. In both settings, a researcher trains and guides both committees in the participatory process.

In both settings, DT meeting minutes, member surveys, and researchers' own notes are completed post-DT meeting and compiled by the study teams for process evaluation.

In the healthcare sites, interviews with facility and union leaders were conducted prior to DT formation. Follow-up surveys of the DT members and interviews with team facilitators and project champions will yield prospective information regarding changes in the status of barriers and facilitators.

Analyses. Thematic and content analysis of qualitative data will illustrate the lessons learned about facilitators and barriers to engaging unions through participatory designs from both the perspectives of the researchers and the participants. This will be complemented by some quantitative analyses from upcoming interim surveys.

Results. Engaging with labor unions was a critical step in the start-up phases for both research projects. Since employee health and safety are important to labor unions, the opportunity for assistance with resolving current problems was generally well-received.

In the healthcare project, barriers to engaging the unions varied by site and included multi-union sites with no existing structure for common meetings, lack of union member inclusion on existing health and safety committees, and generally poor labor-management relations. Facilitators to engaging unions in the participatory process included employee engagement and commitment to health, safety and well-being.

Analyses of data in both projects indicated that union leaders saw barriers to include: facility and system bureaucracy; difficulty engaging frontline staff; poor communication; limited resources (human and financial); and time to attend meetings. A key facilitator involved perceived commitment of both labor and management to employees' safety, health and well-being.

Practical implications. The 2018 Janus vs. AFSCME Supreme Court decision is likely to lead to a decline in union membership, and the loss of dues revenue to unions will weaken bargaining power. What does this mean for collective bargaining related to health, safety, and well-being? Given the barriers already identified in these settings, and the potential weakening of union power, along with political, fiscal and organizational uncertainties, it will be important to focus on the facilitators in order to sustain the participatory program in these public sector sites.

Independence Ballroom CD

CEP

Work and Family Well-being: Resources and Challenges

SYMPOSIUM

Chair: Irena Iskra-Golec (Akadamickie Centrum Komputerowe CYFRONET AGH)

Statement of the problem. Models applied in research on work-family relation include three components (apart from the work family relation itself): (1) work and family antecedents; (2) work-related, family-related and health-related outcomes; (3) constructs mediating work-family relationship (e.g. individual differences) (e.g. Allen, Herst, Bruck, & Sutton, 2000). Positive (facilitation) and negative (conflict) work to family and family to work spillover are understood as the extents to which participation in one role influences participation in the other (Grzywacz & Marks, 2000). So far, individual differences, have been identified in the literature on work-family relation as antecedents, mediators or moderators of outcomes (e.g. Stoeva, Ki - Kwan Chiu, Greenhaus, 2002; Kinnunen, Vermulst, Gerris, & Mäkikangas, 2003) of work-family relation. Optimism as a mental attitude have been found to be positively associated with good physical and mental health as well as active and successful coping with aversive events (e.g. Scheier, Carver, 1986). The resilience concept used in the research is defined as a set of assets useful in coping with adverse, stressful life events and in overcoming difficult odds (Masten, Gewirtz, 2006). Resilience is treated as buffer for stress disorders development in situation of hectic and pressure in everyday life. Health and work-related well-being complaints have been found to be associated with work-family and family-work conflict in numerous studies (e.g. Kossek, & Ozeki, 1998). Work engagement understood as an affective and motivational state consisting of vigor, absorption by work and dedication to work (Schaufeli, Bakker, 2003) have been found to be associated with work-related well-being.

It was hypothesized in the symposium presentations that social support and personal resources (optimism, resilience, and self-efficacy) can help to overcome everyday challenges for work and to family well-being and health. Specifically (in three presentations) it was hypothesized that: (1) optimism had a potential of mediating the relationship between work-family spillover and its outcomes (health and work engagement); (2) perceived social support and self-efficacy would have positive joined effect on work-family spillover and health; (3) resilience had a potential to moderate relations between work-family well-being in the terms of couple satisfaction and health.

Procedures. The study was conducted among day working employees of a big municipal heat supply company in the southern Poland to search for factors determining work and family well-being. Altogether 222 workers (22 female and 200 male) aged between 22 to 66 years (M=44, 88; SD=10,8)) were studied. For the purposes of the symposium presentations the samples consisting of male, married participants were formed. A series of regression analyses for mediation and moderation effects were conducted (1 and 3 presentations) and analysis of variance ANOVA (2 presentations) on the research results.

Results. Optimism partially mediated the relationship between work-to-family conflict and health as well as work-to-family conflict and work engagement weakening negative effects of work-to-family conflict (1). Analysis of variance showed that higher self-efficacy and experiencing more social support could play important role in maintaining work-family balance and having better health (2). Moderation analyses showed that resilience changes level of couple satisfaction in case of low level of family-work facilitation (low level of resilience decreases couple satisfaction) (3).

Practical implications. In the light of the results obtained variety of activities can be undertaken to decrease the negative effects of conflicting demands of work and family domains including (1) educational activities making people understand the power of optimism and resilience in decreasing the negative effects of work-family conflict and workshops aimed at training the skills of optimistic and resilient way of thinking and reacting, (2) increase of social support activities.

Conclusions. The results suggested: (1) optimism to be partial mediator of the relationship between: work-family conflict and health as well as work-family conflict and work engagement overcoming the negative effect of work-family conflict. (2) High self-efficacy combined with high

social support was associated with less work-family conflict, more work-family facilitation and family-work facilitation as well as better mental health. (3) Resilience was found to be a significant moderator of family-work facilitation and couple satisfaction.

Work and family spillover, health and work-engagement: mediating role of optimism

Irena Iskra-Golec (Akadamickie Centrum Komputerowe CYFRONET AGH)

Statement of the problem Theoretical models applied in research on work-family relation include three components (apart from the work family relation itself): (1) work and family antecedents; (2) work-related, family-related and health-related outcomes; (3) constructs mediating work-family relationship (e.g. individual differences) (e.g. Allen, Herst, Bruck, & Sutton, 2000). So far, individual differences, have been identified in the literature on work-family relation as antecedents, mediators or moderators of outcomes (e.g. Stoeva, Ki - Kwan Chiu, Greenhaus, 2002; Kinnunen, Vermulst, Gerris, & Mäkikangas, 2003) of work-family relation. Optimism as a mental attitude have been found to be positively associated with good physical and mental health as well as active and successful coping with aversive events (e.g. Scheier, Carver, 1986). Health and work-related well-being complaints have been found to be associated with work-family and family-work conflict in numerous studies (e.g. Kossek, & Ozeki, 1998). Work engagement understood as an affective and motivational state consisting of vigor, absorption by work and dedication to work (Schaufeli, Bakker, 2003) have been found to be associated with work-related well-being. The aim of this study being a part of a larger project concerning factors determining work and family well-being was to find out whether optimism was a mediator of the relationship between work-family relation (work-to-family- and family-to-work conflict as well as work-to-family- and family-to-work facilitation) and its health-related and work-related outcomes. It was hypothesized that optimism would weaken or balance negative effect of work-to-family- and family-to-work conflict and strengthen positive outcomes of work-to-family- and family-to-work facilitation. Procedures The questionnaires were completed by 222 female and male workers of a big municipal heat supply company in the southern Poland (the study is in progress). For the purpose of this paper only working daytime men having families (n=176) were selected. They were mainly blue collar workers (82%), their age ranged from 22 to 66 years (M=47.05, SD=10.72) and the average work experience was 25.52 years (SD=12.29). They completed questionnaires measuring work-family relationship as well as questionnaires measuring mediators and outcomes of work-family relationship. For the purpose of this paper there were analyzed the data obtained by application of Work-Family Spillover Scale (Grzywacz & Marks, 2000), General Health Questionnaire (GHQ -30) (Goldberg, 1972), Utrecht Work Engagement Scale, UWES. (Schaufeli, Bakker, 2003), and Life Orientation Test – Revised (Scheier, Carver, & Bridges, 1994). Analyses A series of analyses of regression were performed on the data in search of mediating effect of optimism on the relationship between work-family spillover and outcome variables (health, and work engagement). To test for mediation effects of optimism Baron and Kenny's (1986) casual steps strategy modified by Cohen and Cohen (Cohen, Cohen, 1983) were applied. To examine the statistical significance of the intervening variable effect Goodman test was used as recommended by McKinnon and coauthors (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Results Work-to-family conflict (WFC) was positively associated with general health scores (ß=.287, p=.000) (higher scores mean worse health status) and negatively with optimism (ß=-.207, p=.006, t=-2.796) and finally WFC together with optimism were negatively associated with health (ß=.184, p=.013, t=-2.520). Goodman test (Z=1.942, p=.05) confirmed statistical significance of indirect effect of WFC on health mediated by optimism (optimism decreased negative impact of WFC on health). WFC was negatively associated with work engagement (ß=-.244, p= .001) as well as WFC with optimism (ß=-.207, p=.006, t=-2.796), and WFC together with optimism was positively associated with work engagement (ß=.206, p=.006, t=2.793). Goodman test (Z=2.042, p=.041) confirmed statistical significance of indirect effect of WFC mediated by optimism on work engagement (optimism decreased negative effect of WFC on work engagement). There were not found any statistically significant mediating effects of optimism on the health-related and work-related outcomes of family-to-work conflict nor of facilitation of both directions (work-to-family and family-to-work) Practical implications In the light of the results obtained (and when they are confirmed by the other studies) variety of activities aimed at increasing optimism level among workers are advised. First, educational activities making people understand the power of optimism in decreasing the negative effects of work-family conflict. Next, workshops are recommended to train the skills of optimistic way of thinking and reacting. Conclusions The results suggest optimism to be a partial mediator of the relationship between: (1) work-family conflict and health as well as (2) work-family conflict and work engagement. The mediation of optimism seemed to counteract the negative effect of WFC on health-, and work-related outcomes of work-to-family conflict.

The role of self-efficacy and social support in work-family spillover and mental health

Patrycja Siemiginowska (Jagiellonian University)

Statement of the problem The focus of the research was to find out what role could play self-efficacy and social support in work-family spillover and mental health among male workers of municipal heat power engineering enterprise. When explaining work-family spillover in working parents it is important to take into account individual differences as well as other variables (i.e. Aryee et al. 2005; Iskra-Golec, 2016). Positive (facilitation) and negative (conflict) work to family and family to work spillover are understood as the extents to which participation in one role influences participation in the other (Grzywacz & Marks, 2000). Those relationships can be connected with family domain (marital communication, marital satisfaction, spousal support) work domain (job satisfaction, work engagement) as well as physical or mental health and life satisfaction. Procedures Battery of tests was completed by 222 workers of large Polish municipal heat power engineering enterprise. The questionnaires of 167 married (92%) or in informal relationships (8%) men aged between 22 and 66 years old (M=46.46; SD=10.75) were analyzed. They were either white collar (18%) or blue collar (82%) workers employed on morning shifts. With regard to education the employees had mostly finished high school (42.5%) or vocational schools (27.5%). 9% of them had bachelor's or engineer's degree and about 20% had master's degree. Most of them (c.a. 71%) lived in villages surrounding capital city of Malopolska voivodship. 67% of the workers' wives or partners worked as well (dual-earner families). In 47.3% of the families there were under aged children in the households. Selection of work- and family-related variables were taken into account as well as mental

health self-reports and responders' demographics characteristics. Work-family and family-work conflict and facilitation were investigated. In the study several methods were used: Work-Family Spillover Scale (Grzywacz & Marks, 2000), General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1988), and Goldberg's GHQ (General Health Questionnaire-30). Analyses Self-efficacy and social support results were divided using median-split procedure. Then a factor comprising of both results was aggregated on four levels (high self-efficacy with high social support, N=49; high self-efficacy with low social support, n=35; low self-efficacy with high social support, N=35; and low self-efficacy with low social support, N=48). Then one-factor ANOVA was performed with dependent variables: work-family spillover (work-family conflict, family-work conflict, work-family facilitation, family-work facilitation). Results Significant differences between levels of self-efficacy and social support were observed in work-family conflict ($F_{3,163}=7.508$; $p=.001$), family-work facilitation ($F_{3,163}=4.493$; $p=.005$), work-family facilitation ($F_{3,163}=3.195$; $p=.025$) and mental health ($F_{3,163}=3.947$; $p=.009$). The differences in work-family conflict were observed between high self-efficacy with high social support and low self-efficacy with low social support ($p=.001$) low self-efficacy with high social support ($p=.002$) and high self-efficacy with low social support ($p=.010$). In family-work facilitation differences were observed between high self-efficacy with high social support and low self-efficacy with low social support ($p=.003$). In work-family facilitation differences were detected between high self-efficacy with high social support and low self-efficacy with low social support ($p=.048$). In mental health the differences were observed in low self-efficacy with low social support when compared to both low self-efficacy with high social support ($p=.024$) and high self-efficacy with high social support ($p=.021$). Practical implications When taking care of mental health and work-family balance of workers self-efficacy and social support should be investigated as they may yield important contribution in understanding men's family well-being and health. Higher self-efficacy with higher social support could be the healthiest option in working men as individuals characterized by high levels of those features tend to experience less work-family conflict, more family-work facilitation as well as more work-family facilitation. They also have better mental health. Conclusions It can be concluded that high self-efficacy combined with high social support can be associated with less work-family conflict, more work-family facilitation and family-work facilitation as well as better mental health in working men.

Work-family relation and well- being - resilience as a moderator

Anna Ładan (SWPS Uniwersytet)

Statement of the problem Family and work are core aspects of human live in the period of adulthood. Bilateral influences are considered in terms of conflict or facilitation (Greenhaus & Powell, 2006). As additional variables impacted such relations are listened: family life stage, parenting (Byron, 2005; Carlson, Perrewe, 1999), age and sex (Byron, 2005). Research on well-being is divided into an objective approach concentrated on state of a person or community uses SES, health factors and demographic data as measures or as a subjective approach focuses on satisfaction with life, sense of meaning and purpose in life. Subjective well-being contains affective component (feeling of happiness) and satisfaction connected with a life field (ex. family, work). (Diener,2000; Keyes, 1998). This second understanding of well-being connects with the theoretical background of our research. Resilience is the phenomenon strongly connected with positive mental health and coping with stress (Vaillant, 2012). The resilience concept used in the research is defined as a set of assets useful in coping with adverse, stressful life events and in overcoming difficult odds (Masten, Gewirtz, 2006). Resilience is treated as buffer for stress disorders development in situation of hectic and pressure in everyday life. The research aimed to explore the interdependence between family- work relations (both conflict and facilitation) and well- being understood as a couple satisfaction and health. Work activity and family life affect one's well-being and health. Body of research underlines consequences of negative work-family relation for couple satisfaction (Voydanoff, 2005), satisfaction with family (Crdenas, Major, Bernas, 2004) and generally satisfaction with life (Greenhaus, Collin &Shaw, 2003). In turn, positive work-family relations correlate with satisfaction with work, satisfaction with life and family and with mental and physical health (Masuda et al. 2012). In line with expansion theory undertaking many social roles (in work and in family) increases personal well-being by enrichment (Greenhaus & Powell, 2006). Positive spillover is defined as bilateral transfer of abilities, affects, values and behaviors between family and work (Edwards & Rothbard, 2006). We hypothesized that resilience moderated the relationship between work and family relation well-being, in the terms of couple satisfaction and general health. In particular, we expected differences in assessment of well-being between participants with low level of resilience and those more resilient. Procedures Participants were blue collar (n = 168) and white collar (n = 54) employees of Municipal Energetic and Heating Agency (MPEC) in Cracow (N= 222) , range in age from 22 to 66 (M = 44, 88, SD = 10,801). The final sample consisted of 22 female and 200 male employees. Among them 172 were married, 14 were in informal relationship, 26 were single, 4 were divorced and one person was a widow. Measurement tools used in research were: Work-Family Spillover (Grzywacz, Marks, 2000), Resilience Scale for Adults RSA (Friborg et.al, 2005), General Health Questionnaire GHQ (Goldberg, 1972), Couple Satisfaction Index, CSI (Funk & Rogge,2007). Demographic data as age, sex, education, place of residence, marital status, work experience, type of work, number and age of children were controlled. Material was gathered during group sessions. Analyses A moderation analyses were conducted using PROCESS (Hayes, Scharkow, 2013) and IMAGO PRO, SPSS 25 Results Preliminary outcomes indicate that resilience changes level of couple satisfaction in case of low level of family- work facilitation: the low level of resilience decreases couple satisfaction ($R = 0{,}5601$ $R\text{-}sq = 0{,}3137$ $F = 21{,}9393$ $p < 0{,}001$). Additionally, resilience is a moderator for dependency work -family spillover and health in case of conflict and facilitation aspects. Resilience is a significant moderator of family-work facilitation and couple satisfaction. Additionally, both the family-work spillover and the resilience are important variables predicting health outcomes. Practical implications Research outcomes indicate the role of resilience in work-family experience. Positive results connected with resilience impact on couple satisfaction and health in case of work-family spillover leads to possible practical implications. promotion of individual strengths in workers and creation of resilient human relations in work place. Conclusions The obtained results supported the study hypothesis and answered the research questions. Resilience turned out to be an important moderator of the relationship between the level of family-work spillover and subjective well-being. These results indicate the role of resilience as a factor that could protect human well-being.

Independence Ballroom B

Workplace Civility and Incivility

PAPER SESSION

Examine the Dynamics of Workplace Incivility Spiral using Multivariate Latent Change Score Model

Shiyang Su (University of Central Florida)

An important feature of workplace incivility is the potential spiral effect that occurs when negative behavior from one party is reciprocated by another party, yielding a "tit-for-tat" exchange of increasing incivility at workplace. This so-called "incivility spiral" is fueled by both parties' intention to retaliate, and can escalate incivility to more severe forms of negative behaviors (Andersson & Pearson, 1999). Sometimes incivility spiral can have an escalating effect that the target of incivility retaliates intentionally with a coercive behavior, leading to an escalation of more aggressive reactions. In the escalating spiral, the tit-for-tat incidents might start with small, unintentional uncivil behaviors, but quickly escalate into serious conflicts and detrimental consequences for organizations.

Surprisingly, there has been no empirical evidence that supports the escalating effect of incivility spiral (Schilpzand, De Pater, & Erez, 2016). A few empirical studies of workplace incivility spiral showed the association between experienced and perpetrated incivility using cross-sectional data (Gallus, Bunk, Matthews, Barnes-Farrell, & Magley, 2014; Harold & Holtz, 2015), thus they do not allow for inferences of causality between experienced and perpetrated incivility. To examine the incivility spiral in the truest sense of the term, the present study collected longitudinal data to investigate the dynamic and progressive nature of the workplace incivility spiral and provide empirical evidence for the escalating spiral and its consequence.

Instead of focusing on the between-person level of analysis, Taylor and colleagues (Taylor, Bedeian, Cole, & Zhang, 2014) first examined experienced incivility as a dynamic process that could change and evolve over time using latent change score (LCS; McArdle, 2009) models. Following their lead, the present study used LCS models to study the multivariate change processes between two dynamic constructs - experienced and perpetrated incivility while accounting for individual change. The bivariate LCS models are useful for examining whether changes in one dynamic process (e.g., perpetrated incivility) are determined by the previous level of the second dynamic process (e.g., experienced incivility), and vice versa. We hypothesized that level in experienced incivility is positively related to subsequent change in perpetrated incivility, and level in perpetrated incivility is positively related to subsequent change in experienced incivility. In addition to level-to-change effects, we also investigated change-to-change effects, meaning that the extent to which experienced incivility has recently changed might be an important predictor of perpetrated incivility change.

Based on the incivility spiral theory, experiencing or even witnessing incivility spirals will erode the civility norm of the organization (Andersson & Pearson, 1999). Therefore, we considered the perceived civility norms as an outcome of the escalation of incivility spiral, and used trivariate LCS models to examine whether the escalation in experienced incivility and perpetrated incivility is related to subsequent change in civility norms.

Participants were full-time employees recruited in four data waves, separated by one month. Incivility was measured using the scale by Cortina, Magley, Williams and Langhout (2001); civility norm was measured using the Civility Norms Questionnaire-Brief (Walsh et al., 2012). 239 participants who completed all four data collections were used for the data analyses. A building-up approach was taken to test the hypotheses (Grimm, An, McArdle, Zonderman & Resnick, 2012; Taylor et al., 2014). Figure 1 shows the theoretical dynamics of the best-fitting LCS bivariate model. Based on the path coefficients (Table 1), the level of experienced incivility positively predicted subsequent change in perpetrated incivility ($\gamma = 4.891$), such that the target of workplace incivility would have a higher probability of conducting uncivil behaviors toward others in future, and the increment of such probability of retaliation is determined by how much incivility experienced. Also, the level of perpetrated incivility was positively associated with subsequent change in experienced incivility ($\gamma = 0.642$). Also, monthly changes in perpetrated incivility was significantly determined by prior monthly changes in perpetrated incivility ($\phi = 2.313$). In the next step of the building-up approach, the best fitting trivariate LCS models was selected and shown in Figure 2. The change in experienced incivility is negatively associated with the subsequent change in civility norm ($\xi 1 = -1.887$, see Table 2), such that the prior increment of experienced incivility predicts the decrease of perceived civility norms.

To empirically evaluate the workplace incivility spiral, the present study parameterized the changes of both experienced incivility and perpetrated incivility within a temporal context. Our findings provided empirical support for the escalating effect of workplace incivility spiral in that incivility experiences determine the changes of perpetration/retaliation in a positive direction, and vice versa. Also, the erosion of civility norms was suggested as a consequence of the escalation of experienced incivility. The current study is an initial attempt to understand the escalating effect of incivility spiral using longitudinal data. It not only informs theory but also potentially informs future studies of between-person analyses of the incivility spiral and intervention strategies for organizations striving to improve employees well-being.

The Influence of Workplace Civility on Sleep, Mental Health, and Sick Leave in the Veterans Health Administration Employee Population

Eve Nagler (Dana-Farber Cancer Institute/Harvard University)

Problem Statement: Workplace civility, defined as courteous interpersonal behavior, has been shown to prevent burnout and/or improve other important organizational metrics. Specifically, higher scores on workplace civility were associated with decreased burnout, decreased coworker incivility, improved workplace safety, as well as improved employee and patient perceptions of hospital care performance (Spence Laschinger and Read, 2016; Oppel et al., 2017; McGonagle et al., 2014). The Veterans Health Administration (VHA) has been actively involved in civility research for almost a decade focusing primarily on employee-based civility interventions. For example, the Civility, Respect, and Engagement in the Workplace (CREW) intervention was first developed and evaluated in 2009 (Osatuke et al., 2009). In 2014, nearly 70% of facilities in VHA reported that CREW was present as an available resource to help employees with stress-related issues (Healthcare Analysis & Information Group, 2015). In addition, workplace civility is assessed and monitored annually on an organizational census survey (Osatuke et al., 2012). However, the effects of workplace civility on self-reported health in VHA employees have not

been examined to date. The purpose of this study is to investigate how workplace civility relates to self-reported sleep, anxiety, depression, and days away from work due to injury or illness. Based on prior findings, we believe that civility may create a "protective" environment for threats to well-being. Thus, we hypothesized that employees reporting higher scores on a workplace civility measure would report lower likelihood of sleep disorders, anxiety, depression, and days away from work.

Procedures. A total of 184,357 (59.5%) employees responded to an annual organizational census survey, All Employee Survey (AES) (Osatuke et al., 2012), administered in August 2015. In addition to the AES, a health promotion (HP) module was administered to a 50% random sample of respondents to the AES; thus, there were 86,257 responses for both modules that we used in our analyses. Workplace civility was assessed with a four-item scale that was an abbreviated version of an eight-item scale used in prior research (Leiter et al., 2011; Osatuke et al., 2009). The items asked about respect from coworkers, cooperation in the workgroup, fairness of conflict resolution, and diversity acceptance. Items were assessed using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Workplace civility was computed as the average of the four items. For the health promotion module, employees answered items about chronic health conditions (Has a doctor, nurse, or other health professional EVER told you that you had any of the following health problems? [Yes, No, Not Sure] – anxiety, depression, and sleep disorders) using standard questions from Behavioral Risk Factor Surveillance System (BRFSS) surveys (Centers for Disease Control and Prevention, 2015). Respondents also provided the number of days away from work in the prior 12 months due to illness or injury; for analyses, this item was dichotomized based on the mean in the sample (mean = 5.15 days, SD 6.34) as five or more days away.

Analyses. Multilevel logistic regression models were employed with VHA location included as a random effect to examine how civility climate was associated with the likelihood of having chronic health conditions and days away from work. These models use an efficient approach that combines individual-level and aggregate data taking advantage of the hierarchical structure of the data. To account for demographic differences within individuals, we included additional covariates in our regression models; variables included self-reported gender, age group, race, ethnicity, veteran status, and occupational group. Two other variables related to VHA location were also included in the models; facility complexity and a rural/urban designation. Finally, a three-item measure of burnout based on the Maslach Burnout Inventory was included to control for the influence of this prevalent phenomenon in health care workers. The generalized linear mixed models procedure, proc glimmix, in SAS 9.2 (SAS Institute Inc., Cary, NC) was used to fit the multilevel logistic regression models to the data.

Results. Results from multilevel logistic regression analyses were consistent with study hypotheses. Employees reporting higher scores on workplace civility also had lower odds of self-reported sleep disorders (OR=0.91 (95% CI=0.89, 0.93)), anxiety (OR=0.89 (95% CI=0.87, 0.91)), depression (OR=0.89 (95% CI=0.87, 0.91)), and five or more days away from work (OR=0.85 (95% CI=0.83, 0.86)) after controlling for important demographic variables, burnout, and key location variables.

Practical implications. VHA is actively seeking ways to improve employee well-being through significant investments in infrastructure and culture change. Our results suggest that efforts to improve courteous interpersonal behavior in the healthcare workplace setting may be an important means to achieve those goals.

Conclusions. We found workplace civility has a positive association on several measures of health and well-being of employees in VHA. Future work should consider the influence of workplace civility on health outcomes over time and what aspects of a civility program may be most effective in leading to change.

Deviating from Deviance: Introduction to the culture-driven Communication-Based Incivility (CBI) model

M. Gloria Gonzalez-Morales (University of Guelph)

Incivility has been defined as "low-intensity deviant behavior[s], with ambiguous intent to harm the target, in violation of workplace norms for mutual respect"1,2,3. Incivility has been shown to be highly detrimental due to its eroding effect on workplace relations1,4. When comparing incivility to other forms of workplace mistreatment, Hershcovis6 categorized incivility as a deviant behavior of low intensity and ambiguous intent to harm without a clear definition of the source of uncivil behaviors. For example, bullying or sexual harassment behaviors have a clear intention to harm the target and are of higher intensity than uncivil behaviors. At the same time, abusive supervision, for example, is clearly attributed to the supervisor. Because incivility consists of "rude, condescending, and ostracizing acts that violate workplace norms of respect, but otherwise appear mundane"4, organizations may not deem this kind of workplace mistreatment as particularly harmful or threatening. However, research on incivility over the last 15 years has shown that incivility happens frequently across a wide range of professions7. Furthermore, it often has equally strong or even stronger relationships with negative outcome variables than some of the other more intense and explicitly harmful forms of workplace mistreatment6.

To date, there are several shortcomings in how we approach incivility research using a deviance perspective:

1)Existing research into incivility is too simplistic and static. It is built on a clear assignment of roles in the interaction between two people, i.e., the person who is uncivil (enactor) and the 'victim' of the uncivil act (target). In addition, there is a focus on attributing blame for a single incident, rather than finding the cause for a string of interactions, or even history, between the involved parties. This is symptomatic also in the methods used, predominantly based on cross-sectional surveys. But uncivil encounters between employees are rarely simple or based on a singular occurrence. Target and enactor roles are dynamic: when a person perceives an act of incivility, they may respond with their own uncivil response. Furthermore, other people in the context (i.e., witnesses), may become enactors or targets because they choose sides or feel victimized9.

2)Uncivil behaviors are defined as deviant behaviors that violate workplace norms for mutual respect but frequently, these norms are not explicit, or they may differ in different work contexts.

3)The person enacting an "uncivil" behavior may or may not intend to harm others. Ambiguity of intent to harm is a critical aspect of the definition of incivility.

The communication-based incivility model, CBI, conceptualizes incivility as a phenomenon that reflects how "normal" people enact behaviors that are hurtful to others. Rather than mean-spirited, intentional aggressions towards others5, we propose that in multicultural workplaces, perceptions of incivility are often the result of differences in culture-driven norms for communication and interaction. The CBI proposes incivility as a dynamic communication process, rather than a one-time deviant reaction to a single event. This requires a reconceptualization of the definition of incivility such that perceptions of incivility

are created between two communicators, the sender and the receiver of a message. When a sender sends a message, they have to choose the content of the message as well as the way in which they transmit the message. Choice of words, tone, volume, timing are cues chosen by the sender and they are decoded by the receiver to interpret the underlying intent of the sender's message. In cases of incivility, the receiver perceives that the sender sent the message with intent to harm.

A wide range of research on cultural differences in communication and teamwork has demonstrated that what constitutes respectful behavior in one culture can be considered disrespectful in another10,11 (e.g., in some cultures questioning management decisions is expected to ensure that no wrong decisions are made, in other cultures, questioning a leader is disrespectful12). As such, the same behavior can be intended by the enactor to show respect, when the target perceives it to be harmful and maybe even intentionally so. Along similar lines, previous research on multicultural teamwork has shown that increased diversity in teams creates both challenges and opportunities 13,14,15,16. One of the most significant challenges resides in the potential for miscommunications and misunderstandings created by different sets of cultural assumptions, that, in turn, can frequently lead to uncivil exchanges between employees (e.g., ignoring a colleague during a work meeting or not forwarding crucial work information)10. Building on and extending extant research, the CBI incorporates culture-driven communication expectations as a main component of workplace interactions and relationships.

Ultimately, the purpose of the CBI is to inspire a new stream of incivility research, that deviates from a deviant conceptualization and that better reflects the complex reality of modern workplaces. Once we understand the primary processes of communication-based incivility through cultural differences, the model will be extended to other factors such as gender or power distance.

Workplace civility and incivility: two sides of the same coin? Empirical Analysis of the Workplace Civility Nomological Network

M. Gloria Gonzalez-Morales (University of Guelph)

Previous research has studied civility as a group-level construct focusing on civil norms rather than civil behaviours. A lack of established measurement tools does not allow us to directly compare civil behaviours with other similar constructs (e.g., uncivil behaviours, organizational citizenship behaviours). Although other constructs may be theoretically similar to civility, they often differ in how they are measured. For example, OCBs are measured by asking participants about the extent to which they engage in specific behaviours at work. Perceived coworker support (PCS) is measured by asking participants about their perceptions of experienced support at work. We propose a Framework for Positive Interpersonal Workplace Behaviours (table 1) that teases apart differences in how constructs are measured. Constructs are categorized based on whether they are perceptions of discrete behaviours or overall formed perceptions and individual- or group-referent constructs. Civility is defined in terms of behaviours and, along with incivility, should be measured within the Individual-Behavioural quadrant. Focusing on specific behaviours allows us to look at both the enactment and experience of behaviours, similar to how we currently study incivility. OCBs are measured in terms of the enactment of behaviours, respect is measured in terms of the experience of respect, and incivility is measured in terms of both enactment and experience. As a result, the proposed measure of civil behaviours was adapted to assess both the enactment of civil behaviours and the experience of civil behaviours. In turn, constructs focusing on "enactment" were compared to one another and constructs focusing on reported "experiences" will be compared to one another.

A 2-wave panel design was used: at Time 1 participants filled out surveys related to antecedent constructs and nomological network constructs (e.g., civility, incivility, respect), and at Time 2 the same participants filled out surveys related to the nomological network constructs (e.g., civility, incivility, respect) and outcome constructs (see Figure 1). Carmeli, Dutton and Hardin's (2015) scale of Respectful Engagement was adapted as a scale to assess Civil Behaviours. At Time 1, 800 participants completed an online survey: 48.5% male, average age 42 years, White/Caucasian (85.9%), heterosexual (92.5%), full-time in a permanent position (96.4%). At Time 2, 400 participants (56.8% male, average age 42) completed the survey again

Previous research has relied on comparing civility norms to incivility and OCBs to understand the relationships that exist (e.g., Leiter et al., 2011; Leiter et al., 2012; Walsh et al., 2012). Using a new scale to measure enacted civil behaviours (and not norms), the current study was able to directly compare the enactment of civility, incivility, OCBs, and POBs to determine similarities and differences between behaviours at work (table 2). Based on the size of correlations and relative importance of predictors, we found that enacted civility is distinct from incivility, OCBs and POBs.

We found support for the distinction between experienced civility and experienced incivility. The two constructs showed a small negative correlation and while civility was stronger than incivility at predicting positive mental health (e.g., mental well-being), incivility was stronger than civility at predicting negative mental health (e.g., cynicism, exhaustion). Experienced civility is also distinct from the group-level construct of civil norms and the supervisory-driven construct of interpersonal justice. Although experienced civility was closely related to respect and PCS they showed different patterns of relative importance in explaining important personal and organizational outcomes. For example, although experienced civility was a significant predictor of psychological safety, affective commitment, and job satisfaction it was less important than both respect and PCS.

Using a new behavioural measure of civility that is aligned with the original operational definition of civility, the current study was able to empirically determine how similar and how distinct civility is from other similar constructs. Exploring both enacted and experienced civility was important in order to provide a comprehensive analysis and align the study of civility to the study of incivility. We found evidence for the empirical distinction of enacted civility from enacted incivility, OCBs, and POBs and the distinction of experienced civility from experienced incivility, civility norms, respect, PCS, and interpersonal justice. Taken together, the findings suggest a theoretical and empirical distinction of civility from other similar constructs.

Given the empirical support for civility as its own construct, future research should continue building theory around positive organizational behaviours. Similar to how Andersson and Pearson (1999) mapped out forms of mistreatment in organizations (e.g., antisocial behaviour, deviant behaviour, violence, aggression, incivility), researchers should consider further mapping out constructs and processes on the positive side further. Civility should be studied through the lenses of other theories typically not used in the study of incivility. More specifically, given that civility reflects positive interpersonal behaviour researchers should propose positive theories to explain these behaviours rather than flipping theories in the area of job stress and discrimination.

Philadelphia Ballroom North

CEP

The Future of Work: Implications for Occupational Health and Worker Well-being

SYMPOSIUM

Chair: Thomas Cunningham (NIOSH)

The future of work is an issue of growing concern and national interest. Rapid advances in automation technologies are leading to the reduction and/elimination of jobs ranging from assembly work in manufacturing to reading radiology scans in health care. It has been estimated that artificial intelligence and automation technologies could displace as many as 73 million American workers by 2030 (Manyika et al, 2017). Another study suggests 85 percent of all jobs that would exist in 2040 have not yet been created (Institute for the Future, 2017). The rapid transformation of the world of work is likely to include significant shifts in workforce characteristics as well. For example, the future workforce will include more older workers and immigrant workers. Over the course of a lifetime, individuals will have multiple different jobs. Thus, new and young workers will require a greater emphasis on employability skills (including occupational safety and health skills) and less emphasis on training for a specific job. Chronic disease and mental illnesses such as depression are also expected to continue to increase, and thus, a greater proportion of the workforce will need to manage mental health and chronic disease conditions in the workplace. Work, and the workplace, are key contributors to health, and a focal point for interventions to improve individual and population health. As the nature of work is changing, our concept of occupational health and safety needs to adapt accordingly.

This symposium will explore what the future of work might look like, and how the transformation of work may impact various aspects of worker well-being. The first presentation, by Dr. Paul Schulte, will provide an overview of technological and social transformations that will impact the future of work, and explore potential future-of-work scenarios. Based on reviews of literature related to the future of work, various scenarios of future working environments will be described, and potential occupational hazards or risks that might occur will be identified. The second presentation, by Dr. Rebecca Guerin, will describe efforts to prepare the future workforce with basic occupational safety and health competencies. Given that youth between the ages of 15 and 17 are twice as likely as adults over the age of 25 are to be injured seriously that injuries may have life-long impacts on young people's health and well-being, it is critical that knowledge and skills that relate to OSH are part of every work readiness effort and every (current and future) job. Dr. Guerin will report data from key informants which identifies barriers to adoption of basic OSH curriculum in schools, and approaches to overcoming them. The third presentation, by Dr. Juliann Scholl, will describe findings from a study to understand the perspective of employees, employers, and experts on what are the most critical needs in various workplaces for helping to reduce aging-related injuries, illnesses, and fatalities. Given the estimated increases in rates of labor force participation among older age groups, there is both an immediate need for developing aging-friendly workplace interventions, as well as a long-term need to consider aging in an occupational health context. Finally, the fourth presentation, by Dr. Michelle Owens-Gary, will discuss co-occurrence of depression and Type 2 diabetes in the workforce. Both mental health and chronic disease management are increasingly effecting workers, and the future of work will be impacted by efforts to address these issues in the work environment. Across each of these presentations, we will attempt to address the questions of how is the nature of work changing, and what impact are those changes having on workers in terms of both physical and mental health.

Mapping future-of-work scenarios to identify potential occupational hazards

Paul Schulte (NIOSH)

The future of work has been described in various ways, from one where the technology will bring less work or the end of work to one of extensive and bountiful opportunity. Regardless of which of these views prevails the occupational safety and health field should anticipate future conditions for workers and prepare to address potential hazards and risks. To help understand what these hazards and risks might be, we are reviewing the scientific and gray literature from 1999-2019 to identify potential scenario descriptions of the future of work and any hazards or risks that might arise. The search strategy utilized the following terms: "future of work," "Industry 4.0," "4th industrial revolution," "advanced manufacturing," "new employment arrangements," "future of jobs," "changing world of work," "emerging occupational risks," "emerging occupational hazards," "innovation and work," "technological change and work," and "digitalization and work." Papers and documents identified through the search strategy will be reviewed and the future of work scenarios will be extracted, together with descriptions of potential hazards and risks. The review findings will be organized according to scenario type, hazard and risks. Critical operational questions still under consideration include: how to describe a projection as a scenario of future work; selection of inclusion and exclusion criteria for the review; and basis to infer whether potentially hazardous conditions will rise. Additionally, a panel of experienced occupational safety and health specialists will appraise scenarios to identify hazards or risks that might occur. Finally, the impact of technology will likely displace millions of workers worldwide and investigators and practitioners should also identify and address the needs of these workers. Preliminary literature review has shown that issues of adequate skills, unemployment and underemployment anxieties may arise and should be investigated and interventions developed. The characteristics of work in the future will be influenced by current trends as identified in recent publications. As part of the mapping effort, we will search the literature on how these trends may extend into the future. These trends include employment, unemployment, informal employment, working poverty, working time wages, gender pay gap, inequality, digital divide, fatal work-related injuries and illnesses. New hazards and risks to workers will occur on the foundation of these existing trends.

Preparing the Future Workforce with Occupational Safety and Health Competencies

Rebecca Guerin (NIOSH)

Statement of problem: Globalization and technology advancement are powerful catalysts for change in the modern economy. These forces have generated new demands for the knowledge, skills, and abilities required for job and life success.1 Technology-driven innovations in 21st century workplaces are compelling institutions that have a hand in preparing emerging workers to succeed, such as schools, to grapple with what young people need to know and be able to do in the

jobs of the future.1,2 However, little consensus exists about expectations for what a career-ready graduate might look like2 and whether competencies related to workplace safety and health are included in the shared vision for what it means to be work ready.3 Given that national surveillance data demonstrate that youth between the ages of 15 and 17 are twice as likely as adults over the age of 25 are to be injured seriously enough to require treatment in a hospital emergency department4 and that injuries may have life-long impacts on young people's health and well-being,5 it is critical that knowledge and skills that relate to OSH are part of every work readiness effort and every (current and future) job.3 While employers have the primary responsibility for maintaining a safe and healthy workplace—which includes providing job-related training—schools could play an important role in preparing youth, before they are integrated into the labor force, with knowledge of/and skills related to understanding work hazards and controls, child labor and health and safety laws, and roles/responsibilities in the workplace.9 Research (albeit limited) suggests that occupational safety and health education provided to young people while in school may be protective against future work-related injuries.10 Workforce development agencies and organizations could also play a vital role in preparing the emerging workforce for safe and healthy employment. But little is currently know about the extent to which OSH is currently included in school curricula and workforce development programs, and what the barriers and incentives are to providing these foundational skills. Procedures/Analyses. This presentation: provides a brief overview of current frameworks and ways of categorizing and defining the skills students need to be successful in the jobs of the future; assesses these frameworks for the inclusion of OSH; introduces a theoretical framework of foundational, workplace safety and health competencies developed by NIOSH and explores areas of alignment/integration with current career readiness efforts; and provides insights from key informant interviews with 34 school district administrators from across the country and a national survey of 93 representatives from workforce development sector, about the barriers and incentives to providing OSH competencies to the emerging workforce. Results. Most of the current initiatives to prepare workers for career readiness do not include essential knowledge, skills, and abilities for safe and healthy work, and opportunities exist for addressing this gap. Preliminary results from key informant interviews conducted in 2015 with administrators from U.S. districts suggest that only about a third of the districts have at least 75% of their students receive some instruction on workplace safety and health. Surveys conducted in 2018 with representatives from workforce development sector revealed that only about 20% of federally-funded, employment service centers in their region provide training that includes foundational OSH skills. The majority of both school district administrators and workforce development sector representatives recognized the benefit of providing general OSH training, but mentioned barriers such as lack of time and resources. Benefits of providing training on foundational OSH competencies were indicated by school district administrators in the sample as assisting students to get jobs (38%) and helping students work safely (32%). Roughly two-thirds of workforce development sector survey participants indicated it was moderately to extremely likely that employers would give a hiring preference to a person with prior training on OSH competencies. Conclusions. Competencies related to OSH are missing from national and international efforts to delineate what it means to be career ready in the workforce of the future. Preliminary NIOSH research suggests that, due to barriers such as lack of time, tailored training materials, and competing demands, OSH is not currently part of most school-based curricula or workforce development programs. However, there is a recognized need for this content, and employers may provide a hiring preference to new workers with these skills. National efforts6,7 to advance skills-based training and apprenticeships for youth provide a timely opportunity to integrate knowledge and skills related to workplace safety and health into the cross-sector competencies delivered to youth as part of efforts to prepare the future workforce for success in the 21st century jobs.

Aging Workers: Needs from the Perspective of Employees, Employers, and Experts

Juliann Scholl (NIOSH)

Statement of problem In 2014, approximately 40 percent of people age 55 and older were employed or looking for work [Toossi, Torpey 2017]. The U.S. Bureau of Labor Statistics estimates that the labor force participation rate for older age groups will continue to increase through 2024, while rates for younger workers will remain flat [Toossi, Torpey 2017]. This importance of aging workers to the workforce warrants more attention to the safety and health needs of all workers as they age. To this end, the researchers conducted a needs assessment to identify gaps in aging worker research and products that stakeholders (e.g., business and labor organizations, trade associations) most need. The research team conducted focus groups and key informant interviews with employees, employers, and national experts on aging to identify research gaps, understand awareness of best practices, and determine the types of products and resources that help reduce aging-related injuries, illnesses, and fatalities. The analysis also compares and contrasts perspectives across these three groups. Procedures/analyses The researchers collected open-ended responses from six focus groups and 18 key informant interviews. These interviews gathered insights about aging research needs, as well as the necessity for products and programs that benefit all workers as they age. The researchers qualitatively analyzed the focus group and interview responses to identify stakeholders' current knowledge of occupational safety and health research and practice related to younger and older workers [Patton 2015]. Three of the focus groups included employees—professional or executive-level employees, hourly workers in physically demanding jobs, and hourly workers not in physically demanding jobs. Nine persons grouped by age (25-34 years, 35-50 years, and 51-70 years) participated in each of the three focus groups. The remaining three focus groups included employers (i.e., business owners or managers) grouped by company size (<20 employees, 21-500 employees and 500+ employees). The study also included 18 structured interviews. Nine were with senior leaders and executives representing public and private companies from various industries. The remaining nine were national experts with extensive expertise in aging and work. The experts represented non-profit organizations, universities, government agencies, research institutes, and industry groups. Results The researchers qualitatively analyzed all responses for themes that could inform future aging research and product development at NIOSH [Patton 2015]. Based on focus group responses, health and safety needs of older (ages 55 and over) and younger (ages 21 and under) workers differ by industry regarding incidents, susceptibility to chronic diseases, colleague relationships, and health care costs but, in most cases, influence the workplace similarly. Younger workers did not talk explicitly about occupational health, hazards, or exposures and appeared to have little to no awareness of such issues. Employers noted that many organizations typically refer to the needs of all workers—not just aging workers—to

avoid the perception of age discrimination. As with workers, employers did not widely use terms such as occupational health, hazards, or exposures. Senior executives cited stress management, ergonomics, lack of diversity, multi-generational workforces, career planning, and retention as important needs. According to most executives interviewed, organizations are not adequately addressing the needs of aging workers. Many of the aging experts agreed that employers' views on aging are changing slowly. They discussed misunderstandings and biases toward aging workers, which they considered challenging but not impossible to overcome. Overall, the experts cited confusing legislation, inflexible workplace policies, age discrimination, differing work styles, workforce development, financial fears, family dynamics, and the health of aging workers as the most important issues to address in the future. Conclusions Respondents' views reflected changing demographic shifts and low numbers of Gen Xers needed to replace retiring Baby Boomers [AARP 2007; Gausepohl 2016]. Respondents across all groups noted employers' and industries' increasing need to address the physical, mental, social, emotional, and financial needs of aging workers. There appears to be a divide between how information sources (e.g., government agencies) and stakeholders (e.g., workers, employers) talk (e.g., words used) about the aging workforce. Efforts to educate stakeholders need to be more consumer-focused and engaging to resonate with key audiences. Strategies to disseminate tools and guidance should be consumer-focused and engaging rather than concentrated in peer review journals and government websites. Strategies include creating: (a) tools to help organizations assess their workforce, (b) benchmarking tools that rate workforce practices against industry standards and provide best practices, (c) more programs that identify risk factors for illness and injury in older workers, and (d) more campaigns in plain-language for stakeholders who do not look for information until problems emerge. Future research areas should include: (a) physical, cognitive, and emotional needs of aging workers; (b) discrimination and biases toward aging workers; (c) effectiveness of mufti-generational teams; (d) revised health and retirement studies using quota or field experimental designs to determine before and after impacts; and (e) studies addressing impacts of the "gig" economy.

Depression and Employees' Risk of Chronic Disease Development: A critical issue for the workforce

Michelle `Owens-Gary (NIOSH)

Depression and chronic diseases are alarmingly common in the workplace and represent a growing public health concern for employers and employees due to the long-lasting effect they can have on the workforce. Type 2 diabetes frequently co-exists with depression. Having both depression and diabetes can not only affect workers' physical and emotional health, but can also contribute to diminished work performance as a result of numerous factors (e.g., disease-related complications, reduced productivity), especially when these comorbid conditions go left unrecognized or unaddressed. To mitigate the negative impact that depression and diabetes can have on the future workforce, effective workplace interventions must be developed and made readily available to help employees manage these conditions, improve their work environment, and improve their overall quality of life. Depression affects workers at excessive rates (Wulsin, Alterman, Bushnell, Li, & Shen, 2014). It is estimated that up to 16% of the workforce will experience depression at any given time (Dewa, Hoch, Nieuwenhuijsen, Parikh, & Slutter, 2019), making this condition the most prevalent mental health concern in the workplace. More than 1 in 4 people with depression reporting serious concerns with their ability to function at work (Pratt & Brody, 2005). As a leading cause of disability for people aged 15-44 years, depression results in more disability days per year than many other physical and mental conditions (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Depression cost the nation $210 billion in 2010; representing a 21% increased cost from 2005 (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). About half of the economic cost of depression in 2010 was due to workplace costs (e.g., absenteeism, presenteeism, lost productivity, job turnover), 45% was associated with direct medical costs, and 5% was due to suicide-related costs (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). People with depression miss, on average, about five workdays out of a month with about 11 days of reduced productivity for the same timeframe (Valenstein, Vijan, Zeber, et al., 2001). Projections on the burden of mental disorders in the United States suggest that rates of depression will continue to rise dramatically, resulting in considerably higher indirect and direct costs and affecting future workforce participation (Tunceli, Zeng, Habib, & Williams, 2009). Chronic diseases, such as diabetes, are also very common and costly in the United States. In 2015, an estimated 30 million people in the United States had diabetes (Centers for Disease Control and Prevention, 2017). It is projected that by 2023, almost 20 million more people in the United States will also develop this disease (Bodenheimer, Chen, & Bennett, 2009). Diabetes, alone, cost the nation an estimated $327 billion in 2017; up from $245 billion in 2012, representing a 26% increase over a five-year period (American Diabetes Association, 2018). Like depression, diabetes also resulted in indirect economic costs, such as absenteeism, reduced work performance for those employed, reduced productivity for those unemployed, disability, and lost economic opportunities due to complications and premature death (American Diabetes Association, 2018; Schulte, Guerin, Schill, et al., 2015). Depression is present in about 1 in five adults with type 2 diabetes (American Diabetes Association, 2018). Additionally, individuals who develop depression also have a 37% increased risk of developing type 2 diabetes. When these two conditions occur together, there is an increased risk for work absenteeism, suboptimal disease management, increased medical expenditures, and poor health outcomes (Owens-Gary, Zhang, Jawanda, et al., 2018). Moreover, complications as a result of untreated depression and diabetes often are primary reasons for missed work and decreased productivity. Given the projected burden of both depression and diabetes on Americans (including those working and those unemployed), there is a need to develop interventions, such as workplace health promotion programs, to protect the future workforce. Employers have opportunities to improve worksites in ways that can help address individual modifiable risk factors (poor nutrition, low physical activity, obesity) and work environment factors (inflexible work schedules, job demands, lack of access to healthy food) that contribute to employees' risk of developing depression and diabetes. Workplace health promotion programs can lower costs for employers, reduce chronic disease risk factors, and lower absenteeism rates (Sorenson, Landsbergis, Hammer, et al., 2011). Yet, we need to understand the specific needs of a shifting work environment. Given that workers now have multiple careers over their lifespan than previous generations, and workplaces are typically smaller than past decades innovative approaches need to be developed to reach employees and incorporate health promotion programs at work (Sorenson, Landsbergis, Hammer, et al., 2011). This presentation will: 1) provide an overview of the burden of depression and diabetes at work; 2) describe how workplace health promotion programs can protect the future workforce; and 3) explore ways in which the changing

work environment needs to be taken into consideration for the prevention and management of depression and diabetes.
12:00–12:45 p.m.

Luncheon Sessions

Philadelphia Ballroom North

Total Worker Health® (TWH) Professionals Collaborative Meeting

Liliana Tenney (University of Colorado Denver)

Join us to discuss the formation of a professional group dedicated the advancement of Total Worker Health® (TWH). The group will serve as a hub, a new community, for individual professionals and both nonprofit and for-profit entities to share ideas and collaborate around TWH research, training, dissemination, and real-world solutions. At this meeting, we will present and discuss proposed activities and opportunities for involvement in 2020 and beyond. We encourage researchers, students, and professionals interested in learning more about this new initiative and expanding the professional field of TWH. The meeting will be facilitated by the Center for Health, Work & Environment, a NIOSH Center of Excellence for Total Worker Health®.

Philadelphia Ballroom South

Partnering with Organizations on Occupational Health Research

Chair: Liu-Qin Yang (Portland State University)

Presenters: Christopher Cunningham (The University of Tennessee at Chattanooga), Thomas Britt (Clemson University), Chu-Hsiang Chang (Michigan State University), Paul Spector (University of South Florida)

1:00–2:15 p.m.

Concurrent Sessions 2

Philadelphia Ballroom North

Exhaustion and Burnout

PAPER SESSION

The effects of gender and prosocialness on different aspects of burnout

Sandra Buratti (University of Gothenburg, Sweden)

The problem. Work-related stress and exhaustion are common and serious problems that especially affect human service workers (e.g., Dollard et al., 2003; Hasenfeld, 2010; Maslach & Jackson, 1981). It is feasible to presume that many human service workers show a relatively high degree of the trait prosocialness and that this trait has contributed to their choice of profession. Prosocialness can be defined by the behaviours an individual is willing to conduct to help, take care of, or provide assistance to others (Caprara et al. 2005). Although prosocialness has been shown to be beneficial for individuals' well-being (Caprara et al. 2005) prosocialness may put strain on human service professionals when working with people in need. This is especially likely to be the case in professions where the boundaries between work and leisure are blurred. One such profession with highly blurred boundaries is being a church minister. In Sweden this occupational group has been at the top of sick-related absence from work due to stress and exhaustion for several years.

This study therefore aimed at investigating whether the level of prosocialness directly and indirectly affected exhaustion and disengagement from work in a sample of ministers from the Church of Sweden. It can reasonably be assumed that individuals high in prosocialness will experience higher levels of job demands which will led to more work-related rumination and difficulty to detach from work during non-work time. This, in turn, will led to higher levels of exhaustion. However, it is also possible that individuals with a high level of prosocialness will perceive their work as more meaningful since the core of human service work is to help clients with different types of need (Dollard et al., 2003). This higher sense of meaning will may counteract feelings of disengagement towards work which can result from exhaustion. Recent studies have shown that not only work related stress but also factors outside of work affect exhaustion in a negative way (e.g. Rupert et al., 2009). Thus, another factor that may affect exhaustion is family to work conflicts (Purvanova and Muros, 2010). Thus, it is likely that conflicts between home and work will affect exhaustion negatively and that individuals with high level of prosocialness will take a higher amount of responsibility also at home and that this will lead to an indirect negative effect on exhaustion.

A further aim of the study was to investigate gender difference between different aspects of burnout. Since the results regarding gender difference have shown mixed results with women more often showing higher levels of exhaustion and men showing higher levels of disengement (Purvanova and Muros, 2010) it is interesting to investigate if this differences may be explained by difference in prosocialness among men and women.

Procedures. The first wave of a longitudinal (three-wave) study was used. The 871 ministers participated by responding to an online survey (response rate = 29%). Prosocialness was measured with the Prosocialness Scale for Adults (Caprara et al. 2005). Job demands were measured by two specific scales, namely the emotional and quantitative demands scales, from the validated Swedish medium-length version of the Copenhagen Psychosocial Questionnaire (Berthelsen et al., 2014). The two subscales Detachment and Affective rumination of the Work Rumination Scale (WRS: Cropley et al., 2012) was used to measure work rumination. Family to work conflict was measured with three items (Wilson & Baumann, 2015). Finally, exhaustion was measured by the validated Swedish version (Lundgren et al., 2012) of the Shirom Melamed Burnout Questionnaire (Melamed et al., 1992) whereas disengagement was measured with the Oldenburg Burnout Inventory (Demerouti et al., 2002) validated in Sweden by Peterson et al. (2011).

Analyses. Basic analyses were conducted using IBM SPSS Statistics 23 and structural equation analysis was conducted using Mplus 8. All variables were modelled as latent constructs with multiple indicators.

Results. Preliminary SEM-analyses shows that, as hypothesized, prosocialness has a positive relationship with both quantitative and emotional work demands, thus indirectly leading to higher work rumination and higher levels of exhaustion (see Figure 1). Also in line with our hypothesis prosocialness has a negative relationship with disengagement. However, no relationship was found between prosocialness and family-to-work conflict thus this path was removed from the model. The model (Figure 1) showed excellent fit according to RSMEA (0.04) and acceptable fit according to SRMR (.07), CFI (.91) and TLI (.91). Multi-group analyses exploring gender differences will also be conducted and reported at the presentation.

Implications. Since prosocialness presumably is a common and desired trait among different human services professionals such as ministers, it is important to find ways to help organizations to establish policies and structures that help these professionals with setting clear boundaries for their engagement.

The complex interplay between emotion regulation strategies and work rumination on exhaustion

Martin Geisler (University of Gothenburg)

The problem. Work-related stress and exhaustion is a serious problem in many societies (Eurofound, 2018). While stress and exhaustion is problematic in many occupations, human service workers seems especially exposed and affected—proposedly due to the prominent emotional aspects in this occupational field (e.g., Dollard et al., 2003; Hasenfeld, 2010).

Work rumination/detachment from work is important for stress-related health (Bennet, Bakker, & Field, 2018; van Laethem et al., 2018). Work rumination refers to unintentional, persevering thoughts about work that hinders recovery and increase physical symptoms, anxiety, and depression (Cropley & Purvis, 2003). Affective rumination refers to persevering thoughts about work that elicits negative affect, whereas detachment from work, per se, refers to the absence of work-related thoughts or rumination during non-work time. It has been noted that detachment from work do not simply occur but likely require self-regulatory effort (Sonnentag & Fritz, 2015). However, research has primarily

investigated antecedents and ameliorative factors by attending to work-characteristics or specific leisure activities (Bennet et al., 2018), whereas the role of personal characteristics have received limited attention (Wendsche & Lohmann-Haislah, 2017). One personal characteristic relevant to investigate in respect to the work rumination – exhaustion relationship is emotion regulation strategies: the processes people use in order to shape and manage their emotional experiences and expressions. Emotion regulation strategies are related to mental health and well-being (e.g., Hu, Zhang, & Wang, 2014; Wiltink, Glaesmer, Canterino, et al., 2011). Given the distinct emotional aspects of human service, the role of emotion regulation strategies seems to be especially important for detachment from work among human service workers.

We investigated the complex interplay between emotion regulation strategies and work rumination in relation to exhaustion among a large sample of human service workers. Specifically, we examined if emotion regulation strategies (i.e., reappraisal and suppression) mediate the relation between work rumination (detachment from work and affective rumination) and exhaustion. Furthermore, we examined the inverse model: if work rumination tendencies mediate the relation between emotion regulation strategies and exhaustion.

Procedures. The data-collection was part of (i.e., the second wave) a longitudinal (three wave) study. In total, 2 627 human service workers from all over Sweden were invited and 1 985 participated (76 % response rate: 33 % ministers, 31 % psychologists, and 36 % teachers: mean age = 47 years; SD age = 10.6 years; 73 % women). The survey took approximately 20 minutes to complete. All participants gave informed consent.

Emotion regulation strategies (reappraisal and suppression) were measured by the validated Swedish version (Enebrink, Björnsdotter, & Ghaderi, 2013) of the Emotion Regulation Questionnaire (ERQ: Gross & John, 2003). Two subscales (Detachment and Affective rumination) of the Work Rumination Scale (WRS: Cropley et al., 2012) measured tendencies in work rumination. Exhaustion was measured by the validated Swedish version (Lundgren-Nilsson et al., 2012) of the Shirom Melamed Burnout Questionnaire (SMBQ: Melamed et al., 1999).

Analyses. The data was analyzed through mediation analyses using the PROCESS macro (vers. 2.16.3) for SPSS (vers. 25).

Results. We found a significant indirect effect of detachment on exhaustion through reappraisal, b = -.127, 95% BCa CI [-.192, -.080], and of detachment on exhaustion through suppression, b = -.084, 95% BCa CI [-.137, -.044]. Moreover, the results showed that there was a significant indirect of affective rumination on exhaustion through reappraisal, b = .104, 95% BCa CI [.063, .156], and of affective rumination through suppression, b = .065, 95% BCa CI [.034, .109].

In addition, supporting the notion of a complex interplay between emotion regulation strategies and work rumination on exhaustion, the indirect effects of the inverse models were also significant. There was a significant indirect effect of reappraisal on exhaustion through detachment, b = -.376, 95% BCa CI [-.487, -.264], and of suppression on exhaustion through detachment, b = .546, 95% BCa CI [.378, .707]. Furthermore, there was a significant indirect effect of reappraisal on exhaustion through affective rumination, b = -.467, 95% BCa CI [-.603, -.333], and of suppression on exhaustion through affective rumination, b = .594, 95% BCa CI [.403, .806]. Sobel tests confirmed the significance of all indirect effects.

Practical implications. Our study illustrate how emotion regulation strategies are involved in the recovery process. These insights can contribute to the development of interventions to help human service workers from engaging in work rumination, for example through psycho-educative actions and training of emotion regulation strategies.

Conclusions. We demonstrate the need to consider personal characteristics, in terms of emotion regulation strategies, for understanding the work rumination – exhaustion relationship.

Brief summary. Work rumination/detachment from work is important for health and well-being. Our study add new insights by demonstrating how personal characteristics, in terms of emotion regulation strategies, contribute to the understanding of the work rumination/detachment from work – exhaustion relationship.

Shifting the Burden: Perfectionism, burnout, and general health: Mediating role of work procrastination

Kyle Page (South Dakota State University)

Perfectionism has been considered a driving force behind many psychological and physical disorders including alcoholism, anorexia, abdominal pain, obsessive compulsive disorder, depression (Limburg, Watson, Hagger, & Egan, 2017; Pacht, 1984), migraine headaches and even suicide (Burns, 1980; Hollender, 1965) and has thus been examined in depth. However, little is known about the positive or negative impact of perfectionism in the workplace (Deuling & Burns, 2017; Fairlie & Flett, 2003). With a focus on achieving high personal standards at work, perfectionists are an important group to consider in the context of workplace burnout (Hill & Curran, 2016). Further, research has found levels of perfectionism in the general population are rising (Curran & Hill, in press). As such, the goal of this study is to consider coping strategies as a mediator of the relationship between perfectionism and work burnout-related outcomes; specifically, self-sabotaging counterproductive work behaviors.

Most research considers three factors of perfectionism – high standards, need for order, and perceived discrepancy between current standards and high standards (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) as important components to grouping people into clusters of non-perfectionists (NP), maladaptive perfectionists (MP), and adaptive perfectionists (AP). While most perfectionists display high standards and a need for order, MPs also rate highly in discrepancy (Slaney et al., 2001). APs may feel a sense of pleasure from the fruits of their labor (Hamachek, 1978) and strive for achievement (Frost, Marten, Lahart, & Rosenblate, 1990; Stoeber & Otto, 2006). Conversely, MPs may feel as if their efforts are never good enough (Hamachek, 1978) and have a tendency to make overly critical self-evaluations (Frost et al, 1990; Stoeber & Otto, 2006).

COR assumes individuals are motivated to build, maintain, and protect resources that are valuable to them. Thus, when not under stress, individuals naturally develop a surplus of resources which is believed to relate to positive well-being. COR defines psychological strain as the threat or actual loss of valued resources, or the lack of resource gain after the investment of other resources. Overtime, this psychological strain may build up and with loss of energy-based resources specifically and develop into burnout (Hobfoll & Shirom, 2001). While COR theory assumes all individuals are motivated to collect and nurture valuable resources, perfectionists may represent a more extreme population. With perfectionists striving to excel and seeking high personal standards, considerable effort is invested into building and maintaining personal characteristics such as self-esteem and self-efficacy (Deuling & Burns, 2017) and more energy may be invested in performance at work compared to NPs. Thus psychological strain may have a greater effect amongst perfectionists as the pursuit

of resources may be core to the identity of perfectionists. Further, when these intensely sought after resources become depleted over time, perfectionists may be more sensitive to this loss with resulting burnout being greater than NPs.

Data from working adults (n = 279) were collected through an online survey via Amazon Mechanical Turk. Perfectionism clusters were identified using a two-step cluster analysis following prior research (Grzegorek, Slaney, Franze, & Rice, 2004). One-way ANOVAs with post hoc analysis were used to compare means between perfectionism cluster and their relationship to the outcome variables. Finally, model 4 of the PROCESS macro with orthogonal codes (Hayes & Preacher, 2014) was used to determine mediation of work procrastination between perfectionism and burnout and health. All mediation analysis included gender, age, education, and number of hours worked as covariates.

Differences between perfectionism clusters were found for emotional exhaustion, cynicism, and professional efficacy. MPs and NPs were more likely to experience exhaustion and cynicism compared to APs but were not significantly different from each other. However, in regards to professional efficacy all three perfectionism clusters were significantly different with APs experiencing more professional efficacy, followed by MPs and then NPs. There was also a significant difference between perfectionism clusters on general health concerns. APs had the lowest general health concerns followed by MPs and NPs with no significant difference between the last two groups. Additionally, there was a significant difference between perfectionism clusters with APs having the lowest procrastination followed by MPs who were significantly lower than NPs. The relative indirect effect of work procrastination for NPs compared to perfectionism and for MPs compared to APs was significant for exhaustion, cynicism, and professional efficacy. Similarly, the relative indirect effect of work procrastination for NPs compared to perfectionism and for MPs compared to APs was significant for general health.

In conclusion, APS have low burnout and general health issues as they are more likely to refrain from work procrastination. Thus, our findings support future research and practice that may create interventions for burnout and health that describe and incorporate countering maladaptive coping strategies, such as work procrastination.

I want you to like me and it's stressing me out: The paradoxical effects of self-image goals on surface acting and burnout at work

Lydia Roos (The University of North Carolina at Charlotte)

Burnout is a reaction to chronic work stress (Ganster & Schaubroeck, 1991) and includes emotional exhaustion, depersonalization, and lower efficacy perceptions (Maslach, Schaufeli, & Leiter, 2001). Burnout has profound impacts on worker achievement and productivity, as well as psychological and physical health (for a review, see Salvagioni et al., 2017). A factor that contributes to burnout in service industries is how employees manage their emotions and emotional expression, particularly when positive affective delivery is required (Grandey, 2003). Positive displays of emotions at work confer more satisfied customers, particularly in service-oriented workplaces (e.g., Parasuraman, Zeithaml, & Berry, 1985; Pugh, 2001). Organizational expectations of how employees act and the emotions they express are called display rules (Diefendorff et al., 2011).

However, workers' emotions do not always align with display rules; to adhere to display rules, workers may act positively by engaging in surface acting (i.e., faking affective displays) or deep acting (i.e., modifying inner feelings to be congruent with the affective expression they think they should be displaying; Grandey, 2003). Surface acting is linked with greater burnout (Brotheridge & Grandey, 2002; Grandey, 2003); nonetheless, little research has explored predictors of engagement in surface acting. Interpersonal goals, which can affect intrapsychic processes as well as how people interact with others (Crocker & Canevello, 2008), may influence the extent to which employees will engage in surface acting and experience burnout.

In the egosystem-ecosystem theory of social motivation, interpersonal goals are social mechanisms that individuals use to help them meet desired outcomes. People with self-image goals focus on constructing, maintaining, and defending desired images of the self. They act from the egosystem—a motivational system that focuses on the self and assumes an image- and status-based hierarchy (Crocker & Canevello, 2008). Because having self-image goals includes a desire to create and maintain impressions that will benefit the self, having self-image goals should generate commitment to display rules. However, because people with self-image goals view themselves within a perceived social hierarchy, they are not authentically concerned with others' needs above or in line with their own needs. Although they may care for others, they assume that interactions with them behave in zero-sum ways (i.e., one person's gain is another's loss). Thus, they aim to maximize their gains and minimize losses in interactions with others (Canevello & Crocker, 2015). Because it is their goal to increase and not deplete their resources, they give to others when they believe that doing so will benefit the self (Canevello & Crocker, 2015).

In a work context, this may translate to the belief that by providing authentic care and compassion to customers (i.e., deep acting), workers with self-image goals are depleting their own valuable emotional resources. Therefore, they may engage in surface acting to attempt to appear caring and supportive while trying to protect and/or limit depletion of their own emotional resources. Accordingly, we expected that self-image goals would positively predict surface acting and, in turn, positively predict burnout.

The current investigation is part of a larger study examining work and health. Participants completed three waves of self-reported data collection 30 days apart each time on Amazon's MTurk. Validated measures were used. We limited participants to those whose jobs require moderate to high customer interaction. Levels were determined by matching job titles with O*Net codes and linking to incumbent ratings of customer interaction. Participants (N=240) included 138 women and 102 men aged 23-64 (M=39.4 years, SD=10.0) who reported working more than 30 hours per week. Using Model 4 of PROCESS Macro for SPSS (Hayes, 2013), we conducted a mediation analysis using percentile bootstrap estimates and 95% confidence intervals (Preacher & Hayes, 2008). Variables were z-scored prior to analyzing and all analyses controlled for compassionate goals (another type of interpersonal goal not examined here). Total effects revealed self-image goals at time 1 as being significantly associated with burnout at time 3 ($b=.35$, $\Delta R2=.10$, 95% CI [.22, .48] $p<.001$). Surface acting at time 2 was a partial mediator in the association, indicated by a significant indirect effect of self-image goals on burnout through surface acting (effect=.08, 95% CI [.02, .15]) as well as a direct effect of self-image goals on burnout (effect=.27, 95% CI [.15, .39] $p<.001$).

The findings suggest that having self-image goals may contribute to the development of burnout in customer service-related jobs, partly because it is associated with engagement in surface acting. Previous studies have shown that surface acting relates to negative consequences, yet little is known about what motivates acting. This is the first known investigation to link interpersonal goals with acting and

burnout in the workplace. Additionally, findings suggest that additional mediators may exist and these are directions for future research (e.g., negative interactions with others; perceptions of those interactions as being more threatening). Results also imply that interventions targeting shifts in motivational systems may help to reduce burnout.

Philadelphia Ballroom South

Psychosocial Work Factors and Stress

PAPER SESSION

Relationship between occupational stress and mental health in desert oil workers in Xinjiang

Ting Jiang (Xinjiang Medical University)

Occupational stress refers to the psychological or physiological pressure caused by the imbalance between objective needs and individual adaptability in a certain occupational environment, which makes people in a state of mental, ideological and physical tension [1, 2].Professional people have to bear the pressure and burden of production labor, family life, social activities and other aspects at the same time. When they face the public health problems of the general population, they also face special occupational health problems. While the traditional occupational-disease-inductive factors such as biological, chemical and physical factors have not been fundamentally controlled, the new occupational-disease-inductive factors such as ergonomic factors and social psychological factors in the process of labor are exerting significant influence on the health of the occupational population. Many people believe that occupational stress is the most prominent factor affecting occupational health at present [3], and the research on it has become one of the hot spots in the field of occupational health. The famous Swedish scholar Theorell[4] also pointed out that "job strain or work stress is catching on globally".

This study investigated the mental health status and influencing factors of petroleum workers working in the arid desert environment of xinjiang, and studied the role of occupational stress in the occurrence of psychological abnormalities. We adopted a stratified cluster sampling method, using the occupational stress scale, the pay-reward loss scale, and the symptom self-rating scale to investigate the current situation of 3,361 desert oilfield operators.

A total of 3,900 questionnaires were distributed in this study, and 3,834 valid questionnaires were returned. The recovery rate was 98.3%. Excluding the unqualified ones, 3,631 valid questionnaires were obtained, and the effective rate of the questionnaire was 93.1%. The scores of occupational task questionnaires and individual stress response questionnaires of desert oilfield workers were higher than the national norm ($P<0.05$); the scores of male occupational task questionnaires and individual stress response questionnaires were higher than females ($P<0.05$); the scores of ethnic minorities' overweight tasks and working environment were higher than those of Han nationality ($P<0.05$); and the scores of drilling workers' occupational task questionnaire were higher than those of oil transportation and heat injection transportation ($P< 0.05$). The scores of occupational task questionnaire and individual stress response questionnaire were higher in the group of working age less than 10 years and the group of working age 10-20 years than those in the group of working age more than 20 years ($P<0.05$); the scores of occupational task questionnaire and individual stress response questionnaire in the group of undergraduate and above were higher than those in the group of junior college and below ($P<0.05$); the scores of occupational task questionnaire and individual stress response questionnaire in the group of junior professional title were higher than those in the group of senior and intermediate titles ($P<0.05$);the scores of individual stress response questionnaire in shift group were higher than those in regular day group ($P<0.05$); the scores of individual stress response questionnaire in married group were higher than those in unmarried and divorced or widowed group ($P<0.05$); the scores of occupational task questionnaire and individual stress response questionnaire in smoking group were higher than those in non-smoking group ($P<0.05$). The detection rate of positive mental health of workers in desert oil fields was 20.9%, and the detection rate of depression was the highest; the scores of mental health, total score, somatization, depression, anxiety, terror and psychosis of desert oilfield workers were higher than national norm ($P<0.05$).

This study fills the epidemiological data of mental health of xinjiang occupational population. It provides scientific basis for prevention and treatment of occupational stress on mental health hazards, and further improves the quality of occupational life of workers, and establishes a healthy, stable and harmonious working environment, which has certain reference value.

Effect of psychosocial work factors on the risk of certified absences from work for a diagnosed mental health problem

Caroline Duchaine (Université Laval)

Introduction: Mental health problems (MHP) are a major cause of disability worldwide. Their high prevalence, long duration and high risk of recurrence place a considerable burden on the health system and are a major source of lost productivity for employers. In industrialized countries, mental health problems (MHP) are the first or second leading cause of medically certified absences from work. The cost in lost productive time due to depression, a major cause of absence and disability, has been estimated at 44$ billion per year in the United States. There is a growing body of evidence that adverse psychosocial work factors contribute to the development of MHP. Adverse psychosocial work factors are defined on the basis of three validated and recognized theoretical models, the demand-control-support (DCS) model, the effort-reward imbalance (ERI) model and the organizational justice (OJ) model. The effect of these adverse psychosocial work factors on absences from work for MHP has been evaluated in prospective studies, but the evidence has not been synthesized in a systematic review and meta-analysis since 2007. The aim of this study is to evaluate and synthesize the evidence of the effect of adverse psychosocial work factors from the DCS, ERI and OJ models on certified absences from work for diagnosed MHP among workers.

Methods. The protocol of this systematic review was register in PROSPERO and published in 2018 in BMJ Open. A systematic search strategy was conducted in seven databases: Medline, Embase, CINAHL, Web of Science, PsycInfo, Sociological abstracts and IBSS. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations, a multistep screening process by independent reviewers was done for study selection. The search strategy was first run in January 2017 and will be updated in February 2019. Only quantitative, prospective studies evaluating the effect of at least one psychosocial work factor from the validated theoretical models on certified absence from work for a diagnosed MHP was considered for inclusion. Extracted data was used for quantitative and qualitative

evidence synthesis. Risk of bias was evaluated with the Risk of Bias in Non-randomised Studies-Interventions (ROBINS-I) tool, specifically developed to assess bias in non-randomised studies. Meta-analyses were done to obtained risk ratio (RR) and 95% confidence intervals by each psychosocial work factors.

Results. Overall, 21 561 citations were screened and, of those, 18 studies meet the eligibility criteria representing 199 499 workers of different countries. Nine studies evaluated the effect of psychosocial work factors from the DCS model, four from the ERI model, and two from the OJ model. Workers originated from Europe and Canada in majority, one study was from Japan. Population included blue and white-collar workers, health workers, manufactory workers, and population-based sample. Nine studies were of moderate quality and the other nine of low quality. Workers exposed to both high psychological demand and low job control presented a risk of absence for a MHP 42% higher than non-exposed workers (RR: 1.42 (1.20-1.68)); workers exposed to an imbalance between effort and reward at work presented a risk 49% higher than non-exposed workers (RR: 1.49 (1.16-1.91) respectively). Workers exposed to social support at work does not presented a significantly higher risk of absence for a MHP (RR: 1.08 (0.93-1.26)). Regarding the OJ model, the number of studies was not sufficient for meta-analysis. Of the two study retrieved, one observed a protective effect of exposure to a good organisational justice on the risk of absence from work for a diagnosed MHP, while the other observed no effect.

Conclusion. This systematic review showed that workers exposed to adverse work factors are more at risk of absence from work for a diagnosed MHP.

Implications. Given that these psychosocial works factors are frequent and modifiable, these results may provide evidence to support prevention strategies and help to reduce the burden associated with absence from work for a MHP. Organisational interventions aim at reducing psychosocial work factors exposure might contribute to decreased incidence of MHP among workers of different type.

Meta-Analytic Relationships Between Work Factors and Health Behaviors

Yi-Ren Wang (University of Alabama)

A large body of research has suggested that work conditions are closely related to health and well-being outcomes (Karasek, 1979). However, mechanisms that explain this relationship still remain unclear (Frone, 2008; Ng & Jeffery, 2003). In fact, previous research has shown mixed findings on the relationship between work and health behaviors (Frone, 2008; Ng & Jeffery, 2003). Arguing that clearer distinctions are needed among the work-related antecedents of health behaviors, we provide meta-analytic evidence on relationships between different work-related antecedents and health behaviors outside of work.

Of particular interest of this project is to distinguish workplace energy-depleting mechanisms from anxiety-invoking mechanism to better predict the type of health behaviors one engages in. The Effort-Recovery Model suggests work stressors that consume energy or resources are often associated with a temporary physiological or psychological cost (Meijman & Mulder, 1998). This cost demands a recovery process to return to the original state, during which active participation in health-promoting behaviors (e.g. exercise, diet) may be hindered. We refer to this as an energy-depleting mechanism. Tension Reduction (Conger, 1956) and Affect Regulation theories (Haedt-Matt & Keel, 2011) suggested that outcome expectations of reducing anxiety or negative emotion tend to increase participation in health-risky behaviors (e.g. drinking alcohol, illicit drug use). We refer to this as an anxiety-invoking mechanism.

We proposed that energy-depleting antecedents, including job demands, strain, fatigue, and interrole conflict are more strongly related to health-promoting behaviors. Anxiety-invoking antecedents, including negative affect at work, affective regulation motives, and tension reduction motives are more strongly related to health-risky behaviors. We argue that organizational norms represent a strong contextual factor especially for health-risky behavior. Moreover, distal factors such as job demands and resources may have stronger delayed relationships, whereas proximal factors such as affect and fatigue may have stronger short-term and immediate relationships with health behaviors.

Methods and Results

We searched on PsycInfo databases and major I-O psychology journals using pairs of keywords, each of which consists of a health behavior and a job indicator. Examples of the pairs of keywords are "health behavior + job", "exercise + work", "smoking + job". Ultimately, we included 110 primary studies. The organization of the variables is shown in Table 1.

Bivariate Correlations

To obtain sample-weighted mean correlations, we followed Hunter and Schmidt's (1990) procedures. Results are reported in Table 2 and Table 3. Supporting hypotheses, energy-depleting antecedents, including psychological strain, fatigue, interrole conflict and positive affect, were more strongly related to health-promoting behaviors than health-risky behaviors. On the other hand, anxiety-invoking antecedents such as negative affect had a stronger relationship with health-risky behaviors than health-promoting behaviors. Organizational health norms showed a stronger relationship with health-risky than health-promoting behaviors. Results of motivation variables showed that the motive of becoming healthy was positively related to health-promoting behaviors, whereas the motives of regulating one's emotions and reducing tension were positively related to health-risky behaviors. Overall, job resources and job demands explained little variances in the health behaviors people do outside of work. Health behaviors were instead better explained by proximal experiences such as affect, fatigue, strain and interrole conflict.

Moderator Analysis. Timing of measurement was treated as a categorical sample-level moderator (1 = IV and health behavior were measured at the same time, 2 = IV was measured before the health behavior). Supporting our hypothesis that distal job factors have a stronger delayed effect on health behaviors, we found that the relationships between job resources and both health behaviors, and between job demands and health-risky behaviors were larger when the job antecedents were measured prior to health behaviors (Table 4). Consistent with our hypothesis that emotions tend to elicit immediate responses, we found positive affect was more strongly related to health-promoting behaviors when both were measured at the same time. Similarly, negative affect was more strongly related to health-risky behaviors when both were measured at the same time.

Meta-Analytic Path Analysis. We constructed correlation matrices as inputs to perform path analysis using Lisrel 9.30. Correlations among the cells not computed in this project were drawn from existing meta-analysis. Following Viswesvaran & Ones (1995), each correlation was based on a harmonic mean sample size. Examples of path models are shown in Figure 1, 2 and 3. Examples of path models are shown in Figure 1, 2 and 3. Path coefficients suggested that energy-depleting factors (e.g. fatigue, interrole conflict) and anxiety-invoking factors (e.g.

negative affect) can explain the relationship between job factors and health behaviors. Energy-depleting factors better explained the relationships with health-promoting than health-risky behaviors, whereas anxiety-invoking factors better explained the relationships with health-risky behaviors than health-promoting behaviors.

Conclusion

With supportive evidence on the proposed energy-depleting and anxiety-invoking mechanisms, this research helps explain how work-related factors relate to one's health behaviors outside of work. These findings have theoretical and practical implications for scholars and practitioners aiming to understand and promote healthy workforces.

Too much of a good thing? Investigating the linearity in the association between influence at work and psychological well-being

Thomas Clausen (The National Research Center for the Working Environment, Denmark)

Statement of the problem. The concept of influence at work (aka job control and job autonomy) features prominently in central theories of work and organizational psychology (Karasek, 1979; Hackman & Oldham, 1976), and influence at work is an important determinant of worker well-being. Several studies have provided evidence suggesting a clear association between low influence at work and increased risk for mental and somatic health complaints, sickness absence, turnover and disability retirement (Theorell et al., 2015; Madsen et al., 2017; Theorell et al., 2016; Clausen et al., 2014; Knardahl et al., 2017; Clausen & Borg, 2010).

Influence at work can be characterized as a resource in the psychosocial work environment, and according to the Job Demands-Resources model, job resources reduce strain associated with job demands, enhance capacity to achieve work goals and stimulate personal growth, learning and development (Schaufeli & Bakker, 2004; Demerouti & Bakker, 2011). Hence, influence at work is expected to be positively associated with worker well-being.

However, according to Warr's Vitamin model (Warr, 1987) it may well be expected that the association between influence at work and psychological well-being is non-linear. Indeed, according to the Vitamin model, the association between influence at work (i.e. job control) and psychological well-being may be positive but only until a certain level of influence has been reached. After this level, the association may become negative implying that increases of influence after a certain level may have harmful effects on the psychological well-being of the worker. This phenomenon is labelled the 'additional decrement' in Warr's conceptualization.

The aim of this study is, therefore, to investigate whether the association between influence at work and psychological well-being is best characterized as a linear or a non-linear association - i.e. whether more influence at work generally entails improved psychological well-being or whether increasing levels of influence at work may indeed become "too much of a good thing."

Moreover, the study will investigate if the association differs across workers in four types of work: 1) work related to the processing of knowledge, 2) client-related work, 3) work related to production and transportation, and 4) work related to sales and marketing.

Procedures. This study is based on a survey conducted in a stratified sample of 8,958 individuals employed in 14 different job groups. These job groups were selected to obtain stratification by educational attainment (low, medium, high) and primary work-task (work related to the processing of knowledge, client-related work, work related to production and transportation, and sales work) of the respondents. Within each job group employees were randomly drawn from a national register on income and labor market attachment for all persons in Denmark. The data collection took place from April to June 2015. We obtained responses from 4,340 individuals, yielding a 48.4 percent response rate (Clausen et al., 2018).

A follow-up study was conducted with a six-month follow-up. 2,540 of the 4,340 participants from the baseline study participated in the follow-up study, yielding a 58.5 percent response rate.

Analyses. We tested for non-linearity by fitting a non-linear spline model against a linear model in R version 3.5.1. As the models are nested in this mode of analysis, we were able to compare model fit directly.

Cross-sectional analyses were conducted on the full study population and in analyses where participants were stratified by type of work. We also conducted longitudinal analyses on the full study populations to assess the robustness of the findings.

Results. Overall, the results from the cross-sectional analysis do not support the hypothesis of a non-linear association between influence at work and psychological well-being. The cross-sectional analysis indicates that the non-linear spline models are not significantly associated with psychological well-being when compared to a linear modelling of the association. Tendencies in the findings from the study suggest, however, that the strength of the association between influence at work and psychological well-being attenuates at high levels of influence at work. Further results will be presented at the conference.

Practical implications. The findings of the study do not support the conceptualization of influence at work (job control) from the Vitamin model. This implies that high levels of influence at work should not be considered harmful for the psychological well-being of workers. The findings of the study indicate that job redesign measures aiming at increasing influence at work (job control) may enhance the psychological well-being of workers - especially among workers with low initial levels of influence at work.

Conclusions. Influence at work is positively associated with psychological well-being and the patterns in the findings lend more support to an understanding of influence at work as a job resource within the Job Demands-Resources model rather than to understanding influence at work within the perspective offered by the Vitamin model.

Salon 3 & 4

Work Factors Associated With Worker Satisfaction and Happiness

PAPER SESSION

Associations between work factors and psychological distress in a convenience sample of commercial construction workers

Jack Dennerlein (Northeastern University)

Problem. Mental health and well-being among construction workers is a significant public health burden in the United States. While there is little work examining the mental health of construction workers, our previous work indicates that mental distress (as measured by the Hopkins Symptom Checklist–251) is higher (16%) among commercial

construction workers, than among the general male population.2 Construction workers have the second highest suicide rate compared to all occupational groups, second only to workers in the farming, fishing, and forestry industry.3 The rate in 2016 was 53.3 suicides per 100,000 persons, which is sizably higher than the fatal occupational injury rate of 10.1 fatalities per 100,000 full-time construction workers.3 With the construction industry employing on average 7.1 million workers, accounting for 5% of the working population, these high rates have a large impact on the U.S. general population.

Based on this high prevalence in a given occupation, programs to improve construction worker mental health and well-being should probably target factors in the worksite environment within a Total Worker Health® Conceptual Framework.4.4 The construction industry has many different organizations that interact with the worker's safety, health, and well-being.5 More work is needed to understand the workplace factors that contribute to the higher prevalence mental health outcomes. This research is an important next step for identifying opportunities to best support construction workers mental health and well-being in the workplace.

The goal of this abstract is to determine the associations of workplace factors and mental distressed in a convivence sample of commercial construction safety and health stakeholders as well as workers in the Boston metropolitan area through a sequential qualitative-quantitative mix-methods approach.

Procedures. First, we conducted eight semi-structured interviews with key stakeholders and six focus groups of 4-12 construction workers. The interviews consisted of ten questions about their experiences with the mental health and well-being of construction workers and the role of workplace factors. The stakeholders included construction project managers and health and safety directors. Participants in the focus groups included foremen, journeymen, and apprentices. Participants in all but one of the focus groups were recruited via the sites' general contracting or subcontracting organizations. For one group, participants were recruited from a local union training facility.

Second, we conducted a worker survey of 259 construction workers from five commercial construction sites in the Boston metropolitan (Table 1).). The primary outcome in the survey was the K6-psychological distress scale.6

Other factors in the survey included work-related factors identified in the interviews and the focus groups that participants considered important for mental health and well-being. The survey used validated scales to measure these factors (Table 2). These factors included safety climate, job demands, decision latitude coworker and supervisor support, work to family conflict and job security. All scripts, surveys and procedures were approved by the Northeastern University Office for Human Subject Research Protection.

Analyses. We used thematic analysis to explore the qualitative data collected from the key informant interviews and focus groups.7 To examine quantitative associations among workplace factors and mental health, crude and adjusted (age and position) rate ratios were estimated using negative-binomial regression models.

Results. The qualitative analysis identified three types of work factors that were associated with mental health and well-being: 1) job structure including work place hazards, job demands including production pressures, and work-family conflict attributed to the working hours, 2) relational factors including relationships with foremen, supervisors, and coworkers as well as on the job harassment, and 3) job security.

The quantitative analysis of the survey data identified associations between K6 psychological distress scale and many of the work factors (Table 2). Better safety climate and greater supervisor support scales were associated with lower K6 scores. Greater perceptions of job demands, on the job harassment, and work to family conflict were associated with higher K6 scores. Those who reported they were likely to lose their job also reported higher K6 scores. These associations remained significant in the models adjusted for age and trade.

Practical Implications and Conclusions. Approaches to improving mental health and well-being among commercial construction workers should consider the role of workplace factors. A novel outcome was the association with work to family conflict in a male population. Both the qualitative and quantitative data describe this association. Another factor was not knowing what the next commute would be like as well as nonflexible work hours typical of the industry making it difficult to participate in family tasks and activities. Relational factors play an important role, especially harassment. Production pressures were also discussed intensifying work and adding stress to work.

These factors indicate many points of potential interventions; however, these interventions addressing these factors need to be examined to determine their feasibility and efficacy.

Does Happiness Matter? Outcomes of a Participatory Intervention Program to Improve Workplace Stress May Differ by Happiness Levels Among University Hospital Nurses

Tsukumi Tondokoro (International University of Health and Welfare, Japan)

Problem: According to Japanese nursing association (2009), nearly one in 23 nurses in Japan were in a high risk of Karoshi due to excessive workloads and shortage of nursing staffs. Therefore, it is urgent for Japanese nurses to improve workplace environment. Organizational development programs at the workplace, i.e. a participatory program, have been used to improve employees' health and safe working environment. An employee participatory program identifies problems at work and tackles them directly by feasible actions. It is employee- and workplace-centered approach and it is well adapted in many countries and in different work settings. To conduct better programs and to enhance the effect of them, in this study, we investigated whether outcomes from a participatory program differed with participants' levels of happiness as exemplified by a group of hospital nurses. To evaluate the outcomes of the intervention, our study introduced two different objective markers such as blood inflammatory markers and autonomic nerve balance.

Procedures. Participants were nurses working at a multiple-unit hospital with 150 beds in the southern part of Japan. Through the nursing department, all nurses in the hospital were recruited for this study. A total of 36 nurses agreed to participate in this study. Excluding the ones who became pregnant and who were off from work due to illness or family issue at the time of measurements, a total of 31 participants (all women) were submitted to final analysis. Upper tertile of participants in the answers regarding happiness from the questionnaire was considered as a high happiness group in this study (n=10).

Measurement. This study employed a self-administered questionnaire, measurement of autonomic nerve balance and immunological evaluation. The questionnaire contained questions regarding subjective happiness, occupation and psychosocial job stress, demographics, health status and lifestyle. Levels of happiness in general were measured by a 10-point Likert scale; 1=not happy at all, to 10=very much happy. Autonomic nerves balance [Sympathetic nerve; low frequency/total frequency (stand), mean R-R interval/R-R interval

per min (stand), mean R-R interval (supine-stand), Parasympathetic nerve; mean R-R interval (supine), high frequency/total frequency (supine), SDRR (supine), sympathetic nerve/parasympathetic nerve] was measured by an electrocardiograph device called Silmee¬ (Toshiba, Japan). Interferon-gamma (IFN-γ), Interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF-α), IL-12/23p40, IL-15, IL-27, and hs-CRP from blood sample were measured as inflammatory markers. Participants were asked to fill out the questionnaire and to take evaluation of autonomic nerve balance and blood test at three points; before the participatory program (baseline, T1), immediately after (on average 1 week) the program (T2), and three months after the program (T3). These data were collected between August 2017 and February 2018.

Participatory Program . First, to identify problems at the workplace, we asked all nurses at the hospital to fill out the paper with two questions; 'Please share us your ideal workplace.' and 'What could you do to achieve ideal workplace?' anonymously. Based on the answers, focus groups were conducted to discuss the problems deeply and to find feasible actions for them. During the focus group interview, we obtained more than 50 ideas from the participants Finally, we held a vote on all nurses and three actions were selected; 1) to leave work on time without overtime, 2) to give 'Thanks cards' to colleagues, and 3) to take action beforehand for patients and colleagues to carry the job smoothly. These three actions were carried out for two months.

Statistical Analyses. Since the data showed non-normal distribution by Shapiro-Wilk test, Friedman test was used to compare difference in psychosocial job stress, inflammatory markers, and autonomic nerves balance at the time of measurement (T1, T2, T3) within high and low happiness group, respectively.

Results. In the high happiness group, support from a boss [median at T1, T2, T3, respectively; 9, 8, 8 out of 12 (p=.010)], IFN-γ [2.775, 1.435, 2.005 pg/mL (p=.002)], IL-6 [0.431, 0.368, 0.524 pg/mL (p=.045)], mean R-R interval (supine-stand) [171.51, 190.89, 180.36 (p=.045)] had significant difference between, T1, T2, and T3. In low happiness group (n=21), IL-12/23p40 showed significance difference [124.00, 103.00, 116.00 pg/mL (p=.013)].

Strength and limitations: Strength of this study was that we used subjective as well as objective measures to examine the effects of intervention program. Limitations of this study was that we could not identify which specific actions were effective for alleviating stress as well as small sample size. In addition, since the hospital had multi-units and operation varied by the unit, it leaves a question that three actions were truly suitable for each unit.

Conclusions. Participants in the high happiness group had a larger number of significant changes in the occupational related questionnaire, autonomic nerve balance, and inflammatory markers than those in low happiness group after the participatory program. It is conceivable that participants who were subjectively happy might be easily adapted to changes and have positive attitude toward the program even in such stressful working environment.

What Drives Organizational Action for a Positive Psychosocial Work Environment? The Role of Political, Social, and Economic Factors

Aditya Jain (University of Nottingham)

Psychosocial factors at work continue to be an important challenge for management (Leka et al., 2017), and are linked to several important outcomes. These include employee health and well-being (ILO, 2016; Leka & Jain, 2010), creativity (de Jonge, Spoor, Sonnentag, Dormann, & van den Tooren, 2011), work engagement (Mauno, Kinnunen, & Ruokolainen, 2007; Schaufeli & Bakker, 2010), work satisfaction (Saija Mauno et al., 2005), productivity (Dollard & Nesser, 2013; Jourdain & Vézina, 2014), operational quality (Longoni, Pagell, Johnston, & Veltri, 2013; Yang & Yang, 2013), and public health (Marmot et al., 2012).

With more research linking these variables to outcomes of relevance to individual workers, employers, and society as a whole there is a need to stimulate organizations to better manage psychosocial factors (EC, 2014). However, there is limited research that has considered why organizations attempt to manage psychosocial factors through interventions. Several assessments of organizations throughout Europe suggest that the management of psychosocial factors still remains unsatisfactory despite an increase of awareness of these issues in organizations (EC, 2015). The underlying context of this paper is therefore the same question that key stakeholders are faced with: how can organizations be motivated to better manage the psychosocial work environment? The answer to this question no doubt comes from initially understanding what it is that stimulates organizations to act in the first instance. The latter is the key question the present paper concerns itself with.

Intervention to improve the psychosocial work environment can be viewed as a form of organizational change (Giga et al., 2003; LaMontagne et al., 2007). McGuire and Hutchings (2006) make an explicit distinction between factors which create the need for change (drivers) and process factors which might facilitate (enablers) or restrict (inhibitors) the change process. It is the former that are of interest here, and the authors argue that drivers for change include economic, socio-political and legal forces. Senior and Swailes (2010) take a similar approach noting that the PEST factors (Political, Economic, Social, and Technology) cover most relevant factors which would drive change.

This study therefore aims to examine which factors served as drivers for the presence or absence of interventions (dichotomised in terms of their target/focus: individual or organizational) to manage psychosocial factors across European enterprises, using data from the European survey of enterprises on new and emerging risks (ESENER 1 and 2 - representative European surveys based on over 36,000 interviews with management representatives in each wave). The European context is particularly relevant largely due to two factors. Firstly, psychosocial factors are salient in the overwhelming majority of jobs, and secondly there is heightened awareness of psychosocial risks from stakeholders within Europe has existed for some time. The policy landscape is still in flux in this area and there is a general consensus that more needs to be done (Leka & and Jain, 2017).

Due to the hierarchical structure of data (organizations nested within countries) multilevel logistic regression technique (using MPlus 7) was used for the analyses of the effect of covariates and control variables on the outcome variables. Odds ratios and 95% confidence interval were estimated to determine which factors were related to the likelihood of an organization intervening as a means of managing the psychosocial work environment, net of the potentially confounding effects of control variables (type of sector, type of ownership and size of organization).

Legislative pressure, requests from employees, concerns regarding absenteeism and concerns over productivity were all found to be predictive of organizational change across European organizations across both datasets. Taken together, the findings illustrate the importance of taking a multidimensional approach to stimulating organizations towards sustainable change in this manner. This serves as a useful indication for what practitioners at the policy or organizational level

should target to promote better management of psychosocial factors. Taking care of the workforce and developing its capacity (mentally, socially, etc.) has strategic importance for organizations and society alike. Safe and sound jobs, secure and fair employment and decent working conditions provide financial security, social status, personal development, social relations and self-esteem, and protection from physical and psychosocial hazards—each important for health and safety. The presentation will further discuss the implications of these findings within the policy context of the sustainable development goals (SDGs), and 'integrative' initiatives to promote good practice in health and safety, such as the WHO Global Framework for Healthy Workplaces, the NIOSH Total Worker Health Approach, and the ISSA Vision Zero, which link sustainability, business responsibility and health safety and well-being, both at the organizational and policy level.

Exploring the complementarity between Knowledge Management and Psychosocial Dimensions and Factors: Towards improving employee well-being and performance

Tolulope Fadipe (Nottingham Trent University)

Background. Ever-changing work practices has caused the emergence of new risks resulting in challenges to people and work organisation and management (Houtman et al. 2014), particularly in developing economies (ILO, 2016). Hence, this study explored the complementarity between Knowledge Management (KM) themes and the psychosocial dimensions/factors proposed by (Leka et al., 2017) with the aim of exploring the potential of KM to mitigate workplace risk by promoting positive psychosocial factors.

The adoption of KM practices has become popular in most organisations as a result of its positive impact on organisational performance (Jashapara, 2011). However, using KM to improve working conditions and work environment is a recent and significant research area which has not been explored extensively despite its importance (Alhawari et al. 2012). To effectively manage risk associated with work, hence employee well-being, well-established KM must be at the core of the Risk Management (RM) (ISO, 2018).

Method: This potential congruence was investigated through a framework analysis procedure involving the creation of thematic groups into which data was coded. This method allowed for a systematic analysis of data management through to the development of descriptive to explanatory interpretations through interconnected stages. Five iterative phases were adopted as follows: familiarisation, identification of thematic framework, indexing, charting, and mapping and interpretation (Srivastava and Thomson, 2009).

Accordingly, the initial stage involved the familiarisation of the researcher with both KM themes and PWE dimensions (including psychosocial factors). This was followed by an index process that enabled the allocation of these factors to KM themes already identified. In the charting phase, the KM themes were matched to corresponding psychosocial factors based on best fit to their descriptors. The mapping and interpretation process resulted in the final thematic grid which showcased the extent of complementarity between KM themes and psychosocial factors. Prior to the provision of the final combination of themes and factors, the validity of individual KM themes was carried out through another review to establish the accuracy of pre-defined descriptors.

Results. Consequently, findings from data analysed showed that 'good psychosocial safety climate' factor (organisational culture and function dimension) was not distinctly captured in KM, but was implied through the existence of 'trust, openness, and collaborative climate' that can foster a positive working environment. 'Clear organisational objectives and appropriate support for problem solving', and 'good communication processes and personal development' factors where explicit in KM themes on 'articulating and implementing KM policies and strategies' (leadership commitment), trust and openness (organisational culture) and 'improving skills and competencies' (organisational learning).

The psychosocial factors relating to 'job content' dimension: 'meaningful work', 'appropriate use of skills', 'work retaining employee interest and engagement', and 'appropriate support' where found in KM themes as 'value generating capabilities' (people empowerment), 'promoting knowledge application' (organisational learning), 'workforce engagement' (leadership commitment) respectively. All KM themes are required for 'appropriate support' in the organisation and management of working conditions and the work environment.

The 'control' dimension had 'participation in control and decision making at work' as its factor. KM themes that covered this included 'articulating and implementing KM policies and strategies' (leadership commitment) and 'degree of knowledge influence facilitated by the level of authority' (people empowerment). Also, the 'environment and equipment' dimension with 'good physical working conditions according to good practice guidance' as its psychosocial factor was found in KM themes as 'physical design' (socio-technical capabilities).

The study found that 'interpersonal relationships at work' dimension included 'good relationships at work', 'teamwork and social support', and 'appropriate policies and procedures to deal with conflicts' were covered by 'trust and openness' (organisational culture) and 'harmonising tacit knowledge' (people empowerment) respectively. Also, 'clear roles and responsibilities', a factor associated with 'role in organisation' dimension was found in 'roles and responsibilities' (organisational culture) in KM theme. All KM themes provided 'appropriate support to meet objectives' which is a psychosocial factor indicated by Leka and colleagues.

Finally, psychosocial factors under the 'career development' dimension which includes 'appropriate career prospects and development matching skills and performance', 'effort reward balance', 'valuable/meaningful work', and 'job security' were found to be covered by KM themes that included 'improving skills and competencies' (organisational learning), 'motivation' (organisational culture), and 'value generating capabilities' (people empowerment) respectively.

Implications and Conclusion. The implication of the potential relatedness of KM themes and psychosocial dimensions/factors makes the argument for Knowledge Risk Management (KRM) more tenable because the application of KM processes and drivers in promoting positive psychosocial factors has the potential to mitigate the probability of risk occurrence, thereby raising the probability of successful RM execution resulting in employees' well-being.

Independence Ballroom B

Ensuring a Good Fit Between Interventions and Their Participants: Intervening to Improve Employee Well-being in Different National and Occupational Contexts

Karina Nielsen (University of Sheffield)

Participatory organisational interventions aim to improve working conditions and employee well-being through changing the way work is organised, designed and managed, and employees and managers jointly develop and implement the changes to work practices and procedures (Nielsen & Noblet, 2018). Although this type of interventions is generally recommended as they address the sources of poor well-being, i.e. working conditions (ILO, 2001; EU-OSHA, 2010), reviews have found inconsistent effects (Richardson & Rothstein, 2010). It has been argued that a one size fits all and a lack of understanding of the context and the implementation processes may be one part of the explanation as to why these interventions do not always achieve their intended outcomes (Nielsen & Miraglia, 2017; Nielsen & Noblet, 2018). Interventions are implemented in many different national and occupational context and it is important to understand how interventions can be fitted to the organizational context in order to develop an intervention process that takes into account the characteristics of the organization. When considering the characteristics of the organizational context it is important to understand the national context and the specific organizational context, i.e. whether we are trying to improve the characteristics of low-wage workers or university staff. This type of interventions relies on participants changing their behaviours and accepting the behaviour change of others and we need to understand how we can motivate and equip participants to change their behaviours and the behaviours of others.

In the present symposium, we present three different examples of intervention-person fit. We focus on how lie managers and safety representatives experience the intervention process and specifically focus on how we may optimize the fit between the intervention and the skills and competencies of drivers of change: In the second presentation the focus is on ordinary employees as change agents and in the second presentation, the focus is on line managers as change agents. Our first presenter will present the results of a study in the Norwegian context. The study takes place among university staff and although such staff have high time pressures their flexibility for engaging in intervention activities are greater. The intervention was developed to fulfil Norwegian legislation on psychosocial risk management. Key drivers of change are line managers and safety representatives, who in Norway play a key role in psychosocial risk management included a strong role of safety representatives in the intervention process. Line managers and safety representatives were interviewed about the process and we will learn about their experiences with the intervention process. In an extension of the third presentation focusing on the drivers of change, the next two presentations focus on the drivers of change.

The second presentation will focus on the implementation of an eHealth system in a Swedish hospital trust. In Sweden, ordinary workers are often tasked with the role of change agents. In this case, workers were trained in the role of change agents. The study explores the impact of a good perceived fit to the role, i.e. the impact of change agents' own well-being depending on whether they feel they have the required competencies to fulfil the role of change agent. In our third presentation, the presenter will introduce us to a Danish intervention. In a biotech company, Lean management was introduced to improve productivity. Lean management methods can both have positive and negative impacts on worker well-being and in the present study, line managers, who had been identified as key drivers of change were trained in implementing the change. The training methods were dialogue tools and board games and we will learn whether Lean was implemented according to plan and whether training helped protect worker well-being.

Independence Ballroom CD

Total Worker Health in Small Businesses

PAPER SESSION

Evaluation of a small business Total Worker Health leadership program

Natalie Schwatka (University of Colorado Denver)

Introduction. Leadership is a critical component of how a business develops and implements Total Worker Health¬ (TWH) policies, programs, and practices. Business leaders are positioned to develop and communicate their vision for TWH and allocate resources. Ultimately, they are responsible for ensuring that business practices align with their vision. This is important, because several meta-analyses demonstrate that leadership is associated with several health, safety, and well-being outcomes. However, workplace health and safety leadership intervention research is in its infancy and few intervention studies exist.

This presentation will describe a small business TWH leadership development and evaluation study and discuss preliminary results. In the context of small business, our research shows that senior leaders play a pivotal role in influencing TWH policies, programs, and practices, but they lack key skills to be successful TWH leaders. It is important to develop TWH leadership training in the small business context because smaller firms have fewer TWH policies and programs, and their employees are at risk for poor health and safety outcomes. The aim of our study is to evaluate the following hypotheses:

Hypothesis1: Leaders improve their TWH leadership practices from before to after the TWH leadership program.

Hypothesis2: Leaders meet their TWH leadership goals after participating in the TWH leadership program.

Hypothesis3: H1 & H2 relationships are moderated by leaders' readiness for change before the TWH leadership program such that leaders higher in readiness for change will observe greater improvements than leaders who are lower on readiness for change.

Methods. We developed the TWH leadership program as part of the Small+Safe+Well (SSWell). We are actively recruiting small businesses (<500 employees) from a variety of industries to participate. This presentation will describe the TWH leadership program including training components, evaluation methods, and preliminary results. Results from the larger SSWell study will not be discussed.

Program components. One owner/senior manager representing a unique small business was invited to participate in the TWH leadership program. They were able to bring one other individual from their organization (e.g., safety/wellness coordinator) if they wished. The 10-hour program was spread out over four months and included in-person and virtual components. First, leaders reviewed and reflected on TWH business- and employee-level TWH assessment results. Second, leaders participated in a 6-hour in-person training session with a small (~15-20) cohort of other small business leaders where they set at least three goals to work on over the next three months. Finally, for three months, leaders participated in an online, social goal-setting platform and three virtual, one-on-one coaching sessions.

Measures. We are evaluating the program using pre-post survey data, website use data from the goal setting platform, and post-program qualitative interviews. Before the in-person training, leaders

completed a survey containing questions about their TWH leadership practices (developed by researchers) and change readiness– stage, need, efficacy, and personal valence of change and training instrumentality and motivation (developed by other researchers). After they finished participating in the goal-setting platform and coaching sessions, they were asked about their TWH leadership practices in a survey. We also collected goal success information from the online goal-setting platform. Finally, after completing the program, we interviewed each leader 1) to understand their reactions to the program and 2) to learn about the ways in which they have changed their business's TWH practices and culture as well as their own health.

Analysis. We will use linear mixed modeling with a random intercept for leader to compare self-reported TWH leadership practice responses from before to after the program (H1). We will evaluate change readiness as a moderator of this change by including it in the model as a covariate and as an interaction with time (H3). Goal attainment (H2) will be evaluated by calculating the percent of successful goals completed within the goal-setting platform. All qualitative interviews will be content analyzed by two researchers to determine themes in leaders' responses to each of our questions.

Results. As of January 2018, we completed two cohorts of leaders and will complete two more cohorts by Summer 2019. In total, we expect to be able to share results from 47 leaders from 30 organizations. The organizations represent service (50%), public administration (17%), and retail (10%) industries and 20% of them are from rural communities. The businesses have on average 45 employees (Range=4-430). Results will be available to present by the time of the conference.

Conclusions/practical implications. Our study contributes to the TWH literature in several ways. First, it describes the first TWH leadership program evaluated in the empirical literature. Second, it focuses on underserved workplaces– small business. Third, we will be able to put our findings into context by evaluating leaders' readiness for change. In future research we plan to evaluate how the TWH leadership program impacts business and employee outcomes such as changes to TWH adoption and implementation, employee morale, retention, and health/safety.

Introducing Total Worker Health to Small Businesses: A Community-based Approach

Brenda Jacklitsch (CDC/NIOSH)

PROBLEM STATEMENT: Small businesses deliver fewer workplace health promotion and occupational safety and health activities than larger businesses [Linnan et al. 2008; Sims 2008], need more external assistance with integrated safety and employee health programs such as Total Worker Health [Newman et al, 2015], and endure a higher burden of occupational injuries and illnesses [Mendeloff et al. 2006]. Business size has also been shown to be one of the best predictors of a small business's involvement with workplace health promotion and safety activities [Linnan et al. 2008; Sinclair and Cunningham 2014]. Many factors, such as these, affect small businesses' lack of motivation to engage in prevention: lack of resources, isolation, low probability of inspection, and inaccurate perceptions of illness and injury rates [De Kok 2005; Hasle and Limborg 2006; Lentz and Wenzl 2006; Parker et al. 2007; Sinclair and Cunningham 2014].

Procedures. This study targeted two communities, Northern Kentucky and Greater Cincinnati. The goals of this study were (1) to understand perceptions of the cost and benefits of TWH approaches among small business owners/operators and employees; (2) to understand perceptions of TWH among community organizations that serve small businesses; and (3) to explore methods for encouraging use of TWH approaches by small businesses. Study steps included: (1) identifying and recruiting intermediaries, (2) deciding the best approach through discussions with the intermediaries, (3) small business recruitment and baseline interviews with the owner or manager, (4) engaging with small businesses via consultations and provided TWH-like services, (5) using exit interviews to determine small business reactions to TWH, and (6) asking intermediaries to reflect on the experience during a final debriefing.

Analyses. All interviews were recorded and transcribed. The transcribed interviews were analyzed by an inductive approach with thematic coding and a subsequent iterative process for further clarification of themes [Braun 2006; Gale et al. 2013]. First, the team independently reviewed the transcripts and then together reached consensus on important themes. Second, the team systematically coded interesting features, direct quotations, and patterns across the data set, reviewing coding differences until consensus was reached. Third, the data were reviewed, grouped, and collated into potential themes. Fourth, the team used the constant comparison method to examine and refine the themes by comparing and contrasting information within each interview and across all the interviews and focus groups [Boeije 2002; Corbin and Strauss and Corbin 2014]. Finally, the team conducted ongoing analysis to refine each theme and condense into a cohesive narrative.

Results. Small businesses in 3 Cincinnati communities and 4 Northern Kentucky sectors (i.e., construction, childcare, manufacturing, municipalities) participated, resulting in a total of 49 baseline interviews, 3 focus groups (Cincinnati only), and 26 exit interviews. Drivers to TWH varied from employers realizing the value of prevention to feeling that wellness and safety were the "right thing to do." Employers described barriers to TWH that included lacking knowledge, financial resources, time, interest; and some viewed wellness as an individual's responsibility. Participants' responses involved various themes, including: available resources (e.g., lack awareness and accessibility, matching needs, affordability), safety and wellness concerns (e.g., stress/mental health/burnout, community safety, unhealthy habits, health insurance cost, overall health), challenges implementing wellness initiatives (e.g., budget, time, staff interest, lack of leadership, employee privacy), and crossover combination safety and wellness (e.g., makes sense, too jumbled). Study participants described some of the outcomes and benefits, including: healthy/happy employees, productive/energized employees, business benefits, feeling valued, better teamwork, and a safer work environment. Participants also were asked about what they planned to do about TWH moving forward and themes included: individual responsibility, doing small things, motivation, and very specific ideas. During the final focus group with intermediaries, small business employers were described as caring for their employees and being receptive to the idea of TWH. Intermediaries felt that wellness was harder to sell than safety and therefore needs to be framed as a business proposition, a benefit to the company's bottom line, and needs to be tailored to the individual business. Another issue reported by intermediaries was that most small businesses lack resources or organizational structures to sustain TWH.

PRACTICAL implications. This study demonstrated how intermediaries and a variety of small businesses perceived TWH and interacted with each other when implementing TWH practices. Similar drivers, barriers, and themes might be expected in non-research settings,

therefore intermediaries can ready themselves to address or discuss these topics when working with small businesses.

CONCLUSIONS: For potential intermediaries wanting to introduce the concept of TWH to small businesses, it would be important to describe how wellness and safety can be integrated, demonstrate to employers the benefit to the business, provide access to financial resources for mitigating at least part of the initial cost of new programming, and build a relationship with the business as you guide them through the setup and implementation of a TWH program tailored for their specific needs.

Assessment of Total Worker Health® Strategies as Indicators of Organizational Behavior in Small Business

Liliana Tenney (University of Colorado Denver)

Introduction: Emerging evidence suggests that a more holistic approach is needed to optimize worker health, safety, and well-being in businesses of all sizes. Job injuries and fatalities persist at unacceptably high rates (Concha-Barrientos 2005). The workforce, like the rest of society, suffers from chronic health conditions that are both related to work-related and non-work factors, also at increasing rates (Sorensen 2011). Worker well-being is gaining traction as a unifying central objective in the occupational safety and health field that can be achieved by enhancing the physical workplace environment, including organizational level policies and strategies that help shape a culture of well-being the contributes to the nature of work and the work experience (Schill 2013). The National Institute for Occupational Safety and Health's (NIOSH) Total Worker Health® (TWH) approach is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being. While research on TWH approaches hold promise for establishing new ways of meeting the needs of workers in small businesses, most TWH intervention studies to date have been conducted in large organizations, with little evidence to support the generalization of results to the small business setting (McCoy 2014, Newman 2015) . Our understanding of the current practices in small businesses and of the barriers to adoption, effectiveness, and sustainability of TWH programs remain extremely limited.

Objective: In order to identify potential opportunities to improve OSH solutions in small businesses, the current study characterizes current TWH practices across multiple industrial sectors and across the spectrum of organization sizes. We hypothesized that larger businesses offer TWH programming than do smaller enterprises. In considering TWH integration, we hypothesized that businesses that address workplace safety would be more likely to also address health promotion, regardless of business size. Our study objective was to conduct a cross-sectional assessment of the adoption of Total Worker Health® (TWH) policies and practices by business size and evaluate extent and associations of their safety and health policies and programs.

Methods. We conducted an analysis of 382 businesses that participated in an assessment, advising, and certification program, Health Links™. We measured organizational adoption of policies, programs, and strategies to advance the health, safety, and well-being of workers. Organizations were scored on six benchmarks: organizational supports, workplace assessment, health policies and programs, safety policies and programs, employee engagement, and evaluation.

Results. Among the 382 participating businesses, 78 (20%) were microbusiness (2 to 10 employees); 133 (35%) were small businesses (11 to 50 employees); 71 (19%) were medium sized businesses (51-200 employees), and 100 (26%) were large businesses (> 200 employees). The six benchmark scores were statistically significant associated with business size. Larger businesses were more likely to score higher across each Health Links benchmark indicating they are implementing more TWH strategies. The mean score for each of the benchmarks were significantly different among the four size categories: organizational support ($p=0.003$); workplace assessments ($p<0.001$); health policies and practices ($p<0.001$); safety ($p<0.001$); engagement ($p=0.004$); evaluation ($p<0.001$). Conclusions. While small businesses are implementing TWH, the level of implementation differs by business size. The smaller the organization, the greater the opportunity to address safety as a priority. Practical interventions, as well as dissemination and implementation research, should take business size into account to ensure TWH is both effective and sustainable in meeting the needs of employees.

Discussion: Small businesses are implementing TWH, and the level and type of implementation differs by business size. Interventions, as well as dissemination/implementation research, should take business size into account to ensure TWH is both effective and sustainable in reaching employers and meeting the needs of employees. Future research is needed to understand what community, organizational, and leadership factors drive the most change for improving employee health, safety, and well-being outcomes.

Independence Ballroom A

Work, Parenting, and Family Outcomes

PAPER SESSION

Work breaks and upper respiratory infections among hospital patient care workers

Erika Sabbath (Boston College)

Background. Common colds are the epitome of a minor illness, but they are miserable for many of the 72% of U.S. adults who suffer from them annually. Economists and business owners have long recognized how costly colds, flu, and other upper respiratory infections are. Each year, the U.S. economy accrues $40B in direct and indirect costs for colds and $27B for influenza. Psychosocial stress is one known risk factor for cold and flu susceptibility, but very few studies have tested whether stress from interpersonal or organizational aspects of work are associated with susceptibility. We hypothesized that poorer break-taking practices would be associated with higher likelihood of physician visits for upper respiratory infections in a cohort of hospital patient care workers.

Methods. Data are drawn from the Boston Hospital Workers Health Study (BHWHS), a longitudinal cohort of 15,000 patient care workers at two large academic medical centers in Boston. We used data from a subset of BHWHS workers (n=979) who responded to a survey (response rate=72%) and were members of the company's group health plan. The survey was conducted in October 2012, shortly before the onset of cold and flu season. We linked participants' responses to questions about break-taking norms in their units and their own break practices with health claims data for upper respiratory infections in the 12 months following the survey. We used logistic regression to test for differences in break practices observed between those with and without

any upper respiratory infections, adjusting for known upper respiratory infection risk factors

Results. For all three break-taking variables, less frequent breaks were associated with greater odds of a visit for an upper respiratory infection the following winter. For unit break-taking norms, in models adjusted for age, gender, race, job title, typical shifts worked, financial distress, hospital site and having children under age 5, a culture of less break-taking was associated with greater odds of an upper respiratory infection visit (OR 1.34, 95% CI 0.99 to 1.81). Leaving the unit for breaks less often was associated with 1.17 greater adjusted odds (95% CI 1.03 to 1.33) of an upper respiratory infection visit. Taking one's full meal break less often was associated with 1.22 greater adjusted odds (95% CI 1.00 to 1.48) of an upper respiratory infection visit.

Discussion: Person-to-person transmission of upper respiratory infections is a particular concern for health care workers, who risk transmitting the virus not only to their coworkers, but also to patients who are already ill and for whom even a minor virus could be catastrophic. This analysis suggests that factors within the work organization around break-taking and recovery could increase worker—and thus patient—susceptibility to cold and flu. The study findings have implications both for understanding of the role of recovery in the relationship between stress and upper respiratory infection susceptibility, and also for managers looking to reduce unplanned absences and associated costs in their workforces.

Objective: To test whether year-over-year tightening of state-level firearm policies is associated with decreases in workplace homicide rates.

Methods. This time-series ecological study of working people in all 50 states used federal data on workplace homicides by state and year from 2011-2017, linked with an index of state-year firearm policies to characterize the regulatory environment (overall and within legislative categories). We used difference-in-difference GLM regression to model associations between tightening firearm policies and workplace homicide rates the following year.

Results. From 2011-2017, over 3,000 people died of workplace homicide; 23 states tightened firearm regulations and 23 states weakened them. We modeled the impact of states tightening policies within the interquartile range (IQR; equivalent to adding 20.5 firearm laws). This change was associated with a 3.7% reduction in workplace homicide rate ($p=0.001$), equivalent to preventing 17 workplace homicides per year. A positive IQR change in specific legislative areas was associated with significant reductions as well: concealed carry permitting 5.79% ($p=0.001$), domestic violence-related restrictions 5.31% ($p<0.001$), and background checks 5.07% ($p=0.003$).

Conclusions. Stronger state-level firearm policies may reduce the population-level burden of disease posed by workplace homicide.

Coworking Couples: How Partners who Work Together Manage the Work-Family Interface

Erick Briggs (Saint Louis University)

This review focuses on coworking couples (i.e. partners who share a workplace), and how they navigate the work-family interface. More than dual-career couples, coworking couples are uniquely positioned to experience blurred role identities, spillover, facilitation, and conflict. However, very little is known, empirically, about their experiences. Importantly, there is evidence to suggest that coworking couples are not a marginal segment of workers. Although the true prevalence is unknown, estimates suggest that they account for anywhere from 13% (Zhou, Xueguang, & Moen, 1994) to over 25% (Moen & Sweet, 2002) of the general workforce - and some expect this number to rise (Halbesleben, Wheeler, & Rossi, 2012). More research is needed to support the success, health, and well-being of coworking couples. Therefore, the goals of this paper are to (1) synthesize what we know about coworking couples, (2) integrate these findings within a work-family theoretical framework, and (3) provide suggestions for future research and practice.

Theoretical Background. Clark's (2000) work-family border theory attempts to explain when work-family conflict will arise (Masuda & Visio, 2012) and posits that humans are border-crossers who make daily transitions between domains. Whereas conflict refers to incompatibility between role expectations, facilitation refers to instances in which resources gained in one role provide value in another role. In addition, three broad types of conflict exist including time-based, strain-based, and behavior-based conflict (Greenhaus & Beutell, 1985). We ground our review using this theoretical framework, and pose questions for future research.

Coworking Couples, Work-Linked Couples, and Dual-Career Couples. Coworking couples are a subset of work-linked couples (who may share either an occupation or workplace, or both), while work-linked couples are a special case of the more general form, dual-career couples (Halbesleben, Zellars, Carlson, Perrewé, & Rotondo, 2010). Table 1. presents a breakdown each of type. Studying work-linked subsets separately is appropriate since this literature is still emerging (Halbesleben et al., 2010), and there may be important differences in antecedents and processes - which inform our thinking on how we support these workers. While focusing primarily on the coworking subset, the work-linked literature is integrated where relevant.

Coworking couples experience family-work facilitation. As increased domain integration is thought to promote more permeable boundaries, and more easily transferred resources (Halbesleben et al., 2010; Park & Haun, 2017), work-linked couples are positioned to provide instrumental support due to their shared environment and enhanced understanding of work demands and work goals (Huffman, Dunbar, Klinefelter, & Howes, 2018). For example, Ferguson, Carlson, Kacmar, and Halbesleben (2016) found that work-linked partners derived greater benefit from spousal support, compared to non work-linked partners.

Research findings support theory in this area. Across studies, coworking couples were found to benefit from their understanding of a shared organizational culture (Janning, 2006) and were found to experience family-work facilitation in the form of information sharing, social support (Bryson, Bryson, Licht, & Licht, 1976), and help solving work problems (Heckman, et al., 1977; Smart & Smart, 1990). Such advantages may reduce time-based conflict, as facilitation may help save time otherwise spent looking for information or solving problems alone. Additional research into the mechanisms and directional differences of facilitation is needed. Is family facilitating work, or vice versa?

Coworking is also related to negative work-family spillover. Although increased domain integration may facilitate resource transfer, it may also facilitate the transfer of demands (Halbesleben et al., 2012). Specifically, work-linked partners may transfer stress and strain more easily when engaging in venting and sense-making (Fritz, Park, & Shepard, 2018). For example, Fritz et al. (2018) found that incivility prompted negative spillover through increased rumination and insomnia. Interestingly, crossover effects were only found among work-linked couples, such that perceived incivility among respondents was related to partner insomnia (Fritz et al., 2018).

Similarly, findings suggest that coworking couples report difficulty maintaining separate identities across domains (Pingree et al., 1978), taking work problems home, and an inability for partners to use one domain to escape another (Moen & Sweet, 2002). However, the workplace implications (e.g. engagement, commitment) have not been examined. Research on the conditions in which negative spillover occurs is also needed. Boundary management techniques or supervisor support, for example, may be able to help buffer these negative effects.

Discussion. Our findings have both theoretical and practical implications. It is clear that coworking presents both benefits and challenges. Family-work facilitation was consistently identified as a benefit, and negative spillover was consistently identified as a challenge. Future research may consider how family-work facilitation and negative spillover interact and affect important outcomes such as health and well-being. Moreover, as coworking may present benefits, policies that prohibit partners from working together may prevent employees from using a viable career strategy to manage their demands and resources. Practitioners may want to more carefully consider policy implications, support systems for coworking couples, and the impact on attraction and retention.

Pregnancy and Work: Occupational Health and Well-Being among Expecting Parents

Gwen Fisher (Colorado State University)

This presentation will report on the initial findings from the Working Parent Study, a new longitudinal research study investigating the parental leave and return to work process among pregnant working women. Our presentation will summarize participants' knowledge about and expectations regarding parental leave. We will also report results pertaining to work and family-related sources of stress and support, and how work and non-work factors relate to whether and when pregnant working women plan to take parental leave, and their expectations about returning to work. We will discuss the research, practical and policy implications of our results, including how to guide organizations about the establishment of parental leave policies and human resources practices to assist expecting parents with planning for new family responsibilities and taking parental leave.

Salon 5 & 6

Workplace Bullying

PAPER SESSION

Workplace bullying and daily exhaustion: A diary study

Sarah-Geneviève Trépanier (Université du Québec à Trois-Rivières)

Workplace bullying, defined as prolonged and repeated exposure to negative behaviours from others at work against which it is difficult to defend oneself (Einarsen et al., 2010), is one of the most harmful social stressors at work (Hauge, Skogstad, & Einarsen, 2010). The number of studies investigating workplace bullying has significantly increased in the last few years, which has provided researchers with a clear picture of its detrimental effects. Employees exposed to bullying behaviors experience important manifestations of ill-being, including depression, anxiety, burnout, psychosomatic health problems, sleep disorders, and post-traumatic stress disorder (Hansen, Hogh, Garde, & Persson, 2014; Laschinger & Nosko, 2015; Nielsen & Einarsen, 2012). However, the majority of studies to date on the consequences of workplace bullying have been cross-sectional (Nielsen & Einarsen, 2012), although the number of longitudinal studies is on the rise (Nielsen, Magerøy, Gjerstad, & Einarsen, 2014). Nevertheless, only a few researchers (i.e., Rodríguez-Muñoz, Antino, & Sanz-Vergel, 2017; Tuckey & Neall, 2014) have examined the effects of bullying on employee well-being using a within-person approach. This is unfortunate given that this approach would allow a more in-depth investigation of the immediate effects of bullying.

Furthermore, according to recent cross-sectional and longitudinal findings (Trépanier, Fernet, & Austin, 2013, 2015, 2016), workplace bullying undermines employee well-being by eroding key psychological resources, namely feelings of autonomy, competence, and relatedness (i.e., need frustration; Deci & Ryan, 2008; Vansteenkiste & Ryan, 2013). This aligns with the Conservation of Resources Theory (COR; Hobfoll, 1989), which states that people strive to retain, protect, and build resources and that stress (i.e., impaired well-being) occurs when resources are lost or threatened. COR also stipulates that resource gain leads to healthy functioning, even in the presence of stressors. In this vein, research stemming from the organizational stress literature (Bakker & Demerouti, 2017; Kahn & Byosiere, 1992) suggests that certain contextual factors, including social support, can attenuate the adverse consequences of job stressors on employee well-being (Sargent & Terry, 2000; Schreurs et al., 2012; Sukanlaya, 2012; Viswesvaran, Sanchez, & Fisher, 1999). However, little is currently known about the buffering effect of social support in the context of bullying.

This diary study aimed to fill these current gaps in the workplace bullying literature by investigating the role of psychological need frustration (i.e., perceptions of oppression, incompetence and stigmatization) in the daily relationship between exposure to bullying behaviors and exhaustion in order to shed light on the psychological mechanisms responsible for the detrimental effects of bullying on a daily basis. Furthermore, the moderating role of social support in the relationship between workplace bullying, psychological need frustration and exhaustion was studied through moderated mediation analyses in order to identify the conditions in which bullying erodes employees' psychological resources, leading to impaired well-being. This diary study was conducted among Canadian nurses (n = 46). Participants were asked to fill out an electronic diary at the end of each workday for a period of 14 days, an approach that allowed generalization about their day to day life (Wheeler & Reis, 1991). Results from Bayesian multi-level analysis show that distinctive workplace bullying behaviors have specific effects on employees' manifestations of exhaustion on a daily basis, and that person-related behaviors that undermine the quality of one's social experiences at work (e.g., humiliation, social exclusion) are particularly detrimental. Results also show that daily exposure to workplace bullying behaviors results in greater exhaustion at the end of the workday by fueling need frustration, primarily perceptions of oppression (i.e., frustration of the need for autonomy) and incompetence (frustration of the need for competence). Furthermore, daily social support obtained at work buffers the negative effect of workplace bullying on employees' psychological resources (needs). The theoretical and practical implications of these findings will be discussed.

Bullying Behavior Does Not Support The Normal Standard Of Care

Jillian Yarbrough (West Texas A&M University)

Nurses across the United States describe experiencing challenging work environments that include bullying behaviors such as belittling, being ignored, confrontations and harassment. While bullying behaviors are not necessarily new to the profession, bullying behaviors are intensifying industry issues like retention. The purpose of this study was to understand the lived experiences of nurses and how bullying impacts their professional environments. A phenomenological research design was used to support an in-depth study of the nurses' experiences and how these experiences influence the nurses' current and future career choices. Interviews with a variety of types of nurses were conducted and based on the participant's responses, the following four themes were identified, the definition of bullying is nuanced, bullying is facilitated through peer oppression, bullying silences the victim and bullying affects the hospital environment and patient care. Based on the themes, the researchers propose four recommendations, to create a clear industry specific definition of bullying, ending the culture of silence, building a democratic power structures and recognizing the financial value of retaining nursing professionals.

Bullying and health at work: does religiosity play a role?

Stephen Kumako (University of Nottingham)

Background. Workplace bullying is viewed as a negative stressor that has the potential to lead to consequences such as low psychological well-being and other negative outcomes for the bullied individual, witnesses and the organisation (Nielsen & Einarsen, 2012). According to Schaufeli and Taris (2014), personal resources may moderate the relationship between workplace bullying and psychological well-being. Religiosity is the strength of religious faith (Plante, Vallaeys, Sherman & Wallston, 2002). Koenig and Büssing (2010, p. 80) assert that intrinsic religiosity is the "degree of personal religious commitment or motivation.... involves pursuing religion as an ultimate end in itself". Religiosity is an important aspect of Ghanaian society and may help explain the relationship between workplace bullying and psychological well-being. In fact, Ghanaians are very religious people, as their belief in a Supreme Being is central to every aspect of life with about 95% of Ghanaians engaging in religious activity weekly. Indeed, for Ghanaians, religious faith and beliefs as well as religious participation constitute the fundamental source of their sense of social identity, destiny and values (Max-Wirth, 2018). As such, religiosity is signified by a personal relationship with the Supreme Being and may serve as an additional resource that may help deal with life's challenges.

There has been increased interest in explaining the mechanism by which religion buffers the experience, interpretation and response to positive and negative life events and how this contributes to psychological adjustment and functioning. Indeed, there have been different schools of thought by psychologists with regards the specific role of religion in ensuring well-being. Allport (1950) and Jung (1993) argue that religion improves psychological well-being by providing meaning and permanence amid uncertainty. As such, religion may act as a resource for managing and coping with potentially threatening or stressful organisational events including workplace bullying. Other researchers (e.g., Ellis, 1965; Schreurs et al., 2014) found that religion acts as a demand exacerbating negative organisational experiences and causing harm to psychological functioning.

With regards bullying, Azizan and Razlina (2015) found that religious individuals or people with religious personalities were more likely to have positive job attitudes in the face of workplace incivility. The study showed a significant moderating effect of a religious personality trait in the relationship between incivility in the work place and work attitudes (job satisfaction and organisational commitment). Additionally, Khan, Sabri, and Nasir (2016) study revealed that workplace spirituality moderated the effect of workplace bullying on employee productivity.

The current study aimed at understanding participants' sense making and experience of coping with workplace bullying in the qualitative study. Following from this, religiosity (i.e. a personal variable identified as a coping resource) was empirically tested to explore the mechanism by which it may moderate the effect of workplace bullying on psychological well-being for workers in Ghana's oil and gas industry.

Methods. The study adopted a mixed-methods approach with the qualitative study preceding the quantitative one. Semi-structured in-depth interviews was used to collect data in the qualitative phase from fifteen (15) participants who were conveniently sampled. In the quantitative phase, three hundred and twenty six (326) questionnaires were fully completed and returned to the researcher (response rate: 43.5%).

Results. An interesting finding concerning personal coping resources in a bullying situation, from the qualitative study, is the role of religiosity (Arnetz et al., 2013; Kutcher et al. 2010). Employees indicated the use of positive religious coping including praying about the situation, forgiveness of perpetrator, seeking support from clergy members and religious focus. This finding is consistent with the view that Ghanaians are generally very religious (Gyekye, 2003; Max-Wirth, 2018) especially in times of distress. As such, employees making sense and dealing with their bullying situation by engaging in positive religious coping may results in better mental health (Ano & Vasconcelles, 2004). Other coping resources from the thematic data analysis include social support, recreational activities and the organisations' bullying policy.

Multiple regression analysis of quantitative data indicated that religiosity moderated the relationship between workplace bullying and well-being. However, the nature of this interaction is quite interesting. Indeed, the simple slope analysis of the significant moderation effect indicated that whereas low to average religiosity buffered the negative effect of workplace bullying on employee psychological well-being, high religiosity did not buffer this relationship.

Implications. Additionally, owing to the buffering role of religiosity in dealing with negative experiences at work including workplace bullying, managers in organisations in Ghana must not be seen to stifle expression of religious faith and practices that do not interfere with an employee's output. By encouraging workplace spirituality and religiosity, employees in largely religious settings like in Ghana are likely to carry-over the positive effect of their religious belief system and the discipline and commitment they engender into the work environment leading to positive organisational outcomes. Furthermore, religiosity may offer a needed coping resource when faced with adversity at work.

Salon 10

Stress at Work

PAPER SESSION

Defining Implementation: A process or an outcome? A systematic literature review of preventive intervention studies

Christine Ipsen (Technical University of Denmark)

The term implementation is widely used, not only in stress interventions, but also in related fields. Particular with the emergence of a rather new research field, implementation science, the popularity of the term increased. Within implementation science there is a clear definition of implementation research: the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care (Eccles & Mittman, 2006). With this definition, the underlying assumption about implementation is that it is about the methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice.

However, the definition is challenged by the claim that: implementation is defined as a purposefully designed set of actions for the application of a purposefully designed program or intervention to cause change (Palinkas & Soydan, 2012: p. 10). Bridging the fields of implementation science with clinical interventions, there has been a need to clarify the differences between clinical interventions and implementation interventions and also grey areas in between (Eldh et al., 2017).

However, in stress preventive interventions, the term implementation is continuously used without a clear definition and there appears to be several distinct meanings in the literature. Whereas the discussion of concepts and theory is indeed at the heart of science the term implementation is used instrumentally seemingly without reflection. This causes problems for the scientific discussion as meanings which differ in both scope and content are used interchangeably. Not only is this limiting the development of the field; it may also hide a deeper more concerning problem: a general lack of understanding of implementation in preventive intervention. There is therefore a need for clarification and definition.

The aim of this paper is to investigate the use of the term implementation in preventive workplace interventions studies and how it is being defined, and if that is not the case what interpretation the paper applies to implementation. Further, this paper proposes a definition of implementation in preventive interventions.

The systematic study collated, summarized and reviewed preventive worksite intervention studies that used the term implementation, in order to investigate the different meanings of the term and propose a definition. The study reviewed literature from 1990 until now, and started with 9379 articles, of which 2624 were duplicates. After screening 6755 titles we found 2682 to still be relevant. Screening abstracts reduced the number of relevant papers to 43, which were read in detail further excluding 15 papers. The review therefore builds on 28 papers. The 33 papers report on studies from various context although most studies are within healthcare and service work, but there are also studies within manufacturing, knowledge work and education. All the papers present findings from primary interventions. The majority only focus on primary interventions. Some, however, also apply secondary and/or tertiary approaches to the interventions.

The literature review shows that only three papers (11%) have a clear definition of implementation. These papers builds upon either the RE-AIM evaluation framework (Glasgow, Vogt, & Boles, 1999) or Goldenhar and colleagues' intervention phase framework (Goldenhar, Lamontagne, Katz, Heaney, & Landsbergis, 2001). Further 7 % (2 papers) refers to the intervention phase framework defined in the review by Nielsen ad colleagues (Nielsen, Randall, Holten, & Gonzalez, 2010), where implementation is the fourth phase which, however, does not provide a clear definition.

Since there is still a lack of answers to what works in interventions and under which conditions, it is important to determine the concept of implementation to ensure that identified affecting factors are relevant, that the "right" implementation process is evaluated and participants know when an intervention is successful i.e. implemented. In our coming analysis, we derive the papers' perceptions of implementation and define the construct of implementation.

The role of work intensification for stress at work. Risk groups and long-term effects

Christian Korunka (University of Vienna)

The world of work has considerably changed over the last decades. There is a widespread impression of many employees in the current work force that there is evidence of an increased pressure at their work places leading to increases in strain. Public media support such personal impressions by publishing numerous popular reports on increases in burnout, overwork and other themes related to the perceptions of an intensification of work.

Empirical data support at least to some degree these predictions and the personal experiences of many workers. In their seminal studies on work intensification, Francis Green and his colleagues (e.g., Green, 2004) observed patterns of work intensification in Europe especially for the first half of the 1990s. Based on the analyses of representative data sets, they empirically confirmed increases in work intensification. For instance, the percentage of employees who strongly agreed that to the item "My job requires me to work very hard" increased from about 30% in 1992 to nearly 40% at the end of the 20th century.

Besides the work of Francis Green on work intensification in the 1990s the research dealing with this important subject is spotty and heterogeneous. A diverse pattern of empirical data add to quite a mixed picture of the development of work intensification in the last decade. Different definitions of work intensification and measurement issues further add to an inconsistent picture.

Our research group in Vienna developed the "Intensification of Job Demands (IDS)" instrument (Kubicek et al, 2014). The IDS subscale "work intensification" consists of five items measuring perceptions of the need to work at increasing speed, perform different tasks simultaneously, or reduce idle time.

Using this instrument we collected data about work intensification in a series of cross-sectional and longitudinal studies with different samples of service work. The aim of the current presentation is to give an overview of the results of these studies with a focus on longitudinal analyses and the analyses of risk groups.

Using a longitudinal sample of eldercare workers (n=587) in our first longitudinal study (Korunka et al., 2015) we found work intensification negatively related to future job satisfaction and positively related to emotional exhaustion even when controlling the baseline values of work intensification.

In another study in the field of office work (n=628) we found negative effects of increases of work intensification even when controlling for time pressure in the longitudinal sample (Kubicek et al., 2015).

Next, in a two-wave panel study we could confirm that cognitive appraisal of work intensification mediates the observed relationships between work intensification and emotional exhaustion (Paskvan et al. 2016).

In a recent study (Mauno et al., in press) we analyzed both in a large cross-sectional sample (n=4963) and in a longitudinal sample (n=2055) the driving forces behind work intensification (demographic

factors, work-related factors and personal resources). The results show that work intensification remained fairly stable over time. The most consistent antecedents of work intensification (found in cross-sectional and longitudinal data) are schedule control, task variety, ICT use at work, and personal initiative. While schedule control is associated with lower levels of work intensification, all other antecedents are associated with higher work intensification. On the other hand, supervisor support and participate climate were found as protective factors for work intensification.

All in all, our findings confirm that work intensification is an important and still somewhat underestimated stressor in the current world of work. Certain developments in the current world of work, like the increase of flexible working conditions and the intensified use of information and communication technologies may further contribute to increases in work intensification. On the other hand, we could clearly show that well-known elements of good work and organizational design, like job control, supervisory support and participative climate help to protect employees from the negative effects of this new stressor.

2:30–3:45 p.m.

Concurrent Sessions 3

Salon 3 & 4

Qualitative Approaches to the Study of Stress

PAPER SESSION

Coping with Work-Related Stress Among Immigrants from the Former Soviet Union: A Qualitative Study

Mariya Narizhnaya (University of Hartford)

According to the DOL (2018) report, in 2017, 27.4 million foreign-born employees constituted 17.1 percent of the total U.S. labor force. This is an increase from 16.9 percent in 2016.

The report also highlighted a number of disparities. Foreign-born workers were more likely than native-born to be employed in low-skilled occupations. Whereas native-born workers were more likely to be employed in management, professional, sales, and office occupations. Not surprisingly, in 2017, the median weekly earnings of foreign-born, full-time workers ($730) were just 82.5 percent of the earnings of their native-born counterparts (DOL, 2018). Moreover, foreign-born employees experience higher rates of certain work-related stressors, compared to their U.S.-born coworkers. Specifically, immigrants report stress stemming from perceived discrimination at work, acculturation level, job insecurity, downward mobility, and hazardous work conditions (de Castro et al., 2006; Gans, 2009). Data show that difficulty with the acculturation is positively correlated with reports of stress and depressive symptoms as well as substance abuse thus putting many immigrants at high risk for mental health problems (Nicholson et al., 2013; Guarino et al., 2012). This study aims to understand the coping strategies used by immigrant workers who are facing unique challenges. We focus specifically on one under-researched group.

Immigrants from the FSU

Since 1987, a significant number of immigrants from the former Soviet Union (FSU) composed of various ethnic groups, arrived at the United States seeking political freedom and economic opportunities (Hundley & Lambie, 2007). Around 995,000 immigrants from the FSU were living and working in the United States between 2005 and 2009 (U.S. Census Bureau, 2010). To our knowledge, there has been no research exploring coping strategies for work-related stress in this population and what can be done in order to improve the mental health service utilization rates. While being guided by the grounded theory qualitative approach (Charmaz, 2015) we used open-ended questions to explore work-related stressors among immigrants from FSU and to extricate information relevant for mental health providers and public health professionals working with this population.

Sample and Method . Thirty-seven participants ages 18 to 73 were recruited via Facebook and LinkedIn and through snowball sampling. All but nine participants were women. All participants have been born in one of the republics of the former Soviet Union, have had at least one part-time or full-time job or internship in the U. S., and were fluent in English. The participants wrote responses to eight multi-faceted open-ended questions about immigration, meaning of success, stressful experiences in the work environment, coping with these experiences, and mental health services utilization. All questions and responses were provided in English.

Preliminary Results. While the data analyses are ongoing, preliminary results showed that FSU immigrants working in high skilled professions believe that their background afforded them the ability to integrate into the work environment and accounted for their excellent work ethic. The majority of this sample envisions success as being financially stable and having a rewarding career. A small number of participants indicated that success is measured through a balance of personal (family relationships, self-care activities) and professional accomplishments.

Majority of these participants reported that although they enjoy multiple aspects of their job, such as competition, interacting with coworkers, and making a difference in their field, they experience work stress around deadlines, workload, patient care, and lack of support from supervisors. Some disclosed that they felt mistreated by their American colleagues and were passed for promotions due to having an accent, being culturally or ethnically different, or having difficulty with report writing.

Most of the participants reported coping with work-related stress by spending time with their family, talking to their significant others, and exercising. Others reported meditating and listening to music as a way to manage stressful work-related events. A small number of participants reported coping with stress by overeating sweats or drinking alcohol. With regard to utilizing mental health services, some participants indicated that they have attended therapy sessions and found them helpful during difficult times, while others reported stigma and fear around engaging in mental health services. Those who reported successful outcomes related to mental health services indicated that it has been difficult to open up to a stranger initially, but working with a competent therapist, who has been referred by a trusted source (e.g., friend or physician) has helped assuage initial hesitation.

In conclusion, our very preliminary analyses suggest that immigrants from the former Soviet Union experience some of the same occupational stressors that have been identified among other immigrant groups. With regard to coping, this group tends to cope by talking to their families and engaging in healthy activities, while a small number of participants admitted that they engage in unhealthy coping. Results of this study can be used to understand, interpret, and explain culture-specific coping strategies associated with occupational stress in immigrants from the FSU.

Vicarious Trauma in Sign Language Interpreters: Exploring Interpreters' Experiences of Working in Trauma-Influenced Environments

Jesús Barreto Abrams (Gallaudet University)

There is limited empirical research investigating American Sign Language (ASL) interpreters' experiences of trauma in their role in the typical interpreting dyadic or setting (Harvey, 2001). ASL interpreters play a major role in conveying information to Deaf individuals. Interpreters are responsible for conveying important and intimate information, which may lead to long-term emotional experiences,

sometimes putting the interpreter at risk. More specifically, vicarious traumatization is defined as the phenomenon that causes change in a professional experience and inner world as a result of being exposed to a client's traumatic material (Pearlman & Saaktvine, 1995). This experience results in impacting the individual's physical, cognitive, and social being (Baird & Kracen, 2006). Psychologists have long been assessing and treating distress, disturbances, and trauma, but limited research is available on the effects of vicarious trauma. Previous research in this area has primarily focused on therapists' experiences with clients who were victims (McCann & Pearlman, 1990). With time, studies of vicarious traumatization have been applied to various professions, such as nursing, social work, and practicing attorneys (e.g. Adams, Matto, & Harrington, 2001; Levin & Greisberg, 2003; Sinclair & Hamill, 2007). However, there are limited studies investigating the effects of vicarious traumatization for ASL interpreters.

Data was collected via three sources: interviews, a participant's journals, and document analysis. Interviews were conducted with three hearing nationally certified interpreters. The three interpreters recruited were females who self-identified as Caucasian (i.e., European American, and Northern European) ranging from ages 38-years old to 58-years old with 17 - 30 years of experience. The document review was two-fold. The initial part consisted of asking the participants to submit five journal entries after the interview. The researcher provided some guidance, but the participants decided if they were to follow the prompt or to journal on what they wished for the day. The interpreters journaled about their current experiences, past reflections, and some even wrote letters to their younger selves. Four articles were used in the document analysis (Carrick 2015; Hall 2017; Fontes, 2017; and Muller 2013). Two other sources were interview transcripts with interpreters talking about their experiences with vicarious trauma or about their experiences interpreting for trauma survivors. Other resources included consulted were articles written about interpreting with tips, challenges, and experiences on what it's like to interpret for trauma survivors.

The underlying research paradigm was a transformative paradigm using a qualitative approach. Mertens (2010) explains that transformative research attempts to conceptualize research through social justice and human rights for the betterment of society. The data was analyzed using an interpretative phenomenological analysis (IPA). IPA is an experiential analysis used to learn about each participant by looking at all states of the individual including, but not limited to, affective and cognitive domains (Smith, Flowers, & Larkin, 2009). Thematic analysis was used to discover patterns between participants to make sense of their experiences and find general commonalities (Braun & Clarke, 2006). A peer debriefer was used to assist with organizing the themes and to support the researcher in unpacking bias about the topic of vicarious trauma. Seven major themes emerged during the analysis of the data: 1. Self-Care and Coping Strategies, 2. Interpreting strategy, 3. Emotional Reactivity, 4. Oppression and Inequality, 5. Support, 6. Expectations, and 7. Empathic Interpreting.

This study contributed to cross-research between interpreting studies, psychological sciences, and occupational health. This research allows for other clinicians, employers, and researchers to understand the phenomenon of vicarious trauma in other fields not directly working with patients. Supervisors and other interpreters may better understand how to implement healthy coping strategies used by other interpreters with the ultimate goal to assist in a healthier more productive workplace and healthier lives.

Developing community-based health protection and promotion programs to address occupational stressors of immigrant Latinx low-wage workers

Isabel Cuervo (Queens College, City University of New York)

Background. Latino immigrants tend to be employed in low-wage occupations (BLS, 2017), are at higher risk for work-related injuries and illnesses (Steege et al., 2014), and are currently underserved by both occupational safety and health and workplace health promotion programs (Linnan et al., 2008; Steil et al., 2017). Worker participation through joint worker or union and management safety and health committees is associated with improved workplace safety (Punnett et al., 2013). Nevertheless, common low-wage occupations, such as construction laborers and domestic workers, require frequently changing worksites or work in solitary conditions, making the implementation of worksite-based programs even more challenging (Baron et al., 2014). Therefore, there is a critical need to explore how to best reach these workers for health protection and prevention. One approach is to involve community-based organizations that are accessible and trusted community resources. Our previous work demonstrated successful community-level participation to establish programs that aim to reduce work-based health and safety stressors for construction labors working in disaster clean-up and recovery (Cuervo, Leopold, and Baron, 2017). This paper presents findings about subsequent research aimed at identifying similar community-based models to create responsive programs that address work stressors targeting immigrant Latinx workers.

Methods. We conducted 12 focus groups (FGs) as part of two research studies targeting low-wage Latinx immigrant workers between 2016 and 2018: a CDC-funded Workplace Health Research Network (WHRN) pilot study and, a five-year NIH-funded "Safe and Just Cleaners" study. The WHRN study held 5 focus groups with domestic, construction, restaurant, home care and community health workers (N=45) that explored perceptions about how work factors might influence workers' health and well-being and how these factors might relate to healthy eating and active living intervention programs ideas, a programmatic interest of our community partner. The Safe and Just Cleaners study held 7 FGs with domestic cleaners (N=52) to explore working conditions associated with the use of household cleaning products. These studies arose through partnerships between the City University of New York, the Icahn School of Medicine at Mount Sinai, and Make the Road New York, a large NYC community-based service and advocacy organization. The partnerships collaboratively designed the research and co-interpreted data. Community members also provided additional interpretation.

Results. Findings feature the step-wise approach that the partnerships engaged to understand the conditions of low-wage immigrant Latinx workers in order to identify responsive programs that better address their needs for health protection and promotion. Several major themes emerged in the WHRN study that feature the complexities of work-based stressors. Workers reported well-recognized barriers such as workplace food access, time constraints, high work demands and lack of workplace social support. Other emergent themes pointed to potential directions to incorporate into community-based intervention projects. Workers emphasized the central role of communication in the workplace, both as stressors and as potential pathways to improve the work environment and promote health. Additionally, they underscored the importance of work being central to their own concept of health by engendering a sense of purpose and pride, and how this related to family and co-worker relationships. To varying degrees, these positive

notions about work were experienced necessarily alongside negative impacts.

Building on the interest of our community partner, we extended our partnership model to design a community-driven program for domestic cleaners through the Safe and Just Cleaners study. As expected, findings feature adverse health effects that cleaners experience when using cleaning products. However, factors such as cleaners' and clients' perception of product qualities (e.g. effectiveness), time pressure, may be major influences on product choice and work practices. Most cleaners are unable to select the products they use and thus find it necessary to use them in ways that they know will pose more risk. Additionally, findings suggest that with increasing job experience and self-confidence, cleaners enact their agency as much as possible, advocating for themselves with or without client awareness. In its second year, results have thus far led to the creation of a cleaner advisory committee whose goals are to assist in the interpretation of research findings, provide input on recruitment strategies for a 400-cleaner survey to be fielded in Spring 2019, and generate ideas for educational initiatives.

Discussion: The academic and community partners committed to creating long-term participatory mechanisms in order to address work-based stressors. The WHRN study provided a theoretical basis for understanding the multiple pathways that work impacts the health of various kinds of low-wage immigrant Latinx workers. The Safe and Just Cleaners study extended this multi-faceted approach by more deeply exploring the stressors specific to domestic cleaners in order to design responsive intervention programs. Creating equitable and collaborative processes in research and intervention design with a trusted community organization and worker participation allows health promoting and health protecting perspectives to emerge that could be used to better address health and well-being of low-wage Latinx immigrant workers.

Satisfying the Need for Diversity Training for Hispanic Construction Workers and Their Supervisors at U.S. Construction Workplaces: A Case Study

Ahmed Al-Bayati (Western Carolina University)

The representation of the Hispanic construction workforce has substantially increased over the last fifteen years, and it continues to increase. Because of this, the Hispanic construction workforce represents a crucial segment of the U.S. construction workforce. Unfortunately, the safety performance of Hispanic workers has been documented as an area requiring special attention due to the higher rates of fatalities and non-fatal injuries among Hispanic workers. Active cultural differences (ACD) have been identified as one of the causes that negatively influence the performance of diverse construction crews. Therefore, the construction industry strives to adopt novel management techniques to better managing diverse crews. Accordingly, this study illustrates a training module that provides the knowledge to help construction firms overcome the undesirable influences of ACDs and strengthen their desirable effects. The findings strongly suggest that the proposed training is accepted by construction personnel. The proposed training would not only improve the overall safety performance of diverse construction crews but also positively influence other project success factors such as quality, productivity, and crew performance.

Philadelphia Ballroom South

Labor's Methods and Tools

SYMPOSIUM

Chair: David Le Grande (Communications Workers of America,Retired)

Presenters: Marnie Dobson (University of California, Irvine), Peter Schnall (University of California, Irvine), Peter Dooley (National Council for Occupational Safety and Health), Jessica Martinez (National Council for Occupational Safety and Health), Marcy Goldstein-Gelb (National Council for Occupational Safety and Health), Paul Landsbergis (SUNY Downstate)

For many years, labor organizations have been actively involved identifying, resolving, and preventing safety, health, and organizational concerns related to work organization factors and negative health outcomes. The majority of these efforts have been conducted within the collective bargaining system, i.e., contractually-negotiated agreements between employers and unions. This work has involved data collection methods such as talking with represented workers and documenting collected information; observing workers during the performance of their jobs; analyzing collected data and translating findings into proposals for change; introducing these proposals to employers; and negotiating these proposals into the collective bargaining agreement. Examples include physical ergonomics (e.g., changes in work equipment and tool design) and work organization (e.g., changes in work hours as well as how and when work is performed).

Since the late 1970's- early 1980's, several U.S. labor unions have expanded their efforts to include the establishment of working relationships with researchers within academic, government, and public health communities to better identify relationships between poorly designed work organization factors and worker health outcomes. These efforts have resulted in the conducting of many scientific investigations which have led to the identification of work organization factors associated with negative worker health effects as well as decreased performance and productivity. The first panel will feature presentations specific to methods and tools used in conducting scientific investigations with labor unions as well as the use of collected/analyzed data.

The translation of collected scientific data into substantial changes in work organization, i.e., changes that result in improved working conditions, decreased worker health effects, and increased performance and productivity, is necessary to advance the field of work organization and worker health. Several unions and have been able to initiate such efforts with represented employers. The second panel will feature presentations specific to the implementation of research findings on work organization into the workplace and the manner in which the work is performed.

Philadelphia Ballroom North

Organizational Influences on Worker Well-being

PAPER SESSION

Driving Satisfaction: Role Stress, Gender and Job Characteristics as predictors of Jamaican Bus Operators' Job Satisfaction

B'Andra Haughton (The University of the West Indies)

Stressful events have become germane to the human experience. Although several definitions have been developed over the years. One area in which stress of research in which the effects of stress continue to be explored is that of organizational psychology, particularly in avenues of job satisfaction. However, this area tends not to be well explored when it comes to certain occupations such as bus operators.

Bus operators have a high risk, high turnover occupation, which, though essential in society, may lead to job strain for many of the employees as they face job characteristics not seen in the typical work place. They face perceived job strain from numerous factors such as shift work, gender and bus route as well as many others that may lead to role stress, in particular—role conflict, role ambiguity and role overload. While literature tends to show correlations between shift work, gender and stress; the focus tends to be on more saturated fields such as nursing and policing. However, for the bus operator, these perceptions of role stress may also lead to occupational stress and have a negative impact on job satisfaction.

This lack of research is particularly noted in small island nations such as Jamaica. Operators in Jamaica face threat of violence, traffic conditions due to bus route and abnormal sleep patterns due to shift work. Along with these general issues, the national bus system, the Jamaica Urban Transport Company (JUTC), faces heavy competition from privately owned entities such as "mini-buses" and "coasters". High stress faced by Jamaican transport bus operators would represent a major personal and social issue as there are numerous potential consequences. Not only can stress affect the medical and psychological health of the transport workers themselves, but this can lead to lack of focus, ailments on the job and other such occurrences, which can cause accidents and road fatalities where the passengers, other motorists and pedestrians are the victims.

The purpose of this study was therefore to understand the influences of job characteristics, gender and role stress on each other as well as on job satisfaction with regard to bus operators in Jamaica. Consistent exposure to these factors and perceived occupational stress may affect job satisfaction and lead to dissatisfaction as an outcome for these operators. Against this conceptual background, which was primarily informed by Gutek's (2001) Token dynamics, Zimbardo and Ruch's (1980) occupational stress theory, we hypothesized that role stress would mediate the relationship between job satisfaction and other factors such as job characteristics and gender.

To explore this hypothesis, a 53-item questionnaire was distributed to 96 bus operators of the Jamaica Urban Transit Company, who were sampled from 3 depot locations. The questionnaire was comprised of the Job Satisfaction Scale (Spector, 1997; Cronbach alpha = .77) and the Health and Safety Executive Management Standards Indicator tool (α=.87). The data collection was completed in batches at all 3 depot locations. Participants were mostly male (66.3%) with ages ranging from 20 to 60 years with the average age being 40 years (SD=8.73).

Results showed that role stress and job satisfaction were negatively correlated ($r= -.313$, $p<.05$), while other relationships were not statistically significant. The researchers noted that stress and anger management training was being done by the organization in an effort to curb customer service related issues, which could influence how they view their working environment in terms of the assessed variables. These results however suggest other areas of study that may be pursued such as looking at internal workplace job characteristics and the influences of the individual types of role stress such as role conflict and role ambiguity on not only job satisfaction. It also raises the question of effectiveness of stress management training on changing the perception of characteristics of their work environment. However, since the relationship between stress and job satisfaction was supported, it gives insight that there are other areas for stress management training to cover, perhaps areas that we significant to the Jamaican experience. This has produced an avenue for upcoming studies as well as recommendations for moving forward.

Identifying Organizational Policies to Support Breastfeeding Among Working Mothers

Drake Van Egdom (University of Houston)

Breastfeeding benefits children, mothers, and organizations (Gartner et al., 2005). Breastfed children have lower rates of infectious diseases, diabetes, and obesity (Gartner et al., 2005). Breastfeeding mothers have decreased risk for breast cancer and osteoporosis (Gartner et al., 2005). Healthier, breastfed children lower maternal illness absenteeism (Cohen, Mrtek, & Mrtek, 1995). The American Academy of Pediatrics (AAP) recommend at least six months of exclusive breastfeeding (Gartner et al., 2005). However, nearly 60% of women who worked during pregnancy return to work within three months of birth (Laughlin, 2011).

Working mothers must reconcile job demands with breastfeeding. In this study, we aim to elucidate if organizational policies buffer mothers from occupational characteristics to support breastfeeding behaviors. We examine three breastfeeding behaviors: breastfeeding initiation, breastfeeding duration and work affecting feeding.

Based on job demands-resources theory, we first postulate that job demands will negatively affect breastfeeding (Bakker & Demerouti, 2017). We will investigate work hours, physical job conditions, and other job demands that may decrease breastfeeding. Full-time work hours decrease breastfeeding behaviors (Mandal, Roe, & Fein, 2010). Mothers with more hazardous work conditions are less likely to intend to and initiate breastfeeding (Spitzmueller et al., 2018).

Hypothesis 1: Job demands (hours/week managerial duties, physical conditions, and automation/repetition) will negatively relate to breastfeeding behaviors.

Second, we postulate that the above relationships will be buffered by company size—large companies can offer more family-friendly resources (e.g. flextime, on-site childcare) that buffer against demands and support breastfeeding (Adkins, Samaras, Gilfillan, & McWee, 2013).

Hypothesis 2a: Company size will positively relate to job resources (flextime, extended breaks, on-site childcare, facilities, paternity leave, job autonomy, care work).

Third, the mother's job resources will moderate the relationship between job demands and the mother's breastfeeding behaviors (Spitzmueller et al., 2016; Spitzmueller et al., 2018). Mothers with

higher job autonomy are more likely to intend to and initiate breastfeeding (Spitzmueller et al., 2018). This study will investigate the effectiveness of job resources, especially family-friendly policies, for part-time versus full-time employees on breastfeeding.

Hypothesis 2b: Job resources (flextime, extended breaks, on-site childcare, breastfeeding facilities, spouse's paternity leave, job autonomy, and care work) buffers the relationship between work hours and breastfeeding.

Finally, we hypothesize that job resources will mediate company size's moderation of the relationship between job demands and breastfeeding. Company size is a distal moderator, whereas job resources more proximally moderates work hours and breastfeeding. We will use mediated moderation to show larger companies have more job resources, which buffer job demands' negative relationship with breastfeeding (Appendix A).

Hypothesis 2c: Company size mediates the moderating effect of job resources on the relationship between work hours and breastfeeding.

Method and Analyses. To test our hypotheses, we will use data from the UK Infant Feeding Survey, a three-stage panel study. The study sampled 30,760 births from all births from August-October 2010. 10,768 mothers completed all three surveys at six weeks post-birth (T1), five months post-birth (T2), and nine months post-birth (T3). The data collection process was completed, but data has not been analyzed. Occupation variables (e.g. job autonomy, care work, physical job conditions, and automation/repetition) will be extracted by matching job titles to O*NET entries (Spitzmueller et al., 2018). Hypotheses will be tested by applying the mediated moderation approach as suggested by Liu, Zhang, & Wang (2012; for a similar approach see Liu et al., 2017).

Practical implications. This study will show the efficacy of job resources on addressing work hours, so that women can engage in more breastfeeding behaviors. With 60% of women returning to work within 12 weeks of birth, companies can use these results to understand how job characteristics and organizational policies can affect breastfeeding behaviors. Organizations can adapt their policies to ensure women can breastfeed when they return to work. Organizations can disseminate information to pregnant women on the organizational policies and the effect of occupational characteristics on breastfeeding.

Home-based telework and presenteeism in Europe: A multi-level study based on the European Working Conditions Survey

Sophie-Charlotte Meyer (Federal Institute for Occupational Safety and Health, Germany)

Problem. Presenteeism, defined as working despite illness (Johns, 2010), is a highly prevalent behavior associated with far-reaching consequences for individuals and organizations. Research indicates that presenteeism results in enormous productivity loss and costs for organizations (Collins et al., 2005; Goetzel et al., 2004) but is also detrimental for individual health (Skagen & Collins, 2016).

Societal, economic and technological developments lead to changes in employees' working life. Especially, flexible work arrangements such as working from home (home-based telework) are currently gaining importance and increasingly entering the political debate, as improvements in information and communication technology facilitate their usage (Tavares, 2017). These changes may also affect presenteeism. Employees, working from home, do not have to travel to work and do not infect their colleagues in case of contagious illness (Irvine, 2011). Thus, telework may facilitate engaging in presenteeism. Furthermore, telework is often accompanied with greater responsibilities and higher demands on self-management, raising the risk for self-endangering behavior such as presenteeism (Dettmers, Deci, Baeriswyl, Berset, & Krause, 2016).

As research focusing on this relationship is still scare, we make a first step and investigate whether home-based teleworking is related to presenteeism. We base our analyses on a large European sample and make thus use of country-specific differences in the amount of telework (Messenger et al., 2017) to explore its association with presenteeism. Further, we assess why the relationship between telework and presenteeism differs across countries, by focusing on country-specific conditions, such as the level of occupational safety and health regulations or economic growth.

Procedures. We base our analyses on the 6th wave of the European Working Conditions Survey (EWCS) 2015. We restrict the sample to a subgroup of about 27,000 employees aged 15-65 years and living in a EU-28 country with valid data on the variables included in the analyses.

As outcome, we apply two different measures indicating presenteeism. Based on the question "Over the past 12 months did you work when you were sick?" we generated an indicator variable that equals 1 if the respondent answered yes and 0 if the respondent answered no or wasn't sick. The second measure focuses on the number of working days showing presenteeism, while those reported to have not worked when sick were coded with a zero and individuals reporting not having been sick were excluded. As main predictor, we focus on telework captured by the question "Have you worked in each location during the last 12 months - Your own home?" with a response scale taking the frequency into account: daily, several times a week, several times a month, less often and never. In the main analyses, we include telework by dummy variables for each of the different categories, taking "never" as reference category. We include different sets of covariates: individual characteristics (1) such as gender, age-group, country, educational level (ISCED), occupational group (ISCO_08 2 digit), and industry sectors (NACE_1), individual's self-rated health status (2) and company-related characteristics (3).

Analyses. In a first step, we explore the raw relationship and perform descriptive univariate analyses by plotting the country-specific share of telework and presenteeism. Second, we take the pooled sample and perform multilevel regressions with random intercepts in order to take the nested structure of the data into account. We include the different sets of control variables and country-specific macro-variables.

Results. The descriptive analyses at the country level suggest that presenteeism is more common in countries with a high share of employees working from home. Taking the country-differences into account and controlling for different individual and company-related characteristics, multilevel regressions indicate that home-based telework is strongly and significantly related to presenteeism: The probability of working when sick at least once is about 12-13 percentage points higher for those working at least once a month from home as compared to those reporting to never work from home.

Analyses investigating the country-specific differences in the relationship are currently in progress.

Conclusions / practical implications. Our results show that home-based telework is positively associated with presenteeism. On the one hand, organizations as well as the social systems of a country might benefit from employees working at home instead of attending work in cases of contagious diseases, mitigating the risk of contagion (Rousculp et al., 2010). One the other hand, in most cases presenteeism is detrimental for individual health in the long run (e.g. Skagen &

Collins, 2016). Thus, it is important to design telework in a way that does not encourage self-exploitation.

Between Flexibility and Five-Star Ratings: A Qualitative Study of the Work Health and Safety of On-Demand Drivers

Molly Tran (Colorado School of Public Health)

Problem "Gig" or "on-demand" work, a unique subset of contingent work, has grown markedly since the most recent recession (Bernhardt, 2014). In a nationally-representative survey conducted in July 2016, the Pew Research Center found 8% percent of respondents reported earning money using digital platforms to take on a job or task in the previous year. One of the largest single groups of on-demand workers—2%—is in driving and ridehailing services such as Uber and Lyft (Smith, 2016).

While there are a variety of employment arrangements within the on-demand economy, most of workers are considered independent contractors. The majority of these companies do not provide benefits such as health or workers' compensation insurance to those providing the services under their name.

There is currently little systematically-collected information regarding the unique Total Worker Health aspects of on-demand work which could guide regulation of this kind of work as well as health promotion efforts.

The objectives of this pilot were

- To provide new insights into factors affecting on-demand drivers' occupational health and safety.
- To obtain information about what on-demand drivers consider their most important occupational health-related concerns.

Procedures. We conducted a qualitative study of the occupational health and safety-related experience and concerns of on-demand drivers using semi-structured, open-ended, one-on-one interviews with on-demand drivers summoned by mobile phone app. After introducing the study and obtaining verbal informed consent, the research assistant asked 8-10 open-ended questions in a pre-set order, addressing demographics, occupational safety, injury and illness, and working conditions.

Analyses. Interviews were audio-recorded and transcribed verbatim. Using standard qualitative analysis software three investigators independently analyzed the transcripts for recurring themes and sub-themes related to the study topics using the constant comparison method (Glaser & Strauss, 1973). Drivers' responses were coded across five domains: (1) Health (2) Safety (3) Stress (4) Sleep (5) Positive Aspects of Job.

Results. We interviewed 20 on-demand drivers. Three drivers declined to be interviewed.

Overall, drivers did not express much concern about the effect of their work on their health. The most commonly mentioned concerns were the sedentary nature of the work and the difficulty of eating healthily while working. Many also spoke of prolonged postures in the car either causing new or exacerbating preexisting musculoskeletal pain. The drivers expressed a strong sense of having assumed responsibility for the health risks they face and for protecting their own health and safety.

Regarding safety concerns, drivers most often mentioned the risk of a motor vehicle crash or of assault by a passenger. In contrast to the way they talked about their health, drivers revealed a passivity towards safety. Many viewed it as a present risk, but one against which they were powerless to do much to protect themselves

The most commonly-mentioned stressors were dealing with passengers—locating them and meeting passenger expectations and demands in order to keep their driver ratings up. They were also stressed by financial pressures, especially getting enough rides, which was complicated by the very limited information the platforms share about how rides are assigned. They frequently described balancing driving in situations in which they felt unsafe—nighttime driving or picking up passengers in areas they felt to be dangerous—with getting enough work and keeping their ride acceptance rates high.

Among this population, sleep was not a major concern, with most saying driving did not affect their sleep. However, drivers did frequently refer to fatigue either explicitly or in the context of protecting their health by trying to stay alert and vigilant while driving.

The most commonly mentioned positive aspect of the work was flexibility. Drivers also liked not having a boss to report to and not having to work in an office setting. Drivers valued the conversations and socialization that came from interacting with passengers. Many noted the importance of these interpersonal interactions for their own well-being and the meaningfulness of their work.

Practical implications. As the gig work model and the use of algorithmic management grows and spreads throughout disparate job sectors, a Total Worker Health that addresses the specific health and safety issues associated with this model will be necessary to effectively promote and protect worker health and wellness.

Conclusions. Among this sample of on-demand drivers, on-demand ridehailing work offered workers some characteristics which promote Total Worker Health, including flexible hours and high levels of perceived job control. However, there are also characteristics the work—information asymmetry, lack of true job control, and passengers performing a management function—which were sources of occupational stress.

Commenters as Co-workers: On-Demand Drivers' Use of Online Forums to Address Occupational Health and Safety

Molly Tran (Colorado School of Public Health)

Problem "Gig" or "on-demand" work, a unique subset of contingent work, has grown markedly since the most recent recession (Bernhardt, 2014). In a nationally-representative survey conducted in July 2016, the Pew Research Center found 8% percent of respondents reported earning money using digital platforms to take on a job or task in the previous year.

There is currently little systematically-collected information regarding the unique occupational health aspects of on-demand work which could guide regulation of this kind of work as well as health promotion efforts.

The objectives of this pilot were

- To examine how on-demand drivers use the forums to and seek support and occupational health information
- To obtain information about what on-demand workers in driving and delivery services consider their most important occupational health-related concerns.

Procedures. We conducted a digital ethnography of online forums frequented by workers for on-demand app-based platforms (E.g. Uber, Lyft, Amazon Flex, UberEats). Forums were identified by Google and Facebook search and two main sites were chosen based on forum topic area focus and posting activity level. All thread titles for a 12-month period were retrospectively reviewed for any

Analyses. Threads were imported into MAXQDA software and coded by the constant comparison method by two investigators.

Investigators met regularly to discuss coding and to build codes into subthemes and themes.

Results. We reviewed 1,271 threads on two websites.

Workers used the forums to seek support, self-declare their intentions to make changes, and to seek medical and logistical advice. Health concerns were discussed largely in the context of advice-seeking about how to remedy them. Safety concerns were often couched in humor or framed as a "crazy story."

The most significant occupational health concerns were included musculoskeletal pain and exposures to sick passengers. Workers shared advice about accessing medical insurance and care, home remedies for injuries, modifications to footwear or seats and preventive health measures.

The most commonly-expressed safety concerns were risk of assault and fatigued driving. These were mostly expressed through advice-seeking on how to defend against these risks. For safety, this included frequent discussions of self-defense tactics including talk, driving maneuvers and carrying lethal and non-lethal weapons. For fatigued driving, this included advice on how to stay awake spanning from recommendations to stop driving to recommendations to use substances including caffeine and legal and illicit pharmaceuticals.

Occupational stressors included financial stress and dealing with passenger demands. These were often expressed in terms of the workers' relationship to the platforms. Concerns about getting enough work were expressed in relation to the information asymmetry inherent in this work arrangement. Workers sought and shared information about how to get assignments and workarounds to the algorithms running the apps to overcome this. Stressful passenger interactions were similarly placed in the context of the implied service expectations of the platforms inherent in the rating system, enforced by passengers, and which controls workers access to work. Workers sought advice about balancing safety concerns or dealing with sexual harassment with protecting their ratings. They also discussed their ambiguous legal status in these situations and anticipated lack of support from the platforms as stressors.

Practical implications. Online forums are a source on-demand workers rely on for information and may be a way for researchers and advocates to further understand and intervene with this hard-to-reach occupational population.

Conclusions. On-demand driving and delivery workers use online forums to overcome their highly atomized workplaces and seek medical and logistical advice from fellow workers. They reveal the occupational health and safety concerns of a subset of workers who use these forums and how they currently cope with these issues in the absence of traditional institutional supports.

Independence Ballroom B

CEP

Fitting the Intervention to the Context: Intervening to Improve Employee Well-being in Different National and Occupational Contexts

Karina Nielsen (University of Sheffield)

Participatory organisational interventions aim to improve working conditions and employee well-being through changing the way work is organised, designed and managed, and employees and managers jointly develop and implement the changes to work practices and procedures (Nielsen & Noblet, 2018). Although this type of interventions is generally recommended as they address the sources of poor well-being, i.e. working conditions (ILO, 2001; EU-OSHA, 2010), reviews have found inconsistent effects (Richardson & Rothstein, 2010). It has been argued that a one size fits all and a lack of understanding of the context and the implementation processes may be one part of the explanation as to why these interventions do not always achieve their intended outcomes (Nielsen & Miraglia, 2017; Nielsen & Noblet, 2018). Interventions are implemented in many different national and occupational context and it is important to understand how interventions can be fitted to the organizational context in order to develop an intervention process that takes into account the characteristics of the organization. When considering the characteristics of the organizational context it is important to understand the national context and the specific organizational context, i.e. whether we are trying to improve the characteristics of low-wage workers or university staff. This type of interventions relies on participants changing their behaviours and accepting the behaviour change of others and we need to understand how we can motivate and equip participants to change their behaviours and the behaviours of others.

In the present symposium, we present three different examples of intervention fit, all with the focus on improving employee health and well-being but each conducted in different national and occupational settings. Our first presenter will present an intervention conducted in the US, in a small construction sub-contractor company. In this study, the constraints of the context play a particular challenge as workers on a given worksite are employed by different companies and move from site to site. Also workers experienced under great time pressure which makes it difficult to develop participatory processes. Our second presenter will introduce us to another study conducted in another low wage industry in the US, i.e. in the food service industry. In this particular setting, contextual constraints include high time pressure but workers remain in the same location. To develop and in-depth understanding of the constraints and opportunities for intervention in this setting, formative research using focus groups and interviews was used to identify three key areas of intervention activities. Through a participatory process, local canteens adapt and adjust intervention activities to the specific needs of their unit. In the third presentation, we will learn about the experiences of developing an intervention aimed at reducing incivility in the hospital setting. Interventions are challenging in this setting due to time pressures, demands for patient contact making it difficult to take time out for work tasks and limited human resources in terms of their experiences managing group processes.

Salon 5 & 6

Economic Factors to Workplace Health Outcomes

PAPER SESSION

I Can't Afford to Relax: Relating Financial Adequacy to Recovery and Health

Kristen Black (The University of Tennessee at Chattanooga)

Engaging in relaxation and recovery outside of work has been associated with benefits for employee health and well-being (Fritz et al., 2010; Sonnentag & Fritz, 2007); however, some of the methods of recovery may not be as accessible to workers in certain contexts. In particular,

workers with low wages or those working multiple jobs may experience difficulty with finding time for (or being able to truly enjoy) recovery experiences. Low income workers and those experiencing financial strain have been found to be at risk for experiencing higher rates of physical and mental health concerns (e.g., Baron et al., 2014; Penden, Rayens, Hall, & Grant, 2004). Workers who feel their income is insufficient may experience reduced well-being for a variety of reasons. In the framework of Effort-Reward Imbalance (ERI; Siegrist et al., 1986), stress results when those who invest heavily in their work feel that they are not sufficiently rewarded in proportion to their effort. Those who work multiple jobs or receive a low income could feel a heightened sense of imbalance. Beyond ERI, Conservation of Resources (COR) Theory (Hobfoll, 1989) posits that individuals need resources in order to cope with work demands. For those in difficult financial situations, finding time to replenish basic resources through recovery experiences may be difficult to impossible. Further, those workers may feel greater remorse when they take time to relax if their financial resources are perceived as insufficient.

The present study sought to explore: (1) whether one's perceived financial situation was associated with recovery experiences and remorse for relaxing, and (2) the mechanisms by which one's financial situation could be related to health outcomes, namely through relaxation remorse and recovery experiences. These questions were addressed two studies of Mechanical Turk (MTurk) workers. In a pilot study, 248 MTurk workers responded to items assessing perceptions toward relaxation. These items were targeted at relaxation remorse, or feelings of guilt for not engaging in work-related demands during off-work time (Jennings, 2017). Participants were also asked to describe why they responded to the items in the way they did. In a nontrivial number of these responses, individuals expressed that they did not relax because they must continue to work to earn more money for themselves and/or their families, or they were fearful of financial consequences if they chose to relax.

While these responses reflected a minority of the responses given, the sentiments highlighted an important concern: some individuals work excessively and do not engage in recovery activities out of necessity, not preference. Following the results of the pilot study, a measure of perceived income adequacy (PIA; Sears, 2008) was included in a longitudinal data collection involving MTurk workers (Time 1 N = 1,077; Time 2 N = 751; separated by two months). PIA was included along with measures of relaxation remorse (Jennings, 2017) and recovery experiences (Sonnentag & Fritz, 2007) at Time 1; measures of mental and physical health were assessed at Time 2 (depression, Spitzer, Kroenke, & Williams, 1999; anxiety, Spielberger, 1983; Physical Health symptoms, Spector & Jex, 1998).

PIA was associated with lower relaxation remorse and more recovery activities at Time 1 (Table 1). A series of univariate and multivariate regressions were conducted examining PIA, relaxation remorse, and recovery experiences as predictors of health outcomes at Time 2 (See Table 2). All variables were significant predictors of health outcomes, though the relationships with physical health symptoms were opposite to expectations. PIA and relaxation remorse were unique predictors in of all health outcomes in the multivariate models; mastery and control experiences were also unique predictors of the mental health outcomes.

We tested a series of mediated models where PIA was indirectly associated with health through two mediators of relaxation remorse and recovery experiences using PROCESS for SPSS (Hayes, 2012; See Figure 1 for conceptual model). Table 3 summarize the bootstrapped confidence intervals. Relaxation remorse partially mediated the relationship between PIA and all health outcomes. Further, mastery and control experiences helped explain some of the relationships between PIA and mental health outcomes. There was support for small, but significant indirect effects in two of the three-path models, including relaxation remorse as the first mediator and mastery and control as the second mediators.

The results provided evidence that perceiving one's income from work as inadequate may be associated with fewer recovery experiences and more remorse for relaxation that does occur. Both PIA and the recovery/relaxation remorse variables were associated with health variables. Further, our results indicated that much of the relationship between PIA and health outcomes may be attributed to individuals feeling remorse when they do relax. The results of the present study highlight an area for further research, to determine how recovery efforts may be difficult for those who are experiencing financial concerns.

Are Values Valuable? Individual Difference Moderators on the Effects of Economic Stress on Job Satisfaction

Elyssa Johnson (Clemson University)

Description of the Problem. Income is perhaps the most critical resource that an individual gets from their job, as it is vital to acquire many other resources vital to contemporary living. Therefore, potential lack of income and financial resources is a source of stress for individuals. In fact, the American Psychological Association reports that over the past ten years the economy and money concerns have been a top three source of stress for Americans, highlighting the importance of research on economic stress (APA, 2017).

A great deal of research has linked economic stress to health outcomes (Sears, 2008). However, there are some important remaining gaps in the literature. First, few studies have examined organizational outcomes of economic stress, leading to a call for research on how income relates to the workplace (Leana & Meuris, 2015). Second, there is a need for more research on the theoretical mechanisms linking economic stressors to any outcomes. Third, individual differences related to money such as, materialism and equity sensitivity in the study at hand, have not received enough attention, especially in relation to occupational health (Sinclair & Cheung, 2016).

Given these issues, this study contributes to the literature by examining the relationship between economic stress and job satisfaction. Specifically, we study the mediating effects of financial strain on the relationship between economic stress and job satisfaction as well as the moderating effects of materialism and equity sensitivity on these relationships. Further, this study uses a subjective measure of economic stress, perceived income adequacy, at current, near future and distant future time points to assess the impact of time based perceptions of stress on organizational outcomes.

Procedure. This study utilized data collected from a longitudinal study completed on Amazon's Mechanical Turk that assessed participants on a variety of work, health, and economic-related items at two time points. A total of 1,541 participants from a variety of occupations completed the first round of data collection. Out of the Time 1 participants, 686 returned for the second wave of data collection which occurred three months after the first round of data collection. Using MTurk allowed for a diverse sample from a variety of career fields to best represent the overall population (Buhrmester, Kwang & Gosling, 2011).

As an incentive for completing each wave of the data collection, each participant received $4 upon successful completion of the survey.

At time one, measures assessing perceived income adequacy, equity sensitivity and materialism were completed (Cheung, 2014; King & Miles 1994; Richins & Dawson, 1992). At time two, measures assessing financial strain and job satisfaction (MOAQ-JSS) were completed. Additionally, at both time points demographic questions such as age, gender, marital status and number of dependents were administered.

Results. Bivariate correlations (Table 1) showed that current, near future and distant future perceived income adequacy were all negatively related to financial strain. In addition, all three time points of perceived income adequacy were all positively related to job satisfaction. Mediation results (Table 2) showed support for the partially mediated relationship between current, near future and distant future perceived income adequacy and job satisfaction as the direct and indirect pathways were both significant

We used moderated regression analyses to test whether materialism moderated the relationship between perceived income adequacy (all three time points) and job satisfaction (Table 3). In addition, to determine whether equity sensitivity moderates the relationships between perceived income adequacy and both financial strain and job satisfaction, we performed moderated multiple regressions for the interaction between equity sensitivity and each time point of perceived income adequacy (Table 4). None of these results were significant.

Conclusions. The purpose of the proposed study was twofold; it both investigated the effects of perceived income adequacy at three time points and examined whether materialism and equity sensitivity changed the relationships between income adequacy and financial strain on job satisfaction. Additionally, this study furthers the way perceived income adequacy and other subjective measures of economic stress are understood and the impact of subjective economic stress on both financial strain and organizational-related outcomes.

The present study sought to address gaps in the economic stress literature and answer calls for research on how income impacts workplace behaviors and cognitions. Going beyond just showing that subjective measures of economic stress are relevant at the current time point, this study shows that future perceptions of income can be important as well when considering levels of financial strain and job satisfaction. Further, this study showed that financial strain acts as a mediator between perceived income adequacy and job satisfaction. In this finding, the affective response of financial stress is reliant on perceived income adequacy to be salient enough to lower feelings of job satisfaction. Last, while not significant, this study used equity sensitivity and materialism as moderators of the relationship between perceived income adequacy and job satisfaction.

The Influence of Performance Pay on Alcohol and Drug Use

Benjamin Artz (University of Wisconsin Oshkosh)

Performance pay can serve to align the interests of workers and their firms. This can improve profits to the firm and earnings to the worker. Yet, performance pay has also been associated with a long list of unintended negative consequences. These unintended consequences are particularly important when they impact those outside the employment relationship. As substance use generates enormous costs to society that are not fully borne by the worker or the firm, we examine the influence of performance pay on substance use.

Following the literature, we assume that performance pay creates incentives to exert effort, minimize breaks, take risks and work longer. It also inherently generates earnings uncertainty that is borne by the worker. We appeal to the medical literature to argue that this stress, exhaustion and uncertainty may lead to the coping behavior of substance use. Our hypothesis that performance pay should be associated with greater substance use receives support in our pooled data from the National Longitudinal Survey of Youth (1997 cohort). Yet, we recognize that this association may reflect sorting by workers into both performance pay and substance use and not reflect causation. Thus, we first include proxies for the two primary sources of anticipated sorting; ability and risk preferences. This leaves the association in place. We then estimate worker fixed effect models that also confirm the association. These models hold constant the time invariant worker characteristics that might cause sorting (potentially including ability and risk preferences among others). We recognize that there may still be sorting based on time varying characteristics and so estimate match (employer-employee) fixed effects models. The variation in these models is driven by the employer changing performance pay receipt for on-going employees. This removes a potentially important element of worker sorting. Critically, the large and statically significant influence of performance pay remains.

We undertake a series of robustness checks. First, we divide the sample by race and gender. We confirm that the influence of performance pay persists for women and for white men. The results are attenuated or even absent for black men. We speculate that the association between performance pay and workplace stress may differ for black men because the relative strength of stress associated with performance pay is smaller and because performance pay may reduce perceptions of discrimination. Yet, we recognize that these are only speculations. This clearly remains an area for further research: both to confirm the heterogeneity in other data sources and to explain its cause.

Second, we grew concerned by earlier evidence from the Netherlands that isolated a strong relationship between performance pay and SSRI antidepressants. We do not have such data but we have self-reported mood data. Our estimates with these data suggest that self-reported depressive moods are clearly associated with increased substance use. Despite the smaller data set that includes the mood data, the role of performance pay is essentially unaltered by including the mood indicators. Indeed, we confirm that the mood indicators are largely uncorrelated with performance pay. Thus, we continue to stress the situation role of exhaustion, stress and work-home conflict as a likely source of coping through substance use.

Finally, we show that the results are unchanged by removing bar and restaurant workers. These workers often receive large tip incomes (a form of performance pay) and work in environments often uniquely oriented toward consumption of alcohol. It is reassuring that they are not driving the results.

We reiterate in closing that we do not show that performance pay is harmful to workers, firms or society. Instead, we suggest that any balancing of benefit and harm should likely include the elevated use of alcohol and illicit drugs. We recognize that even this elevation may make for complicated welfare judgements. Thus, Bray (2005) shows that moderate alcohol use does not reduce returns to education and Ullman (2014) argues that absences due to sickness actually decline following the legalization of medical marijuana in several US states. Yet, the overall consequences of substance use have been associated with enormous societal costs and those costs, like those associated with risk of injuries and health deterioration should be kept in mind when evaluating performance pay.

Independence Ballroom A

The Importance of Work-Family Support for Caregivers

PAPER SESSION

Financial and Employment Policy Preferences among Employed Cancer and Non-Cancer Caregivers

Margaret Longacre (Arcadia University)

The many Americans (1.7 million) expected to receive a cancer diagnosis in 2018 (Siegel, Miller, & Jemal, 2017) will experience physical and psychosocial impairments (Fodeh et al., 2013; Lazenby, Dixon, Bai, & McCorkle, 2014). As such, these patients will likely require assistance from relatives or friends—family caregivers—who perform varied roles, such as providing nursing-related care, monitoring symptoms, and advocating for patient needs (Hunt, Longacre, Kent, & Weber-Raley, 2016). Cancer caregivers provide 33 hours of care per week on average, and for some (32%) the time spent providing care within a week equates to a full-time job (Hunt et al., 2016).

Many caregivers are also employed while providing care and experience disruption in employment. Caregivers might work fewer hours or retire early (de Moor et al., 2017; Longacre, Valdmanis, Handorf, & Fang, 2017), especially if providing high burden care or assisting the patient with many Activities of Daily Living (ADLs) (Longacre et al., 2017; Paulson, Bassett, Kitsmiller, Luther, & Conner, 2017; Van Houtven, Coe, & Skira, 2013). In the U.S., the Family Medical Leave Act (FMLA) remains the only federal law allowing caregivers who wish to temporarily leave work to provide care to a relative with cancer (i.e., a spouse/partner, child, or parent). However, this policy lacks universality for all workers and leaves states to modify or supplement the policy to address shortcomings (e.g., unpaid leave) (Yang & Gimm, 2013). State governments or employers are left to institute policies to assist employees, while discussion about other forms of support (tax credits) have been increasing. Few studies indicate cancer caregivers' preferences for policy support to maintain employment or be supported financially. Thus, this proposed paper will highlight the current state of policy support for caregivers and present data characterizing cancer caregivers' and non-cancer caregivers' preferences for policy support.

Procedures/Methods. This secondary analysis is drawn from the National Alliance for Caregiving's (NAC) Caregiving in the U.S. dataset, a nationally-representative online probability-based panel study of unpaid adult (i.e., age 18 and older) U.S. caregivers. These data were the basis for their "Caregiving in the U.S. 2105" report as well as their 2016 report entitled "Cancer Caregiving in the U.S.: An Intense, Episodic, and Challenging Care Experience." The data were collected late 2014 using GfK's probability-based online KnowledgePanel®. Additional information about the "Caregiving in the U.S." study and methodology is available at: http://www.caregiving.org/caregiving2015/. This study examines the responses of 111 caregivers who indicated that cancer was the main problem or illness underlying why their family member or friend needed care, with study weights applied. We compare these cancer caregivers to those of "non-cancer caregivers" or those who reported providing care to an adult family member or friend for a primary reason other than cancer. Thus, the total sample includes 111 cancer caregivers and 1,164 non-cancer caregivers. For this purposes of this study, we stratify based on employment status while providing care.

Measurement. Caregivers were asked policy-related questions about workplace discrimination—"Would you support banning workplace discrimination against workers who have caregiving responsibilities?" (yes, no, not sure, refused by not selecting an answer)—and about policies to support caregivers financially—"Below are some ways that people are proposing to help caregivers financially. Which one would you find/have found most helpful?"...(An income tax credit to caregivers, to help offset the cost of care; a partially paid leave of absence from work, for caregivers who are employed; a program where caregivers could be paid for at least some of the hours they provide care; not sure; refused by not selecting an answer).

Analyses. Analyses are descriptive in nature, including frequencies and bivariate comparisons. The bivariate comparisons included t-tests for means with equal variances and independent z-tests for proportions (unpooled) were used. Statistical significance was set at $p < .05$. Weights were applied for analyses.

Results. Most (83%) of the employed cancer caregivers indicated supporting banning workplace discrimination against workers who have caregiving responsibilities. The employed cancer caregivers indicated that the following would have been most helpful for them: A program where caregivers could be paid for at least some of the hours they provide care (29%); an income tax credit to caregivers, to help offset the cost of care (26%); a partially paid leave of absence from work (17%); and 29% answered not sure. 36% of all caregivers (cancer and non-cancer) who were employed were most in favor of an income tax credit, which was significantly higher than the non-employed caregivers (cancer and non-cancer caregivers).

Conclusions. To enable adequate financial support for caregivers, provide choice in care, and possibly reduce burden while providing care must consider caregiver preferences. These findings suggest a need for options to access financial support while caregiving.

Shifting the Burden: A Study of the Effects of Care-recipient Age on Caregivers

Kyle Page (South Dakota State University)

Although there is literature focusing on the experience of caregivers (e.g., Lilly, Laporte, & Coyte, 2007), there is a dearth of research examining the effects that caring for different types of recipients has on caregivers. It is estimated that 43.5 million adults in the United States provide unpaid care (National Alliance for Caregiving, 2015), which is likely to increase as advances in medicine continually increase life expectancy (DePasquale et al., 2015). The landscape of who provides care has also changed as women's labor force participation has expanded significantly since the 1970s (U.S. Department of Labor, 2017), balancing caregiving roles between males and females. Research to this point has only suggested the possibility that caregiving experiences may differ depending on the age of the care-recipient, so the primary aim of this study is to examine the relationship between care-recipient age and caregiver burden, work-family conflict, family-work conflict, job satisfaction, and turnover intentions.

When considering that individuals of different ages require different degrees of care, it is likely that burden-related differences will be found by care-recipient age groups (i.e., childcare, adultcare, eldercare, and mixed-care). For example, following mortality salience literature (e.g., Martens, Greenberg, Schimel, & Landau, 2004), emotional burden may be higher for those caring for the elderly as a fear of losing that person in the near future may be more prevalent. The role reversal of caring for someone who once provided the caregiving may be emotionally

taxing, watching loved ones lose both physical and mental capabilities that they once had (Albert & Brody, 1996; Scharlach, 1994). Physical burden may be less for those caring for adults as higher levels of self-care or independence may be prevalent, whereas time dependence burden may be higher for those caring for children who are unable to yet care for themselves in most capacities. In a survey conducted by the National Caregiving Alliance and AARP (2015), six out of ten employees reported that caregiving responsibilities affected their work and created a need to adjust their work schedule, take a leave of absence, pass up a promotion, or retire earlier than planned. A large body of research has shown the negative impact of caregiving at the individual (i.e., diminished physical well-being) and organizational (i.e., increased absenteeism) level (National Alliance for Caregiving, 2009; Scharlach & Fredrisken, 1994). Based on the Conservation of Resources theory (COR; Halbesleben, Neveu, Paustian-Underdahl, & Westmas, 2014; Hobfoll, 1989), high caregiving demands may deplete employee psychological resources, which can lead to poorer work outcomes (Zacher, Jimmieson, & Winter, 2012). COR theory proposes that important resources (e.g., time, energy) are lost when individuals have to juggle work and family roles (Hobfoll, 1989). As such, higher caregiving demands lessen employees' psychological resources to successfully invest in work-related responsibilities (Stephens, Townsend, Martire, & Druley, 2001).

A sample of 1,007 unpaid caregivers were categorized into seven groups: childcare (0-2 years; 3-5 years; 6-12 years; and 13-17 years), adultcare (18-49 years), eldercare (50+ years), or those with multiple care-recipients. One-way ANOVA with Tukey post-hocs and Cohen's D were used to examine differences in caregiver outcomes for men and women separately. Group differences were found in all five types of caregiver burden and work-family conflict (time). Differences for men were found in three of five types of caregiving burden and differences for women were found in four of five types of caregiving burden. Further, differences in turnover intentions were found for women. Additional T-tests revealed gender differences. Men experienced lower levels of: (1) time-dependence burden for childcare: 0-2 years, eldercare, and mixed-care; (2) developmental burden for mixed-care; (3) physical burden for childcare: 6-12 years and mixed-care; (4) social burden for mixed-care; (5) FWC-time for childcare: 6-12 years; and (6) turnover intentions for mixed-care. Men experienced higher levels of: (1) WFC-strain for adultcare; and (2) turnover intentions for adultcare.

Then analyses were tested with control variables which include care-recipient disability/illness, use of flex-time, comparative caregiver hours, age, hours worked, marital status, household income, and ethnicity. For men, emotional burden and WFC-time became non-significant however FWC-time became significant. For women, emotional, physical, social, and emotional burden, as well as turnover intentions, became non-significant. Further, WFC-time went from marginally significant to non-significant.

Overall, the present study serves as an initial investigation into the nature of the associations between different caregiver types and caregiver burden, WFC, FWC, job satisfaction, and turnover intentions. While the mechanisms behind some of these differences (or lack of differences) are not yet clear, it is clear there are differences between care-recipient type groups, in terms of burden. Although future research is needed to further explore the underlying nature of these relationships, the present study sheds light on one of many demographic variables associated with differences in proximal and distal outcomes. Collectively, these results provide a foundation for future research studies.

Caregiver Burden, Work-Family Conflict, Family-work Conflict and Mental Health of Caregivers. A Mediational Longitudinal Study

Alper Kayaalp (South Dakota State University)

As an increasing number of employees become caregivers (DePasquale et al., 2015), the constructs related to the caregivers has begun to attract the attention of organizational researchers as well as employers and policymakers. Caregiver burden, which refers to the overall impact of the demands associated with caregiving such as physical, psychological, social, and financial demands (George and Gwyther, 1986) has been linked with mental and physical health problems (Clipp and George 1990; Lieberman and Fisher 1995; Skaff and Pearlin 1992) and unhealthy behaviors, such as alcohol misuse (Rospenda et al. 2010). In a survey conducted by the National Caregiving Alliance and AARP (2015), six out of ten employees reported that their caregiving responsibilities affected their work and created a need to adjust their work schedule, take a leave of absence, pass up a promotion, or retire earlier than planned. As such, a large body of research has shown the negative impact of caregiving at the individual (i.e., diminished physical well-being) and organizational (i.e., increased absenteeism) level (National Alliance for Caregiving 2009; Scharlach and Fredriksen 1994).

The work-family conflict has been argued to represent a key contributory factor in explaining the poorer health of caregivers (Marks 1998; Hill et al. 2014; Schieman and Young 2011; Voydanoff 2005). Currently, work-family conflict is defined as, "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus and Beutell, 1985, p. 77) and is broken down into work-into-family conflict (WFC) and family-into-work conflict (FWC) (e.g., Netermeyer, Boles, & McMurrian, 1996). Given that WFC/FWC are based off interrole conflict (Kahn, Wolfe, Quinn, Snoek, and Rosenthal, 1964), it makes sense that increasing the responsibilities in the family domain may exasperate the problems commonly observed between domains.

According to role strain theory, work-family conflict is experienced as a result of the finite amount of time and energy that individuals possess to devote to each role domain (Coser and Rokoff 1971). Glavin and Peters (2014) argued that caregivers are likely especially prone to this conflict, since they must also fulfill an additional set of caregiver role responsibilities alongside their paid work and immediate family responsibilities. Several studies examined work-family conflict in caregivers (Marks, 1998; Duxbury & Higgins, 2009; Glavin & Peters, 2014). Glavin and Peters (2014) found that caregivers experience higher levels of WFC/FWC such that both men and women who have caregiving responsibilities have higher psychological distress than non-caregivers and reported higher levels of WFC and FWC. Based on a sample of middle age American workers, Marks (1998) found that caregivers reported higher levels of FWC compared to non-caregivers; however, there was only weak evidence that WFC was higher among caregivers.

Given that a substantial body of research has established that work-family conflict represents a prominent and pervasive stressor with deleterious health consequences (Bellavia and Frone 2005; Byron 2005; Mullen et al. 2008) and taking into account that, to our knowledge, there has been no research that has examined the mediating role of WFC on the relationship between caregiver burden and mental health, we expect that part of the association between caregiver burden and mental health should be explained by WFC/FWC.

Data was collected in a three-wave, two-year survey of employed adults through purchasing random numbers randomly selected from

block groups in the Chicago area in 2006-2008. All contacted participants were screened for eligibility (≥ 20 hours/week in past 12 months, ≥ 18 years, and having unpaid caregiver responsibilities). A total of 1,007 returned the wave 1 questionnaire, 713 participated in wave 2, and 689 responded at wave 3. Participants received a $30 American Express gift card incentive to complete each questionnaire.

Using hierarchical linear regression, after controlling for number of care recipients, hours worked, gender, age, race, household income, whether the care-recipient had a disability or illness, and the dependent variable (i.e., WFC, FWC, depression, anxiety) at Wave 1, caregiver burden at Wave 1 predicted WFC, FWC, depression, and anxiety at Wave 2 and FWC and depression at Wave 3. Using model 4 of the PROCESS MACRO (Hayes, 2017), while treating the previous control variables as covariates, WFC-strain and FWC (time and strain) at Wave 2 mediated the relationship between caregiver burden (Wave 1) and anxiety (Wave 3). Additionally, WFC-strain and FWC-strain (Wave 2) mediated the relationship between caregiver burden (Wave 1) and depression (Wave 3).

Overall, the present study serves as an initial investigation into the nature of the associations between caregiver burden, WFC, FWC and mental health. The results underline that informal caregiving along with WFC/FWC has tangible costs for caregivers' mental health. Collectively, these results provide a foundation for future research studies and should help to inform practice and policy for individuals who make up this unique population.

Salon 10

Diversity and Health Disparities

PAPER SESSION

Healthy Professional Workers in Canada: A Gendered Analysis of Mental Health and Workplace Stressors

Jungwee Park (University of Ottawa)

Background. This paper examines the workplace mental health experiences of professional workers in Canada from a gender lens. Professional workers are a particularly interesting set of workers to examine the experience of mental health issues because of the mental acuity required for their job, the professional service work they provided and the threat of their disclosure of mental health issues to their license to practice. Links between professional acuity, mental health and gender are rarely documented in the literature.

Approach: Quantitative analyses from two population-based data sources: the 2013/14 Canadian Community Health Survey (N = 62,000 representing 18 million Canadian workers) and the 2012 CCHS Mental Health and Well-being (N = 14,000 representing 18 million workers) were conducted with a focus on selected professions including accounting, academia, dentistry, medicine, nursing and teaching (primary and secondary). The workers we focus on represent a mix of sex and gender composition and work context features that the literature suggests are important to the experiences of workplace mental health.

Results. Compared to non-professional workers, the selected professions were more likely to include women (69% vs. 41%) with a higher than average age (43 vs. 41). As a group, they reported higher self-perceived general health, better mental health, higher job satisfaction, and a lower prevalence of mental disorders, but they reported higher self-perceived life and work stress than other workers. In terms of work stress measures, workers in these professions reported higher job security and higher job control (measures of job discretion and job authority), but they reported higher psychological demands compared to their non-professional counterparts. Also, they were almost twice as likely to experience work absences as non-professional workers. Among workers in the selected professions, women showed significantly higher physical exertion and lower job authority than men.

Conclusions. Better understanding the unique workplace mental health challenges faced by male and female professional workers across a range of service sectors will help to improve target interventions that foster enhanced workplace wellness and in turn professional services to clients, students and patients.

Short and long work hours as risk factors for suicidal ideation in US workers during the Great Recession (2009-2012): Interaction with socioeconomic status and sex

Bongkyoo Choi (University of California Irvine)

Background. In the US, the population suicide mortality rate increased by 24% from 1999 (10.5 per 100,000) to 2014 (13.0 per 100,000), particularly among middle-aged adults. The suicide mortality rate in US working populations has been also on the rise (1). For the primary prevention of suicide in working populations, it is essential to identify the important work-related risk factors for suicidal ideation that is a strong predictor for suicide attempt within 1 or 2 years (2). Long work hours have been implied as an important risk factor for suicide mortality case studies or for suicidal ideation in some cross-sectional and longitudinal studies (1, 3). On the other hand, a recent study highlighted enforced short work hours (a former full-time worker became a non-voluntary part-time worker) as a risk factor for suicide ideation in South Korea (4). However, few studies have examined both short and long work hours as risk factors for suicidal ideation in a study. Also, little is known about whether the association will differ by socioeconomic status and sex, particularly in the context of an economic crisis (i.e., the Great Recession in the United States during 2007-2012).

Methods. The NHANES data (2007-2012) in line with the US Great Recession period were used for analysis. In total, 4,812 workers (2,616 men and 2,196 women) who aged 20 or older and also reported 1 or more work hours in the past month were chosen for this cross-sectional study. Work hours were self-reported by the survey participants. For analysis, the work hours were grouped into the following five groups: 1-20 hours (short work hours), 21-40 hours (the reference group), 41-48 hours, 49-56 hours, and 57+ hours (long work hours). Suicide ideation was measured with the single item of the Patient Health Questionnaire. Age, sex, marital status, and race/ethnicity, and socioeconomic status (SES) (a ratio of household income to the poverty level; 3 categories, high, middle, and low) were considered as covariates in analyses.

Results. The weighted prevalence of suicidal ideation was 2.5 % (2.4% in men and 2.6% in women). The means of the work hours were 42.4 hours (SD, 15.0 hours) in men and 37.3 hours (SD, 14.0 hours) in women. There was a significant interaction of work hours with SES and sex on suicidal ideation. In women, there was a very strong gradient in the suicidal ideation risk by SES in women (that is, suicide ideation was most prevalent in the low SES group), while work hours were not associated with suicidal ideation. However, in the male low SES workers, both short and long work hours increased the risk for suicidal ideation: ORs (95% CIs) = 4.72 (1.02-21.93) and 3.86 (1.02-14.59), respectively,

compared to the reference work hours (21-40 hours). However, in the male high SES workers, only short work hours were associated with suicidal ideation (no association with long work hours): OR (95% CI), 4.56 (1.03-20.27).

Conclusions. This is the first study that tested and demonstrated both short and long work hours as risk factors for suicide ideation, although it was observed only in the male SES workers. This study suggests that the association between work hours and suicide ideation in working populations should be examined in the full contexts of economic cycle/crisis, SES, and sex. This study implies the importance of social and work policies for optimal work hours (neither short, nor long work hours) and income equity as an important strategy for the prevention of suicide in US workers, particularly during economic crisis. More longitudinal studies are warranted in US workers for work hours and suicide behaviors.

A Phenomenological Study of African-American Women Seeking a Work Life Balance

Alisha Powell (Walden University)

The experience of African American women is a complicated one. African American women experience high levels of stress in their interpersonal relationships and are more likely to experience depression and anxiety in their lifetime. Work life balance has been a crucial part of the discussion about self-care as the number of women in the workplace continue to rise. Women can be more inclined to stay on the job when they are satisfied and when they feel that their employers genuinely care about their welfare. Researchers have found that women experience the stress of obtaining a work- life balance in a different way than men, as their work commitments are valued less (Walia, 2015). As a result, women are more likely than men to report a conflict between work and home responsibilities as they typically complete the majority of household duties (Walia, 2015).

Daily life for many working women in the United States consists of attempting to maintain a delicate balance between their jobs and their families. Women often find themselves in dual roles that include work responsibilities, household duties, childcare, and emotional support for a spouse (Walia, 2015). They are more likely to perceive a conflict between their work and personal lives than men due to competing responsibilities (Evans, Carney & Wilkinson, 2013). Men often work longer hours outside of the home when family responsibilities increase, leaving women to pick up the slack (Evans, Carney & Wilkinson, 2013; Sirajunisa & Panchanatham, 2010).

African American women are less likely to marry and more likely to experience high rates of marital instability. They are more likely to experience racism, classism, and sexism in the workplace and many find themselves hitting a glass ceiling as they try to advance their career (Hamm, 2014). Oftentimes, African American women are pulled in multiple directions as they attempt to successfully manage the responsibilities of work and home. Attending to the emotional needs of a spouse while seeking to advance within the workplace is a feat that can take a toll on their emotional well-being. They are the most educated group in the United States, and, yet, they make up less than 2% of the existing leadership positions (Osborne, 2016). The purpose of this qualitative phenomenological study was to better understand the experiences of married African American women and how they manage the demands of both work and family. There is an existing gap in the literature related African American women and work-life balance. African American women as a group are understudied in empirical research (Few, Stephens, & Rouse-Arnett, 2003). The theoretical framework was black feminist theory and work life border theory. Participants consisted of married African American women (11) who worked full time outside of their home. Data from interviews consisting of open-ended questions were analyzed for common themes and meanings. Findings reinforce the importance of having a flexible job and a supportive spouse. Having a supportive spouse was an important aspect in successfully navigating between the spheres of work and family. Spouses were there as partners to provide assistance when participants had to work late or had a last-minute work demand. Women reported that their spouses supported their careers by helping with some household duties and being emotionally present when they were stressed because of their jobs. A supportive spouse was also helpful when there was "spillover" between the spheres of work and home such as a sick child or an emergency session after hours with a client.

A flexible work schedule and time management skills also helped participants to navigate easily between both spheres. They were able to move their job responsibilities around as necessary in order to accommodate unexpected events with their children or family emergencies. Women talked about the things they did to leave work responsibilities at work so that it would not interfere with their family life. Participants in this study were clear about how a spouse contributed to their quality of life and it would be research appropriate to discover if African American men had a similar sentiment. Additional research in this area would increase cultural competence with social psychology and mental health professionals in other disciplines around the unique challenges of African American men. Using study findings, social psychologists, employers, and the general public may be more culturally competent in their knowledge of the specific challenges facing African American women, which may lead to potential positive social change. For instance, employers may be better able to meet the needs of their African American female employees, which may help to promote greater WLB, better emotional health, and increased life satisfaction for these women.

Independence Ballroom CD

Economics of Outpatient Prescription Opioids in U.S. Workers

SYMPOSIUM

Chair: Rene Pana-Cryan (NIOSH)

Problem statement: Research and surveillance conducted by members of the NIOSH Healthy Work Design and Well-Being (HWD) program focuses on how work affects overall health and well-being, including physical, psychological, social, and economic aspects. Although a growing literature addresses the prevalence of drug overdose, particularly opioid overdose, little is known about the prevalence of prescription opioid use among the working population. Information on the prevalence of opioid use among U.S. workers, along with factors associated with their use, is critically needed. The issue of opioid use among workers is both a health issue and a safety issue. Prescription opioids may be both a personal risk factor for work-related injury, and a consequence of work exposures. Several studies have found that workers employed in industries in which the rate of work-related injury is high such as mining and construction were more likely than other workers

to receive prescription opioids, and to die from opioid overdose. Jobs prone to injury and illness have higher proportions of workers with substance misuse and overdose death. Nationally representative data and other large datasets on prescribed opioid medications can provide useful information to discuss the use and expense of prescription opioids among U.S. workers.

Objective: The papers in this session include analyses of two datasets, the Medical Expenditure Panel Survey (MEPS) and the Truven Healthcare MarketScan Research Database. The MEPS is a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States. MEPS is a panel survey that contains data on the expense and use of health care and health insurance coverage. The MarketScan® Research Databases are a family of research data sets that fully integrate de-identified patient-level health data which consist of data contributed by large employers, managed care organizations, hospital, electronic medical record providers, and Medicare and Medicaid.

Together these papers examined:

- Sociodemographic factors, employment characteristics and occupation, along with the expense of obtaining opioids in U.S. workers for 10 years of MEPS data (2007-2016) (Alterman)
- Opioid prescribing patterns for work-related and non-work-related injuries in 5 years of MEPS data (2010-2014) (Quay)
- The impact of workplace injury on opioid use from MarketScan group health insurance data using a quasi-experimental framework (Asfaw).

Analyses. Weighted prevalence estimates, multivariate logistic regression, and difference-in-differences methods were used.

Results. Prevalence and expenses for outpatient prescription opioids varied by sociodemographic factors, type of health insurance, and occupation in a nationally representative sample of U.S. workers. Work-related injuries were more likely to result in at least one opioid prescription, more opioid prescription days and higher expenses than non-work-related injuries. Most data on work-related injury has relied on workers compensation data, which limits the scope of analysis because injured workers might use other sources of payment to obtain opioid prescriptions. By using the Difference-in-Differences method, researchers demonstrated the utility of using group health insurance data using a quasi-experimental framework for examining the impact of workplace injury on opioid use.

Implications and Conclusion. These studies provide information on opioid prescription use and expense in nationally representative samples of U.S. workers and in a large group insurance database. Prevention and intervention activities should be targeted to worker groups with higher prevalences of opioid use, and those at higher risk of work-related injuries. These results make a strong case for investing in worker safety and health.

Prevalence and expense of outpatient prescription opioid use among workers

Toni Alterman (NIOSH)

Introduction: Although a growing literature addresses the incidence of drug overdose, particularly opioid overdose, little is known about the prevalence of prescription opioid use among the working population. Information on the prevalence of opioid use among U.S. workers, along with factors associated with their use, is critically needed. The issue of opioid use among workers is both a health issue and a safety issue. Prescription opioids may be both a personal risk factor for work-related injury and a consequence of work exposures. Several studies have found that workers employed in industries in which the rate of occupational injury is high such as mining and construction were more likely than other workers to receive prescription opioids, and to die from opioid overdose. Jobs prone to injury and illness have higher proportions of workers with substance misuse and overdose death. Workplace ergonomic challenges, occupational injury, musculoskeletal conditions and disability have been shown to impact opioid use or misuse. Opioid use may affect the performance of safety-sensitive tasks and increase the risk of workplace injuries by decreasing muscle strength and reaction time, as well as affecting judgment, coordination, attention, and memory. Understanding factors that are associated with opioid use by workers may help identify potential work- and non-work-related risk factors for prevention of opioid-related health issues. Objective: Our objective was to examine the prevalence and expense of outpatient prescription opioid use, along with associated sociodemographic, economic, and work characteristics, in a national sample of U.S. workers. Method: We used the 2007–2016 Medical Expenditure Panel Survey (MEPS) data to estimate prevalence, expenses, and associations of outpatient prescription opioid use among the U.S. working population. MEPS is the most complete nationally representative longitudinal survey that collects information on health service use and expenses in the United States. We pooled ten years of MEPS data to reduce standard errors of estimates. We used the prescription drug and yearly consolidated files of MEPS for this study. The MEPS prescribed medicine file has information on all types of prescription drugs purchased or obtained during each year of the survey. This information was collected directly from the respondents, during a recall period of 3–6 months. Then, for each medication reported by the respondent, MEPS contacted the dispensing pharmacy to collect detailed information. MEPS collects data only on prescriptions purchased or obtained in an outpatient setting; it does not include drugs administered within an inpatient setting. We used more than 13,000 National Drug Code (NDC) codes. We linked the prescription files to the yearly consolidated files to get detailed information on MEPS respondents. We identified two main outcomes of interest for this study: prevalence of opioid use and total opioid expenses. Prevalence of opioid use was defined as the percentage of workers who purchased or obtained one or more outpatient prescription opioids within a given survey year. Total opioid expenses were defined as the sum of payments for opioid prescriptions within a year. Using multivariable analysis, we examined associations of opioid use with sociodemographic, economic, and work characteristics. We included 170,009 respondents between 2007 and 2016, aged 16 years and older, who reported working in at least one of the three rounds of interviews within a year. We excluded respondents with military occupations (722 respondents). Our sample represented a population of 167.2 million workers per year. Results. An estimated 21 million workers (12.6% of workers) aged 16 years or older used one or more outpatient prescription opioid medications, at an expense of $2.81 billion per year, during the study period. Private health insurance covered half of the total opioid expenses for workers. The prevalence of opioid use was higher for women than for men, but men spent more money on opioids. In addition, the prevalence of opioid use was higher for older; non-Hispanic white; divorced, separated, or widowed; and non-college-educated workers. There is an inverse relationship between family income and the likelihood of a worker using opioids. Compared to workers with private insurance, workers with public health insurance were more likely to use and spend more on opioid prescriptions. During the study period, both the prevalence

and expense of opioid prescriptions were the lowest in 2016. Finally, workers in construction and extraction; farming, fishing, and forestry; service; and production, transportation, and material moving occupations had the highest prevalence of using opioids. Conclusion. We present national prevalence estimates and expenses for prescription opioid use in a national sample of U.S. workers over a 10-year period. We identified sociodemographic, economic, and work characteristics associated with prescription opioid use. Attention to these risk factors may help identify industries and occupations to focus on, as well as groups of workers toward whom opioid misuse prevention and intervention activities should be targeted.

The impact of occupational injuries on the incidence and cost of opioids

Brian Quay (NIOSH)

Background. The United States is currently experiencing an opioid overdose epidemic. Assessing opioid prescribing patterns continues to be important to help understand risk for potential harm, such as misuse or overdose. Although there is literature describing prescription opioid use within the general population as well as within workers' compensation systems, little research has been done to compare opioid prescribing patterns between occupational and non-occupational Injuries. It is possible that occupational injuries lead to more pain and more opioid prescriptions, if post-injury avoidance of activities that led to the injuries is sometimes more difficult because they are work activities.

Objectives. We compared opioid prescribing patterns for occupational and non-occupational injuries, comparing the percentage of injuries followed by an opioid prescription within the survey year of the injury, the number of days of supply, and the total medication cost. We hypothesized that occupational injuries were more likely to result in opioid prescription, more days of prescribed opioids, and higher total opioid costs than non-occupational injuries. Data: We used data from the Medical Expenditure Panel Survey (MEPS), a nationally representative survey designed to collect information on healthcare use and expenditure. We used the medical condition (including injury), prescribed medicine, and full year consolidated data files of MEPS . In the medical condition files, 24,893 injuries were reported from 2010 to 2014. Respondents aged 16 and older who reported an injury or accident (terms presented as defined in MEPS) were asked a follow up question on whether the injury or accident occurred at work. We used this information to classify injuries as occupational and non-occupational. We linked the injuries from the medical condition files with information from the prescribed medicine and full year consolidated files. The prescribed medicine files include information on national drug code (NDC), number of days prescribed, dates filled and payments made by different sources for each medicine. The full year consolidated files contain demographic, health insurance coverage, and economic data. Measurement of variables: We identified opioids using the NDC of each prescribed medicine as a result of a reported injury condition. We used more than 13,000 NDCs provided by the Centers for Disease Control and Prevention to identify opioids. Then, we created three dependent variables: presence vs. absence of filled opioid prescription, number of days of supply, and cost of prescribed opioids (paid by patients, insurers, and other third parties). Our main explanatory variable was whether the injury was occupational or non-occupational. Our covariates included sex, age (4 categories), race (5 categories), education (4 categories), access to any health insurance, poverty status (4 categories), and number of comorbidities (5 categories).

Method: We used logistic regression to assess whether an opioid was prescribed following the incidence of injuries. We used a two-part regression model to assess the number of days for which opioids were prescribed and the associated costs. In the first part, we estimated the probability that an injury results in a non-zero number of days of prescribed opioids, and in the second part, we estimated the number of days and costs of the prescribed opioids, conditional on non-zero days of prescribed opioids.

Results. Of all injuries reported, 23.7% occurred at work. Controlling for covariates, occupational injuries were 29% [95% CI: 1.14 -1.45] more likely to result in at least one opioid prescription than non-occupational injuries. The two-part regression results showed that, controlling for covariates, occupational injuries resulted in 4.15 [95% CI: 2.58-5.73] more opioid prescription days and a $19 [95% CI: $11 - $27] higher cost of opioids per injury compared with non-occupational injuries. The study has some limitations. First, prescribed medicine are not always used by patients. Second, our follow-up period after injury may vary from a full year for injuries occurring at the beginning of the survey year to less than a month for injuries occurring at the end of the survey year.

Conclusion. We found that occupational injuries resulted in a greater likelihood of receiving an opioid prescription, a higher number of opioid prescription days, and higher opioid costs than non-occupational injuries. These results make a case for investing in worker safety and health.

Impact of workplace injury on outpatient prescription opioid use from private group health insurance

Abay Asfaw (NIOSH)

Problem. Opioid misuse has been identified as a major public health problem in the United States. Despite research on the relationship among workplace injury, workers' compensation, and opioid use, little is known about the impact of workplace injury on prescription opioid use outside the workers' compensation system. Limiting the scope of opioid use by injured workers to the workers' compensation system likely underestimates the impact of workplace injury on opioid use because injured workers might use other sources to obtain opioid prescriptions. The objective of this study was to bridge this gap by examining the impact of workplace injury on opioid use from the employer-sponsored private group health insurance (GHI) system.

Method. We used a difference-in-differences (DiD) method to examine the impact of workplace injury on the use of outpatient prescription opioids from the GHI two months before and two months after injury by injured workers compared with non-injured workers, the control group. Because dates of injury are not available for the non-injured workers, they were randomly assigned an index date or a 'pseudo injury date' (hereafter injury date) that corresponded to the date of injury of the pool of injured workers. We identified two outcome variables as proxies for outpatient prescription opioid use from the GHI: receiving one or more outpatient opioid prescriptions (hereafter opioid prescriptions) and total number of outpatient opioid prescriptions (hereafter number of opioid prescriptions). We also used logistic and negative binomial regression models for multivariate analysis. The data source for this study was the MarketScan database. We created a cohort of workers (ages 18 to 65 years) who were continuously enrolled both in the workers' compensation and GHI system from 2013 to 2015. The intervention event was incidence of a workplace injury that occurred between January 1st and December 31st 2014.

We considered 19,246 workers who were injured only once in 2014 and not injured in 2013 and 2015. From the total of 759,942 workers who were not injured from 2013 to 2015, we randomly selected 96,230 non-injured workers—five times of the number of injured workers—as a control group. Overall, 115,476 workers were included in the study. We controlled for age, sex, health insurance type, hourly/salary status, and region in adjusted analyses.

Results. The results show parallel trends were observed in all outcome variables across the injured and non-injured workers before injury. This indicates that in the absence of injury, the differences in opioid prescriptions between injured and non-injured workers were constant over time. Within two months before injury, 6.3% and 8.1% of non-injured and injured workers, respectively, received one or more opioid prescriptions. Two months after injury, the percentage of non-injured workers who received prescription opioids increased by one percentage point to 6.4% ($\chi 2$-test = 0.55, p= 0.459) while the percentage of injured workers received prescription opioids increased by 10.3 percentage points to 18.4% ($\chi 2$-test = 890.01, $p < 0.01$). The DiD between the two cohorts was 10.2 percentage points (95% CI: 9.7-10.7, $p < 0.01$). Within two months of an injury, the percentage of injured workers who received opioid prescriptions jumped by 126% from the baseline period and by 160.8% from the percentage of non-injured workers who received opioids within two months after injury. In the multivariate analysis, we included baseline covariates in the model and we estimated a random-effects logistic regression. The odds of injured workers to receive opioid prescriptions within two months after injury were 4.6 [95% CI: 4.2-5.1] times higher than non-injured workers. Within two months before injury the average number of opioid prescriptions received was 0.13 for non-injured workers and remained the same within two months after injury (t-test= 0.4512, p= 0.774). For injured workers the average number of opioid prescriptions increased from 0.18 within two months before injury to 0.37 within two months after injury (t-test= 14.14, $p< 0.01$). The DiD between the two cohorts was 0.19 [95% CI: 0.17-0.21, $p < 0.01$). For injured workers, the average number of opioid prescriptions increased by 103% (0.19/0.18) and 140.8% (0.19/0.13) compared to their pre-injury level and the average number of opioid prescriptions for non-injured workers within two months after injury, respectively. The regression results showed that the incidence rate of opioid prescription for injured workers within two months after injury was 2.5 times the incidence rate for non-injured workers holding the other variables constant.

Conclusion. To our knowledge, this is the first study that examined the impact of workplace injury on opioid use from the GHI using a robust quasi-experimental framework. Among a cohort of workers with GHI, there were statistically significant differences in opioid use (percentage of workers and number of opioid prescriptions) from the GHI for injured workers compared to non-injured workers. Reducing workplace injury rates can have a significant impact on reducing the use of prescription opioids.

4:00–5:30 p.m.

Concurrent Sessions 4

Salon 5 & 6

Going Public: Sharing Our Work Through the Media

PANEL

Chair: David Ballard (American Psychological Association)

How can scholars, researchers, and practitioners in fields relevant to worker well-being and organizational performance engage the media, serve as subject matter experts, and help inform public understanding? How can we better translate research for the general public and promote our work in ethical and professionally appropriate ways? How can we build relationships with reporters that lead to being sought out as the experts of choice and how do we prepare for those opportunities when they arise?

Working with the media requires analytical and communications skills that translate technical language and research into understandable, digestible prose for the general public and soundbites that fit the needs of current media formats. Knowledge translation can be a challenging task, especially when dealing with complicated, multi-layered topics laden with nuance. It often requires balancing detail vs. simplicity, data vs. storytelling, and breadth vs. depth, while thinking through how to boil down complex ideas and information for public consumption. It necessitates respecting what a particular reporter or editor is looking for in terms of content. It also calls for an understanding of the types of media outlets and their respective audiences.

This interactive discussion will examine how we can share our work through the media to benefit the public, improve our organizations and institutions, and advance our fields. The interdisciplinary panel of experts includes individuals who are directly involved in the intersection of research, analysis, public education, and advocacy on matters related to creating better, healthier workplaces and working conditions.

This session will cover, among other things: Planning for interviews and other media opportunities, including advice for those who are early in their careers and new to working with the media; Translating research into messages the public and key decision makers will understand, understanding what professional writers and editors look for from experts, crafting effective messages, communicating with a lay audience, and honoring ethical obligations when working with the media; Integrating social media into communication efforts and best practices for engaging the public, building significant, sustainable relationships, and promoting employee and organizational health.

During this fast-paced, interactive session, panelists with varying degrees of media experience will share their experiences and lessons learned from: Doing media interviews for print, digital, radio, and television audiences; Writing letters to the editor, op-eds, and invited bylined articles for business, political, and popular press; Using social media commentary to attract interview opportunities; Learning when to say yes or no to media opportunities, and avoiding temptations that can lead to bloviating rather than sharing informed expertise.

Panel participants cover a wide range of relevant backgrounds from academe and practice, including I/O psychology, organizational behavior and leadership, law and public policy, and counseling and coaching. Additionally, a communications professional will explain how to connect with reporters, the rules of engagement, and insider tips for becoming an expert source the media will want to return to again and again, while maintaining your professional integrity and scientific rigor.

Fueling the inspiration for this panel is the conviction that those associated with conferences such as this one are engaged in research, analysis, commentary, and best practices that merit greater public exposure via general and specialized media. Hopefully we can help reporters and other media sources do their jobs better by informing their content with sound research and insights. This, in turn, can infuse employee relations stakeholders with information and ideas to create better workplaces. The various realms may include, among others: Organizational management, leadership, and human resources; Labor unions and worker advocacy; Occupational safety and health and worker well-being; Consulting and coaching practices; Mental health and clinical psychology; Law and public policy development.

The application of this content can also serve as an important reality check on its usefulness. Ideally, this fosters ongoing feedback loops to inform further research.

PANELISTS:

David Yamada (Suffolk College of Law)

The presenter's remarks will share personal experiences in doing media outreach and integrating social and mainstream media approaches, with an emphasis on sharing advice and lessons learned. This work has included interviews, blogging, and op-ed pieces on topics such as workplace bullying and abuse, the legal issues surrounding unpaid internships, and employment discrimination. Media have included local, national, and international general sources (e.g. NYT, WaPo, WSJ, Boston Globe, NPR, MSNBC) and specialized sources (e.g., Bloomberg, ProPublica, Conference Board).

Lisa Kath (San Diego State University)

The presenter will share experiences and insights drawn from sharing the results of her research on women and minorities in the workplace and workplace mistreatment with the media. Her story includes starting from an initial place of hesitation to do media outreach and moving toward a much greater willingness to engage media sources.

Carrie Bulger (Quinnipiac University)

The presenter is an I-O psychologist and Professor of Psychology. She has been interviewed by multiple print, radio, and television outlets on topics including workplace violence, sexual harassment, presenteeism, commuting stress, among others. She works closely with the public relations office at her university to ensure that they are familiar with her areas of expertise. She approaches interaction with the media from the perspective of George Miller's 1969 argument that psychologists should "give psychology away." In 2017, she wrote an article for the online management news outlet Quartz at Work offering advice for how to use smartphones to navigate work and home demands, which was an interesting and rewarding experience. She will talk about the process of working with a popular media outlet, as well as when she decided to ban a reporter from any future interviews. She also has a lot of positive experiences to relay.

Gary Namie (Workplace Bullying Institute)

The presenter-advocates share lessons gleaned from educating the public about a social justice and public health "cause"—workplace

bullying—primarily using mainstream print and broadcast media interviews for over two decades. Suggestions can be adopted by academic researchers in order to communicate the relevance and benefits of their work to public non-academic audiences. The media play an important role in achieving societal literacy in, and appreciation for, science. Our remarks will include: (1) Emphasizing counterintuitive and vivid facts that grab headlines; (2) mastering the 2.5 minute segment; (3) conforming to the angle of the reporter's story; (4) understanding the fickleness of television; (5) working with specialty media and their audiences; and (6) recognizing ideal media opportunities, while holding to core objectives of clarity, vividness and novelty.

Angel Brownawell (American Psychological Association)

The presenter, who brings a background in journalism and public relations to her work, will explain how to connect with reporters, the rules of engagement, and insider tips for becoming an expert source the media will want to return to again and again, while maintaining professional integrity and scientific rigor.

Philadelphia Ballroom South

Labor's Research to Practice

SYMPOSIUM

Chair: David Le Grande (Communications Workers of America (Retired)

Presenters: Mazen El Ghaziri (The Center for the Promotion of Health in the New England Workplace), Alicia Kurowski (The Center for the Promotion of Health in the New England Workplace), Laura Punnett (The Center for the Promotion of Health in the New England Workplace), Martin Cherniack (The Center for the Promotion of Health in the New England Workplace), Serena Rice (The Center for the Promotion of Health in the New England Workplace), Nate Hunsicker (The Center for the Promotion of Health in the New England Workplace), Matthew Brennan (The Center for the Promotion of Health in the New England Workplace), Sara Namazi (The Center for the Promotion of Health in the New England Workplace), Scott Schneider (Laborers' Health & Safety Fund of North America), Ted Scharf (NIOSH)

For many years, labor organizations have been actively involved identifying, resolving, and preventing safety, health, and organizational concerns related to work organization factors and negative health outcomes. The majority of these efforts have been conducted within the collective bargaining system, i.e., contractually-negotiated agreements between employers and unions. This work has involved data collection methods such as talking with represented workers and documenting collected information; observing workers during the performance of their jobs; analyzing collected data and translating findings into proposals for change; introducing these proposals to employers; and negotiating these proposals into the collective bargaining agreement. Examples include physical ergonomics (e.g., changes in work equipment and tool design) and work organization (e.g., changes in work hours as well as how and when work is performed).

Since the late 1970's- early 1980's, several U.S. labor unions have expanded their efforts to include the establishment of working relationships with researchers within academic, government, and public health communities to better identify relationships between poorly designed work organization factors and worker health outcomes. These efforts have resulted in the conducting of many scientific investigations which have led to the identification of work organization factors associated with negative worker health effects as well as decreased performance and productivity. The first panel will feature presentations specific to methods and tools used in conducting scientific investigations with labor unions as well as the use of collected/analyzed data.

The translation of collected scientific data into substantial changes in work organization, i.e., changes that result in improved working conditions, decreased worker health effects, and increased performance and productivity, is necessary to advance the field of work organization and worker health. Several unions and have been able to initiate such efforts with represented employers. The second panel will feature presentations specific to the implementation of research findings on work organization into the workplace and the manner in which the work is performed.

Salon 3 & 4

Employees as a Resource for Organizational Interventions

PAPER SESSION

Safety Champions: effectiveness of a peer-led safe patient handling pilot program

David Hurtado (Oregon Health & Science University)

Problem. Overexertion resulting from patient handling is a prominent risk factor for musculoskeletal disorders and injuries among healthcare workers (Dressner, 2017), and it is an issue that increases the risk of disability (Jensen, Ryom, Christensen, & Andersen, 2012), and that also inflicts significant financial burden to organizations (Occupational Health and Safety Association, 2013). Safe patient handling and mobility programs that include environmental (e.g., lifts) administrative (e.g., protocols) and educational (e.g., training) components are effective in reducing musculoskeletal outcomes, albeit with a broad range of success (Adamczyk, 2018; Risor, Casper, Andersen, & Sorensen, 2017; Teeple et al., 2017). Program guidelines recommend instituting of champions (e.g., a group of workers who promote safe patient handling at their units) as a critical component (Nelson, 2005) however, less is known about strategies to maximize champions' effectiveness in reducing adverse musculoskeletal outcomes. This presentation aims to discuss the design, implementation, and effectiveness of a Safety Champions program piloted at a critical access hospital as a strategy to reduce adverse musculoskeletal outcomes.

Procedures. Our pilot program was implemented at a rural critical access hospital in Oregon. The program had a quasi-experimental, pre/post design, and was developed in the following four stages:

Stage 1: Baseline assessments and identification of safety champions. Registered Nurses and Certified Nursing Assistants in in-patient units were eligible to complete a baseline (2016) survey (n=38, response rate 77.5%). Participants were asked to nominate as many peers whom they considered a source of safe patient handling advice. Peer nominations were examined with Social Network Analysis (SNA) to identify outstanding workers with the highest potential to maximize safety advice at their units (Hurtado, Dumet, Greenspan, Rodríguez, & Heinonen, 2018).

Stage 2: Recruitment, training, and deployment of Safety Champions. SNA identified six potential champions who were then

invited through a personalized letter to volunteer as Safety Champions. The letter indicated the expected commitment, roles and program activities, and incentives ($100 gift card and workplace social recognition). Four candidates accepted the invitation to become champions. These workers completed two 120-minute practical training modules on ergonomics/safe patient handling as well as on communication and leadership techniques. These training complemented the regular, mandatory annual training on similar topics.

Stage 3: Quarterly meetings with hospital leaders. Champions attended quarterly meetings with hospital leaders to generate and review safety goals. These meetings were informed by the Plan-Do-Study-Act cycle (Langley et al., 2009), a quality improvement method for improving healthcare practices (Agency for Healthcare Research and Quality, 2015). These meetings had the objective of sharing successes and challenges regarding safe patient handling, developing and implementing plans to address barriers, and monitoring progress.

Stage 4: Program evaluation. Post-survey data were collected one year after completion of champion training modules (n=54, 75.3% response rate). Secondary data supplied by the hospital such as patient-assist injury events, and safety incidents reports (i.e., Good Catch) were also analyzed to determine program effectiveness.

Analysis: Bivariate statistics (per Cohen's d) and Generalized Linear Regression Models adjusted for gender, tenure, shift, and unit examined the average changes on relevant safety outcomes (e.g., use of equipment, safety participation, safety compliance) and interpersonal outcomes (e.g., peer support, team effectiveness before and after the program was implemented.

Results. Large effect sizes ($d > .8$) were observed in equipment use, safety participation, and safety compliance. Medium effect sizes ($.4 < d < .8$) were observed for team effectiveness and peer support. Good catch number of reports related to safe patient handling increased from 7 to 37 entries in one year. Musculoskeletal injuries from patient assist transfers changed from eight events in 2016 to one event in 2018 after the program was implemented.

Conclusion. A pilot champions program that applied SNA to identify influential workers improved several safety outcomes and reduced injuries in 12 months. We argue that the observed changes were the driven by champions' actions; champions leveraged their social influence on peer relations to promote safety (van Laere & Aggestam, 2016) and to model safety behaviors (Gusenius, Decker, & Weidemann, 2018). Champions also reported safety concerns to supervisors and hospitals leaders (Krill, Staffileno, & Raven, 2012) and contributed to the generation of quality improvement plans (Olinski & Norton, 2017). Study limitations include small sample size, lack of a control group. Future studies should build on this preliminary data using more units and experimental design.

Practical implications. Safety champions, identified with peer-based nominations, are effective in improving safety outcomes if they are equipped with additional skills and resources that boost their social influence, and if they regularly convene with hospital leaders to address safety issues.

Enhancing well-being among teachers: the contribution of a collective activity promoting social support

Caterina Mamprin (University of Montreal)

Teaching can be described as a heavy and demanding job by some (Maranda, Viviers & Deslauriers, 2014), as shown by several studies portraying the discomforts experienced by teachers. These studies refer to high stress levels, absenteeism (Maranda, Viviers & Deslauriers, 2014) and a high percentage of profession dropout, up to 50% in certain contexts (Karsenti, Collin & Dumouchel, 2013). Social support is one of the most frequently mentioned factors to promote well-being at work (Chi et al., 2014; Liu et al., 2016). Therefore, it is relevant to revisit this factor by taking into consideration the particular social environment of teaching, including colleagues, students, parents, principals and other school actors.

To promote well-being at school, collective activities can be organized to break the isolation and foster social support among teachers (Lafortune et al., 2011). Research on these activities highlights the relevance of these kinds of actions in a school environment, but few address the link between social support and well-being in this context. Even less research details the very concept of social support and its attributes. Hence, we have led a qualitative research to study social support in a collective activity designed and conducted to promote the well-being of teachers.

Given it's conceptual rigor and relevance for Quebec workers, we chose Dagenais-Desmarais' definition of well-being at work (Dagenais-Desmarais, 2010). This definition combines the hedonic and eudemonic perspectives and distinguishes five dimensions related to well-being at work: interpersonal adequacy at work, development in work, sense of competence at work, recognition at work and commitment to work. For social support, we retain the definition of Vaux which defines this concept as a complex transactional process that involves an interactive relationship between the individual and his support network (Vaux, 1988). According to Vaux (1988; 1990), three dimensions are associated with social support: the social support network, support behaviors and the subjective support appraisal (Vaux, 1990).

The collective activity proposed to our participants was a discussion group. This activity differs from psychotherapy, its framework does not aim to "cure", but to group individuals around common questions (Bouville, 2005).

The data from this research was collected in two steps. Firstly, in two semi-structured interviews, one before and one after the eight meetings of the discussion group offered to high school teachers of a school in the Greater Montreal. These interviews were designed to collect data on teachers' well-being at work. The questions were based on Dagenais-Desmarais' (2010) conception of well-being and their experience in the discussion group. Secondly, in addition to these interviews, exchanges from eight discussion groups, conducted from January to June 2018, were recorded. In those data, three dimensions of social support were studied (based on Vaux's 1988; 1990). Eight teachers participated in these meetings, during which themes were not imposed. Teachers could talk about all the subjects they wanted (professional or personal). These discussion groups were led by a psychologist. This professional ensured the activity went smoothly, maintaining a non-judgmental attitude among participants and assuring the confidentiality of the elements discussed. Besides the interviews and the recordings of these discussions, we took field notes in order to gather the contextual elements that could have had an influence on the exchanges between participants. Our data was analyzed with the NVivo qualitative data processing software.

We are still in the analysis of our research data. We plan to complete this step before summer 2019. Thus, we will be able to present the results of our analysis in detail next November for the APA conference. According to our preliminary results, the teachers appreciated the discussion groups and they highlighted the contribution of the social support they received. This support can be referred to as the links they

have created with their colleagues and how the exchange on the challenges they encountered with students has been beneficial to them. They also mention how the discussion groups became for them a privileged symbolic space which gave them the feeling of being supported by the principal who initiated this activity. We will be able, in November, to add to these results the type of social support that was mainly used by teachers, the profile (well-being, social support perceived and given) of each participant and the influence of the discussion groups on each dimension of social support.

These results can have important practical implications. For instance, they provide a better understanding of the influence of social support and discussion groups on teachers' well-being. These results also highlight a simple activity to set in a school context that offers a time of discussion between colleagues who are not usually a priority in this work environment.

Appointing in-house employee facilitators in organizational level interventions in SMEs: Experiences of bricoleurs

Christine Ipsen (DTU, Technical University of Denmark)

Facilitation of interventions play a key role in successful interventions and typically are conducted by people with professional facilitator competences. Therefore, facilitation is a priority for any workplace implementing organizational level changes. In practice, however, developing effective and sustainable interventions and integrating facilitators as part of the process has been challenging and a low priority for small and medium sized enterprises (SMEs). One reason is that they do not have professional facilitators in-house like larger corporations nor do they have the resources to employ them. While large companies often have the financial means and structures to effectively initiate and implement such interventions, SMEs on the other hand lack the proper knowledge and resources, including calling on external expertise, to manage organizational level interventions and thus need support mechanisms tailored to their specific circumstances (González, Cockburn, & Irastorza, 2010).

Studies of in-house facilitators are scarce in the field of organisational-level interventions. Existing studies focus on external consultants e.g. Kompier et al. (1998) report than out of ten intervention cases they reviewed, seven had an external consultant involved. A reported advantage of using external consultants in interventions is that the person is neutral, which can make it easier for employees to express their opinions and concerns (Saksvik, Nytrø, & Dahl-Jørgensen, 2002). The disadvantages of using external consultants are that participants risk to lack ownership of the intervention, it can be difficult to sustain the changes after the consultant has left and external consultants can be expensive (Dahl-Jorgensen & Saksvik, 2005). Seen in this light, using in-house facilitators is an advantage with respect to involve employees and sustain changes when the intervention ends. A disadvantage could be that the in-house facilitators do presumable not have the same neutrality as an external consultant.

Given that the costs are high for external consultants, an in-house appointed facilitator has the potential to bring savings to the SMEs. But also to support a higher implementation success. Addressing the facilitation process during an organizational level intervention can impact the implementation of the changes and thus a chain of benefits for employers and employees of SMEs.

Consequently, the purpose of this study was to explore the experiences of appointing employees as facilitators, i.e .being bricolours (Weick, 2001) in organizational level interventions in SMEs and the competences the in-house facilitators require to facilitate the intervention activities.

We conducted the intervention and data collection in four SMEs in Denmark, two Information Technology (IT) companies and two manufacturing companies. As part of the intervention program PoWRS, we applied a mixed method including survey, observations, interviews and chronicle workshops to examine eight in-house facilitators in the four SMEs.

Our results show that it is possible to find and appoint employees as in-house facilitators in SMEs, though the facilitators did not receive any formal training in connection with the intervention program. The study also showed that the appointed facilitators draw on their own resources and experiences for example from earlier jobs and engagements to perform their role as facilitators and acts as bricoleurs. In the analysis we also studied the experiences from three perspectives: the employee, the in-house facilitator and the managers. The three perspectives make different emphasis on the identified facilitator competences, but together they highlight project management, communication, relational practice skills, cognitive skills and being trustworthy, as important competences. The study furthermore contributes with two new insights. The first insight is that suitable in-house facilitators are sensitive to the context they operate in—we call this contextual sensitivity. The other insight is that it is possible to appoint employees as in-house facilitators although they have not received formal facilitator training prior implementing the intervention program.

The study also offers practical implications for managers in charge of selecting the in-house facilitators. Since SMEs often do not have organisational units with process competence or resources for external consultants, we advocate that the construct of the in-house facilitator is a practical solution to utilize internal resources and gain from the employees' detailed knowledge about their workplace.

A model of cascading change: Successful change and improved relational coordination

Kasper Edwards (DTU, Technical University of Denmark)

Understanding how and why changes succeeds is paramount as most organizational changes fail or do not deliver the expected results (Hughes, 2011). Achieving change is particularly challenging in Professional service firms (PSF)—spanning industries such as universities, accounting, law, advertising, banking, IT, consulting, and hospitals—as this type of firm primarily depend on complex technical expertise and the knowledge of their workforce to transform inputs into outputs (Von Nordenflycht, 2010). The PSF known to exhibit particular challenging change processes are hospitals (Heldal, 2015; Ramanujam & Rousseau, 2006) because strong professional identities and autonomy clash with managerial logics of change and efficiency (Garman, Leach, & Spector, 2006; Mintzberg, 1989; Pool, 1982; Powell & Davies, 2012; Strauss, Fagerhaugh, Suczek, & Wiener, 1997). Another reason behind change skepticism within hospitals is that changes often produce more problems than they solve (Ackroyd, Kirkpatrick, & Walker, 2007). Thus, finding ways to manage hospital change successfully is paramount because the need to change is a basic condition to meet patient and public demands for cost efficient, safe and high quality care (Institute of Medicine, 2013).

Using a case study approach, we examine a change process in a within a large world-leading cardiology department in Denmark. The case is intriguing because post-project evaluation showed that 27 of 28 proposed improvements were completed successfully. Even

more interesting is it that the project resulted in a large and significant increase in relational coordination (cf. Gittell, 2002).

Methodologically the study was based in organisational development tradition of action research (e.g. Coghlan, 2011). The first author served as consultant researcher and part of the steering group in the project and was allowed to document the project. This dual role provides a deeper understand (Eady, Drew and Smith, 2015) of the change process. Workshops, meetings and internal document such a meeting minutes and project plans were collected. Relational coordination was measured before and after implementation using Gittell's (2002) 7 item instrument.

We argue that the successful implementation as well as improved well-being at work (relational coordination) was a direct consequence of the change process. We have named this a 'cascading model of change'. This a hybrid change model that incorporates elements of the top-down planned formal and the bottom-up emergent approach to change. The cascading model refer to the finding that each involved group (team leaders, surgical teams and employees in general) goes through the same Lewinian process of unfreeze, refreeze. The cascades of change refer to the finding that the process of identifying problems, developing solutions and deciding happened through a sequence of steps. The result of one step was documented and distributed to all employees. The next group would then use the results in their work creating a chain. This created a transparent process where employees had access to data, analysis and result.

The initial process of defining the scope of the project was done by the top management team (TMT). The TMT believed productivity was not sufficient and a recent survey had shown that well-being at work was low. However, as the top management team was uncertain of the nature of the problems and underlying causes the project started by collecting data. Surgery was observed and work diaries were distributed to collect employees' descriptions of problems at work. 402 notes were collected from the work diaries, sorted in themes and transcribed. The transcriptions were email to all staff to ensure transparency. Problems were identified and solutions were developed at three workshops each with a full surgical team and each lasting two days. The workshops produced 28 suggestions for change, which were distributed to all staff to ensure transparency.

All staff the participated in a deliberation process where the 28 suggestions for change were discussed and commented on. It was the decided that all 28 suggestions some related to layout, some to relations and the tone among staff and yet others related to equipment and surgical processes. The deliberation concluded that all 28 suggestions were relevant, and it was agreed by the TMT that they should be implemented. Implementation was uneventful at the 28 suggestions was implemented over 1.5 years.

We argue that the improved relational coordination was a consequence of the employee driven cascading change model. Several change proposals directly influenced working practice and the tone i.e. how staff addressed each other and for instance a change proposal directly specified that outbursts were only permitted when there was a real medical emergency.

Independence Ballroom B

Sleep, Fatigue and Stress

PAPER SESSION

Sleep quality in relation to subjective and physiological stress at a daily level: The role of vigor and mindfulness

Michelle Van Laethem (University of Amsterdam)

The stress-sleep relationship has been well-researched in the occupational context and previous studies consistently demonstrate a negative effect of stress on sleep (see for a review Linton et al., 2015). More recently, attention has shifted towards longitudinal relations and some support was found for a reciprocal relationship between stress and sleep. Stress does not only seem to have an impact on sleep, but sleep in turn may have an effect on subsequent stress (e.g., Van Laethem et al., 2015). This reverse relationship may be explained by the 'gloomy perception mechanism', which posits experiencing poor sleep may alter one's perception of the work environment and consequently increase stress levels (de Lange et al., 2005). As this reverse relation has often been overlooked and previous study designs have almost exclusively focused on long-term effects and used long-time lags, the aim of the present study was to examine daily fluctuations in sleep quality and subjective and physiological stress (i.e., cortisol and blood pressure). Moreover, experiencing poor sleep quality has been previously negatively related to work engagement (Barber, Grawitch, & Munz, 2013). Poor sleep quality may predict how vigorous an employee feels to attend work, which in turn may predict how he or she experiences subsequent stress. Thus, a second aim of the present study was to examine daily vigor as an underlying mechanism in the sleep-stress relationship. Finally, being mindful has been shown to reduce stress levels and improve overall sleep quality (e.g. Hülsheger, Feinholdt, & Nübold, 2015; Khoury et al., 2015). Employees who are acting with more awareness and are more accepting of their surroundings may be able to benefit more from sleeping well compared to employees who report to be less mindful. Therefore, in the present study we investigated whether mindfulness plays a role in the relationship between sleep quality and subsequent daily stress.

Data collection took place as part of a larger intervention study attempting to improve lunch break recovery (De Bloom et al., 2017). Participants were 153 Finnish knowledge workers, who filled in a daily survey booklet twice a week for five weeks. Sleep quality and vigor were assessed with the daily booklet. In addition, participants were asked to rate their stress level during the afternoon via SMS. Lastly, physiological stress measures (i.e., cortisol and blood pressure) were collected in the morning, in the afternoon, and in the evening. In this study, we use systolic blood pressure measured in the afternoon and the cortisol decline during the day (CDD) to assess daily physiological stress. Mindfulness (i.e., acting with awareness, acceptance) was assessed with a general questionnaire at the beginning of the study. Data were analyzed with multilevel path analysis, controlling for gender, age, and intervention group.

Preliminary results show that sleep quality was not directly related to subsequent subjective or physiological stress. Better sleep quality did predict increased vigor, which in turn predicted lower subjective stress. Multilevel mediation analyses supported vigor as an underlying mechanism in the negative relationship between sleep quality and

stress. Vigor was not related to any of the physiological stress indicators. In addition, subjective stress did positively correlate with systolic blood pressure in the afternoon, but CDD, which reflects the decline in cortisol from morning to evening, was not correlated with either afternoon subjective stress or systolic blood pressure. Regarding mindfulness, preliminary results show that both acting with awareness and acceptance negatively influence the relationship between sleep quality and subjective stress. Only for employees reporting high levels of acting and awareness and acceptance the relationship between sleep quality and subsequent subjective stress was negative. For these employees, sleeping well was related to decreased stress levels during the same day. For employees reporting low levels of acting and awareness and acceptance, no relationship between sleep quality and subsequent stress was found. Data analysis will be completed before the conference. Our results shed light on the short-term relationship between sleep quality and subjective stress and provide support for the gloomy perception mechanism (de Lange et al., 2005). Experiencing good sleep quality predicted lower subjective daily stress through increased vigor but did not predict physiological stress indicators. Finally, acting with awareness and being accepting of one's circumstances has an influence on the sleep quality-stress relationship. As acting with awareness and acceptance can be improved with training, this finding is especially relevant for occupational health psychology. Teaching employees to be more mindful (e.g., Hülsheger et al., 2015) may maximize the positive effects of sleep quality on lowered daily stress.

Beyond sleep duration: Association of social jetlag with work engagement in a large population of Japanese daytime workers

Akinori Nakata (International University of Health and Welfare

Problem: Social jetlag1), the misalignment between the internal clock and socially required timing of activities, has been implicated to be associated with various health issues including depression2) and diabetes3). Some studies have proposed that social jetlag is associated with reduced work ability4) and poor academic performance5). However, to date, no studies have specifically focused on the positive attitudes against work, i.e., work engagement and its association with social jetlag. The purpose of this study was to clarify the relationship between social jetlag and work engagement in a large sample of Japanese daytime employees.

Procedures. A total of 69,721 non-shift daytime employees (51,846 men and 17,875 women), aged 18-70 (mean 40) years, in 227 different organizations representing various industries and occupations were surveyed by means of a self-administrated questionnaire between 2007 and 2012. In the questionnaire, participants answered questions regarding bedtime and wake-up times on weekdays (workday) and weekends (non-workday) as well as various occupational factors including work engagement components (feel a sense of accomplishment against my work, feel worthwhile working, feel positively engaged at work, feel like going to work in the morning) as well as sociodemographic and health-related factors. Study-defined social jetlag was calculated as the difference in hours of midpoint of sleep times between weekdays and weekends.

Statistical Analyses. Multivariable logistic regression was used to examine the association between social jetlag and work engagement items with adjustment for potential confounders (age, sex, smoking, alcohol consumption, exercise, body mass index, year of survey, season, social support, quantitative workload, job control, overtime, job type, industry type, number of chronic disorders, and insomnia symptoms).

Results. The proportion of those with 0 to ≤1 hour, 1< to ≤2 hours, 2< to ≤3 hours, and 3+ hours of social jetlag were 57.6%, 31.1%, 9.5%, and 1.8%, respectively. Greater social jetlag was significantly associated with an increased likelihood of reduced work engagement. The multivariable adjusted odds ratio (aOR) with 95% confidence intervals for 3+ hours, 2< to ≤3 hours, 1< to ≤2 hours of social jetlag for 'not feeling a sense of accomplishment against my work' was 1.16 (1.02–1.33), 1.08 (1.01-1.14) and 1.04 (1.00-1.08), compared to those with 0 to ≤1 hours (reference group) of social jetlag, respectively. Similarly, aOR for 3+ hours, 2< to ≤3 hours, 1< to ≤2 hours of social jetlag for 'not feeling worthwhile working' was 1.11 (0.93–1.31), 1.18 (1.09-1.29) and 1.07 (1.02-1.13), compared to those with the reference group, respectively; aOR for 3+ hours, 2< to ≤3 hours, 1< to ≤2 hours of social jetlag for 'not feeling positively engaged at work' was 1.22 (1.08–1.38), 1.09 (1.03-1.16) and 1.06 (1.02-1.10), compared to those with the reference group, respectively. Moreover, aOR for 3+ hours, 2< to ≤3 hours, 1< to ≤2 hours of social jetlag for 'not feeling like going to work in the morning' was 1.63 (1.41–1.89), 1.40 (1.31-1.49) and 1.21 (1.16-1.25), compared to those with the reference group, respectively.

Practical implications. Past studies have suggested that short sleep or poor sleep is a risk factor for poor work performance and work attitude. However, the results of this study implies that how the workday (weekday) vs. non-workday (weekend) sleep timing/patterns are controlled for could be a potential risk factor as well. Thus, reducing social jetlag may contribute to improve attitude/performance against work.

Conclusions. In this large population-based cross-sectional study, employees with high social jetlag had a significantly higher odds for poor work engagement in a dose-dependent manner. The study suggests that poor work engagement is not only associated with poor sleep or short sleep duration as reported in past studies, but also with how the weekday-weekend sleep are controlled. The results raise the importance to provide sleep training program aiming to enhance levels of work engagement.

Mind-wandering at work: Attention failure as a consequence of workplace fatigue

Mahima Saxena (Illinois Institute of Technology)

Problem Statement. Successful performance at work rests on the ability to focus attention on-task. Mind-wandering can distract one away from the task at hand and lead to declines in work performance (Smallwood, Fishman, Schooler, 2007; Smallwood & Schooler, 2006). This phenomenon is directly impacted by individual ability to suppress extraneous thoughts in order to prevent the mind from wandering (Smallwood, McSpadden, & Schooler, 2007; Smallwood, Nind, & O"Connor, 2009). In the face of safety critical roles, where on-task attention is fundamental to avoiding accident and injury, attentional lapses due to mind-wandering can have serious and often extremely adverse consequences.

Although decades of research in organizational psychology have sought to improve performance, this phenomenon has only recently come under the investigative lens in organizational psychology. The overarching goal of this study was to understand the nature and causes of mind-wandering at work. Thus, we explored the nature and frequency of mind-wandering at work. To further evaluate inner experience, this study evaluated the extent to which individuals mind-wander intentionally by deliberately spacing out or allowing the mind to wander.

The experience of fatigue and tiredness is a common phenomenon. Using theoretical models of resource allocation and self-regulation, we

proposed that under conditions of fatigue, individuals would lack the resources necessary to clear consciousness of its "clutter" (off-task cognitions) and focus on the task in hand (Kahneman, 1973), such that when an individual experiences fatigue they will be more inclined to mind-wander. Specifically, it was hypothesized that over time within individuals, fatigue will be positively related to mind-wandering, difficulty in attention control, and task focus.

Procedures. Data was collected using dense ecological momentary assessment (EMA) from Monday to Friday for two work-weeks. EMA allows data to collected by alerting participants in real-time, as the phenomena of interest unfold naturally in ecologically valid settings. Self-reported fatigue and mind-wandering was assessed five times daily at work, such that no response occurred within the same 90 minute time-block. Participants were 63 full-time employees (51 female) working in a broad range of administrative jobs in mid-western United States. Average age was 37.17 years (SD = 10.67). The sample consisted of middle and upper level positions. On average, participants had spent between 1 to 5 years at their current position, and worked between 40 to 50 hours every week.

Fatigue. Fatigue was assessed using four items adapted from the Profile of Mood Scales (McNair, Lorr, & Droppleman, 1981) for EMA on a 5-point Likert scale ($\alpha = .937$).

Mind-wandering. Mind-wandering using a single item, "Right now, just before the signal, did your thoughts wander away from the activity before you?" on a "Yes" or a "No" response. On occasions that participants were mind-wandering, they answered further questions after branching related to deliberate mind-wandering, task focus, and attention control difficulty.

Analyses and Results. Data was analyzed using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002). All hypotheses tested within-person Level-1 relationship. ICC revealed substantial within-and-between person variance in mind-wandering.

Participants reported mind-wandering at roughly 42% of the ESM signals. The mean rate of mind-wandering at work was consistent with findings from existing studies (for example, Christoff, Gordon, Smallwood, Smith, & Schooler, 2009). Of note is that the mean rate of purposeful disengagement from work (M = 2.49, SD = 1.47) was close to findings from previous studies (for example, Kane et al., 2007). About 71% variance in purposeful workplace mind-wandering, 83% variance in attentional control, and 79% of the variance in attentional focus over the last hour was found to be within-person.

Overall, mind-wandering displayed a substantial amount of within-person variance (86%) and fatigue had a significant positive association with mind-wandering within individuals ($\beta 10 = 0.017$, $p < .001$). The study investigated the relationship between fatigue and deliberate disengagement via purposeful mind-wandering. Results suggest that under conditions of fatigue individuals deliberately "space-out" by mind-wandering "on-purpose" ($\beta 10 = 0.297$, $p < .001$). In addition, fatigue was also found to be significantly positively related to felt perceptions of difficulty in preventing mind-wandering. In other words, when individuals experienced fatigue, they also found it difficult to control their stream of thought and focus attention on-task ($\beta 10 = 0.409$, $p < .001$). Fatigue was found to be positively associated with difficulty in focusing attention on-task over the last hour ($\beta 10 = 0.462$, $p < .001$). Results will be discussed based on existing theories and elaborate on the phenomenology of mind-wandering at work.

Practical Implications/Conclusions. Employees are more likely to engage in attention failures at work when they are tired. Of note is that deliberate mind-wandering or "spacing out" occurs when people experience tiredness. Thus, restructuring work and scheduling breaks, especially for safety critical jobs, where errors due to attention failures may lead to accidents and injury, is important to consider in organizational policies for structuring work, scheduling breaks, and shifts.

Testing Recovery versus Accumulation Effects of Time Pressure on Fatigue in Daily Diary Studies

Anita Keller (University of Groningen)

More and more studies are using diary designs to investigate temporal dynamics of stress processes (Podsakoff, Spoelma, Chawla, & Gabriel, 2019). Typically, these studies are interested in the within-person fluctuations in stressors predicting strain outcomes on the same day. However, this approach does not account for the possibility of short-term accumulation of stressors such as time pressure. In this paper, we will compare different theoretical perspectives of how the stress-or-strain relationship may evolve over a few days and therewith contribute to our understanding how the stressor – strain relationship unfolds over short time periods.

There are two competing perspectives on how the stressor – strain relationship may evolve over short time periods. Some theories such as the initial impact model or allostatic load model assume that employees immediately react to stressors with heightened levels of strain. As soon as the stressor is removed, strain levels and activation return to their base level (Frese & Zapf, 1988; McEwen, 1998). These models imply that there are concurrent positive relationships between job stressors and strain, but not necessarily lagged relationships (e.g., from morning job stressors to end-of-work strain or from previous days to current strain). Other theoretical positions assume that exposure to stressors may accumulate over time. For example, Meijman and Mulder (1998) assume that exposure to high time pressure leads to insufficient time to recover which may increase the intensity of subsequent load reactions. This implies that we may observe lagged relationships between job stressors and strain, but more importantly, that the exposure to job stressors on previous days accumulates and amplifies the reaction to job stressors.

In the current study, we investigate the temporal dynamics using time pressure as a prime example for job stressors and fatigue as a typical strain reaction to time pressure. We used four diary studies with participants (mean N = 166; mean observations = 1,406) from diverse occupational backgrounds. The samples had a mean age of 34 years and balanced gender distributions (cf. Table 1). Time pressure was assessed using three items (e.g., "Today, a fast pace of work was required"; Semmer, Zapf, & Dunckel, 1999) as was fatigue (e.g., "This evening, to what extent do you feel mentally exhausted?", Cranford, Shrout, Iida, Rafaeli, Yip, & Bolger, 2006; Frone & Tidwell, 2015).

To account for the nested data structure, we analyzed data using multilevel models in Mplus 8.0 (Muthén & Muthén, 1998-2017). First, we investigated the concurrent effects of time pressure on fatigue (both reported in the evening), second, the lagged effects of time pressure reported before lunch on fatigue in the evening, and third, the cumulation effects by including a moderator of previous days' time pressure assessments.

In all four studies, positive concurrent effects from time pressure on fatigue were observed (unstandardized estimates ranging from 0.16 (SE = 0.04) to 0.24 (SE = 0.03), all ps < . 001). In three out of four studies a positive lagged effect from time pressure on fatigue within one day was observed as well (unstandardized estimates for study 1: 0.18 (SE = 0.04), $p < .001$; study 2: 0.05 (SE = 0.03), $p = .14$; study 3: 0.11 (SE =

0.03), p < .001; study 4: 0.09 (SE = 0.03), p < .01). To test for cumulative effects over the work week, we predicted fatigue by time pressure on the same day, time pressure on the previous day, and their interaction term. In all studies, the direct effect from previous day's time pressure on fatigue was not significant (unstandardized estimates ranging from -0.26 (SE = 0.21) to 0.04 (SE = 0.03), all ps > .05). We also did not find significant interaction terms in any of the studies (-0.03 (SE = 0.03) to 0.07 (SE = 0.05), all ps > . 05). These findings do not support the idea of short-term accumulation effects.

In sum, our findings tend to support initial impact and recovery models over accumulation models over the work week. In three out of four studies we found lagged effects within one day, implying that some of the strain reactions may be delayed in their recovery. However, we did not find a lagged effect from time pressure on previous days nor did our results imply that higher levels of time pressure on the previous day would intensify the effect of time pressure on fatigue within one day. Our findings imply that employees manage to recover from demanding work over night and may benefit from activities that further help them to detach such as exercising. The rigorous test of the two competing theoretical positions across four studies also comes with some limitations such as the sole reliance on self-report. In addition, we only tested short-term accumulation in this study. Future research may investigate accumulation over different time frames such as weeks as well.

The Role of Sleep Trackers and Work-Supported Sleep Interventions in Improving Physical and Mental Health

Vicki Culpin (Hult International Business School)

Busy professionals experience many pressures that impede their ability to obtain optimal amounts of sleep, and the negative consequences of poor sleep should be of particular concern to organisations. This is not only because of the effects on more general cognitive, social and emotional and physical well-being, but also due to the effects of sleep reduction and fragmentation on behaviours particularly pertinent to organisational life such as job satisfaction (Scott and Judge, 2006), workplace deviance (Christian and Ellis, 2011), motivation at work (Baranski et al, 1998) and unethical behaviour (Barnes et al, 2011). In addition, sleep deprivation has been correlated with absenteeism, presenteeism (Akerstedt et al, 2007; RAND, 2016) and the prevalence and severity of workplace injuries and accidents (Salminen et al, 2010).

One of the most effective ways of improving sleep quality and quantity in individuals suffering from insomnia has been to encourage and promote sleep hygiene, with research consistently finding significantly improved sleep measures in this population, and yet the effectiveness of sleep hygiene practices as a method for improving sleep in non-clinical working populations is somewhat sparse. In addition, research has found success in short-term usage of activity trackers to promote positive health behaviours, but the effects disappear after 3-6 months (Shih et al, 2015). There are currently no studies that examine the effectiveness of activity trackers in improving sleep quality and quantity in working populations, particularly when compared to and/or combined with sleep hygiene measures. This study, therefore, sought to examine the role of sleep trackers and two levels of work-supported sleep interventions in improving physical and mental health amongst a working population.

170 employees from a large multi-national organisation were allocated to one of three experimental conditions:

(a) No Intervention Condition - Participants were provided with a sleep tracker;

(b) Generic Intervention Condition – Participants were given access to generic sleep information provided on the organisations intranet along with a sleep tracker;

(c) Bespoke Intervention Condition – Participants were provided with bespoke material and a 30min telephone call to a sleep coach along with a sleep tracker.

The study comprised three time phases, with each phase consisting of a set of seven psychometrics for participants to complete, measuring job satisfaction (BIAJS), happiness (OHQ), subjective sleepiness (ESS), metal and physical health (SF36) resilience (CD-RISC) perceived stress (PSS) and sleep quality (PSQI), . At Time 1, participants completed the psychometrics and began to wear their sleep tracker. At Time 2, one month later, participants were asked to repeat the psychometrics and stop wearing the sleep tracker, and three months after this, participants completed the psychometrics for the final time (Time 3).

The study found that daytime sleepiness and perceived stress significantly decreased between Time 1 and Time 2, with this decrease remaining at Time 3. In addition, vitality and happiness significantly increased between Time 1 and Time 2, with these significant and positive improvements remaining at Time 3. However, for both decreases in daytime sleepiness and perceived stress, and increases in vitality and happiness, there was no effect of experimental condition. For the remaining psychometrics there was no significant improvement across time, nor across experimental condition.

When examining sleep, as measured by the sleep tracker (at one week intervals during the one month tracking period) there was an overall significant reduction across time in the amount of deep sleep, a corresponding significant increase in REM sleep, and no change in the overall sleep duration of participants, regardless of experimental condition. However, subjective ratings of sleep duration increased significantly between Time 1 and Time 2, and reported time awake and time to fall asleep decreased significantly in the same period. As before, there was no difference between experimental conditions.

Whilst the results are complex, particularly the relationship between the objective and subjective measures of sleep, this study has found that by creating an awareness of individuals sleep patterns, through use of a sleep tracker, participants reduced their daytime sleepiness, and perceived stress, and increased their levels of energy and happiness within a one-month period, which was sustainable over at least three months. In addition, critical for practitioners, raising awareness of sleep quality and quantity, through use of a sleep tracker was sufficient to create the environment for these positive health and well-being changes, with tools, techniques and advice being welcomed by participants, but not creating any additional benefit beyond that of wearing the sleep tracker.

Philadelphia Ballroom North

The National Research Agenda on Healthy Work Design: A Town Hall Informational and Interactive Forum

Moderator: Jeannie Nigam (NIOSH)

Panelists: Naomi Swanson (NIOSH), Rene Pana-Cryan (NIOSH), David DeJoy (University of Georgia), L. Casey Chosewood (NIOSH)

Background. The NORA for HWD was developed to help identify the knowledge and actions most urgently needed to both

identify occupational risk factors and prevent avoidable adverse health outcomes among workers. This Agenda provides a vehicle for stakeholders to describe the most relevant issues, research gaps, and safety and health needs for the cross-sector. It also helps prioritize these issues and gaps. It attempts to inspire work across the entire country, to include all of its research and development entities, whether government, higher education, or industry. NIOSH will use this and other sector and cross-sector agendas to develop the full NIOSH Strategic Plan.

The audience for the Agenda and this session within the conference is broad. It includes researchers, health and safety professionals, practitioners, and human resources professionals in industry, labor, academia, and government.

The objectives were developed to assist in setting priorities around occupational health and safety research and produce information that can help inform workplace practices. The session will review the seven broad goals that make up the national research priorities comprising the Agenda. Panelists will describe each, give information related to the burden and need associated with each goal, and suggest areas where related, additional work by stakeholders and partners will be of great value. The seven goal areas of the Agenda strive to:

- Address the safety and health implications of advancing technology
- Decrease the burden of shift work, long hours of work, and sleep deficiency
- Promote a sustainable work and non-work interface
- Identify and examine the impact of changes in worker demographics on worker safety, health, and well-being
- Improve the safety, health, and well-being of workers with non-standard work arrangements
- Reduce work organization-related chronic health conditions among workers
- Improve the safety, health, and well-being of workers through healthier work design and better organizational practices

The timing of this panel is ideal given the recent release of the Agenda document and the recent formation of a new External Council dedicated to advancing the Agenda. The new Agenda was published in March 2019 and will be widely disseminated and publicized in advance of WSH 2019. It should be a topic many meeting attendees will have some baseline knowledge of and interest in, supporting a robust discussion.

Discussion. After each presenter has delivered their overview of the topic, the moderator will invite comments and questions from the audience. To allow for wide participation, remarks from audience members will be limited to 2 minutes, unless additional time is available for lengthier input. The moderator will have prepared questions for panelists should the number from the audience be limited. Discussion may include: ways to promote the new Agenda; identification of partners, stakeholders and populations of concern; surveillance issues related to this work; intervention development and evaluation; and novel approaches to more holistic research.

Independence Ballroom CD

Reading Between the (APA Guide)lines: A Discussion of Ethical Dilemmas

CEP

PANEL

Chairs: Rebecca Brossoit (Colorado State University), Jacqueline Wong (Colorado State University)

Background. This interactive panel session focuses on ethical dilemmas that researchers, mentors, and graduate students have experienced professionally. Each of the six panelists will describe up to three ethical dilemmas they have encountered, discuss how they responded, describe what they learned, and provide practical recommendations to others in similar situations.

Ethical Dilemmas Experienced by Panelists. The presented ethical dilemmas align with three main themes: working with vulnerable populations, coercion of participants, and the use of specific research methodologies. Three panelists will focus on ethical dilemmas they have experienced when working with vulnerable populations. One panelist will describe their work with low-income workers and families and the challenges involved in balancing research integrity and supporting members of the community. This panelist also describes concerns related to privacy and conducting health research on populations that have poorer physical and mental health compared to workers who earn higher wages. Another panelist will describe ethical dilemmas they have encountered in their research on mental health problems in high stress working populations, such as how to intervene and provide treatment options and resources to anonymous participants. Finally, a third panelist will describe their Master's thesis project, in which they interviewed pregnant working women about their parental leave and return to work decisions.

Three panelists will describe ethical concerns regarding potential coercion of participants. One describes how low-income populations may be motivated to participate when monetary compensation is provided, and another describes how soldiers may feel pressured to participate when encouraged by their leaders and when data collections occur during their work shifts. Relatedly, another panelist describes an experience in which an IRB complaint was filed against them for "the appearance of coercion" in how they recruited participants for a research study. This panelist's experiences are each framed around their work as an advisor and mentor to graduate students, and they will describe how they have sought guidance and resources within the university system when responding to student-related concerns.

Regarding research methods, one panelist will discuss methods for sleep research, one will discuss a work-family intervention, and another will discuss qualitative research methods. The first will identify a number of ethical dilemmas they have encountered when conducting laboratory-based research on sleep and the effects of sleep restriction. They will describe a specific quasi-experimental study which included a "minor" sleep restriction (i.e., 1-1.5 hours) component that they believe had the potential to negatively impact participants. They discuss the insight they gained from this experience and how they strive to conduct sleep research in more ethical ways in future projects. The last two panelists will provide a graduate student perspective as they describe ethical questions they encountered in their Master's thesis projects. The first graduate student will discuss how they responded

to unanticipated emotional reactions from audience members in a work-family intervention workshop. They also describe how their young age and status as a student presented unique challenges related to their credibility when administering the intervention. The second graduate student describes dilemmas they experienced when learning how to collect and analyze qualitative data. They identify ethical dilemmas that they faced when deciding on an appropriate study design, identifying how the research team's assumptions could present biases, and learning how to appropriately analyze and summarize qualitative data in a discipline that is primarily focused on quantitative data techniques.

Purpose of the Interactive Panel. Our goal for the proposed interactive panel is for the audience to learn from experts in the field and current graduate students about the reality and frequency of ethical dilemmas that can occur when conducting research, mentoring students, or working as a student. We believe that the presenting panelists will provide relevant and helpful insight and practical recommendations to others who may find themselves facing similar ethical dilemmas.

Format of the Panel. Given that this is an interactive panel with a large discussion component, questions will be prepared by the chairs and solicited from the audience. For example, the chairs will ask the panelists whether professional ethics guidelines (e.g., the APA Ethical Principles and Standards) helped them in navigating and responding to the ethical dilemmas they have faced. Additionally, panelists will be asked how they believe graduate programs can better prepare students to respond to ethical dilemmas like the ones they discussed. In line with the theme of the conference, panelists will also be asked to identify unique ethical dilemmas that they foresee arising in the next 10 years. In addition, audience involvement will be facilitated by asking audience members to share their own professional ethical dilemmas, providing an opportunity for audience members to solicit advice from the panelists and other audience members. There will also be time allocated for a more general question-and-answer discussion.

Studying Low-income Workers and Families

Mark Agars (California State University, San Bernardino)

This presentation discusses some of the critical ethical dilemmas I have encountered in my research studying low-income workers and families. For nearly ten years, my research team has studied the challenges of managing the work-family interface as experienced by low-income workers. Our approach has included survey methodology, focus groups, and interviews with varying degrees of structure. In all, we have gathered data from thousands of low-wage workers, supervisors, and family members. In sharing these experiences, I will highlight ethical dilemmas that emerged due to unique vulnerabilities inherent in the low-income worker population, and due to conflation of research and advocacy motives. A broad challenge in targeting participants who live below poverty level, is that there are unstated but likely vulnerabilities among members of the population. For example, poverty motives may drive participation when compensation is available because even small awards (e.g., $10 gift card) have a significant impact. This raised for us concerns about coercion. These same motives are further problematic when using selective recruiting to target subgroups at locations where other low-income workers are present. We found potential participants had an increased motive to misrepresent characteristics in order to receive compensation, raising questions about the honesty of the data. One example of this were individuals who falsely represented being English fluent, on a particular study that was not open to non-English speakers. An additional ethical challenge emerged when studying low-income workers and health outcomes. The population of low-income workers has higher rates of physical and mental illness, worse cardiac health, and higher morbidity and mortality rates on several key health outcomes. Unfortunately, the same individuals do not have the resources to get necessary medical treatment. While collecting health data (e.g., blood pressure, BMI, stress, physical activities, etc.), our team was faced with the possibility of unintentionally raising individual concerns about their own health, but without the resources to provide medical advice or treatment, and with the recognition that participants were not likely to be able to get such treatment on their own. Finally, the population of low-wage workers includes many sub-populations of individuals, including higher rates of individuals who have criminal backgrounds or who are in the country undocumented. Consequently, these were individuals who had a heightened concern for privacy. It was important for us to be inclusive in our recruitment such that participants from such populations were represented. At the same time, there was heightened concern with protecting this information from being revealed, particularly during group discussions with participants. In the context of discussing work-life issues, participants often become more open and we more likely to inadvertently reveal information they wished to remain private. The dilemma derived from separating research and advocacy was perhaps more subtle, but was substantially more persistent. As researchers focused on a population of individuals identified as disadvantaged and at-risk, we have faced real pressure of the need for advocacy. These pressures came via external sources and partners in the community, for example, who wanted to make sure that the data we collected via interview captured what they believed to be the real and most critical "needs" of low-income workers. In addition, perhaps more nefariously, these pressures emerge internally from a desire to have a positive social impact and to care for a population in need. The nature of community-based research naturally creates some of these challenges, but I believe the risk is greater when working with groups of individuals who have extreme real-life challenges that come to the forefront during the research process. So it was a tricky ethical dilemma to maintain the integrity of the research process, while alternatively caring for and supporting members of the community. The ethical dilemmas I will be speaking to, span the research process from the very ideas we identify and formulate to pursue, through the data collection and gathering process, all the way to the delivery of findings and the impact of our work. It is my experience that studying disadvantaged groups (i.e., low-income workers) who are afforded no special protections, yet maintain clear vulnerabilities, can lead to interesting ethical dilemmas, and I look forward to sharing our experiences, challenges, successes, and struggles.

Ethical Dilemmas Involving Graduate Students

Tammy Allen (University of South Florida)

This presentation addresses ethical dilemmas that include graduate students. As faculty members we are responsible for advising and mentoring graduate students. Faculty responsibilities include role modeling and exhibiting ethical behavior for their trainees. Although there are various ethical principles and guidelines in existence (e.g., American Psychological Association Ethical Principles of Psychologists and Code of Conduct) and universities often have offices devoted to ethics and integrity, handling issues that involve ethics is often fraught with challenges. In this presentation I will touch on three topics that involve ethical dilemmas and some of the lessons learned. The first

is a research project specific ethical dilemma that involved collecting data from faculty from my own university. This research project involved examining work design and career development among faculty. I secured support from the office of the provost to collect data from USF faculty. I included my own department, psychology, in the invitations to participate. Data collection included a longitudinal survey. My protocol and recruitment strategy had been approved by the IRB. A few weeks into year 1 data collection, an anonymous ethics complaint was filed against me (as the PI) to the university IRB based on the "appearance of coercion" in the recruitment methods for the study given that I am a Full Professor and involved in tenure and promotion decisions within my department. Students in my lab were involved in the research, so how I responded to this ethics complaint had to be a model for the students and involve discussions with them as we worked through the issues. I had to better educate myself on research ethics and dual roles. I had to tell myself not to take the complaint as personal. This was hard because I questioned why someone would file an anonymous complaint versus talking with me or talking with the department chair. We resolved the issues at Year 1 via changes in language to the consent form, but after launching Year 2, the same complaint was made. As a result at various points in the process, the data collected for the project became in jeopardy and I had to make a case for why data should not be "thrown out." I had to make a case for keeping the data. The entire experience became a teachable moment for myself and for my students. Some key lessons learned involve the importance of sound record-keeping, open communication with IRB personnel and perspective-taking. The second topic is the more general case of students bringing issues to discuss that involve the behavior of other faculty (e.g., research authorship). For example, how does one respond when a student feels like another faculty member has not given the student proper credit on a publication? I suspect that few of us who publish research have escaped controversies that involve authorship. Authorship issues are not trivial matters and disagreements can have long lasting impact, including damage to relationships. Although we mentor students on the research and publication process, addressing how to negotiate authorship issues is often neglected. When confronted with such issues as lesson learned is to remember that such situations are more often ones of miscommunication rather than malice. I will review how I incorporate these issues into our graduate curriculum and ways to try and navigate such "sticky" situations. Finally, I will discuss several general points with regard to university systems and ethical dilemmas that involve students that are not research-related. Some ethical dilemmas require assistance and/or notification to others within the university infrastructure. When confronted with sensitive situations, a lesson I have learned is to listen first, talk less, and to the extent possible remain objective. Know when to seek additional guidance and know who to go to for guidance within your university system.

Ethical Dilemmas when Conducting Research on Mental Health in High Stress Working Populations

Thomas Britt (Clemson University)

Ethical Dilemma #1: Assessing mental health problems among employees while not being able to intervene to help them. Description of Dilemma: Employees in high stress occupations such as the military, police officers, and firefighters, are frequently exposed to traumatic events that have the potential to create mental health problems. Britt and McFadden (2012) reviewed evidence that employees in high stress occupations are much more likely to develop mental health problems when compared to national baseline percentages. In our research with these employees we ask them about the traumatic events they have experienced and questions surrounding the mental health problems that can result from these events (e.g. post-traumatic stress disorder, depression, and anxiety. We also ask employees whether they have received mental health treatment to address any problems they may be experiencing as a result of these problems. Our research typically shows up to 30% of participants indicating the presence of some form of mental health problem, and also that a minority of these individuals report treatment for these problems. As someone who cares about the mental health of employees in high stress occupations, I want those suffering with problems to get the mental health treatment they need. However, because the survey responses are anonymous, I cannot identify those employees suffering from mental health problems. Furthermore, even if I could identify those employees suffering from mental health problems, it is unclear whether I am in the best position to intervene in order to encourage them to get treatment. Responding to the Dilemma: Our primary method of dealing with this issue is to be sure to prominently display the contact information for the local behavioral health clinics and online resources that are available for employees dealing with mental health problems. In addition, we have developed unit training to encourage military personnel to support others who need to get mental health treatment. What I learned/recommendations for others: One of my strategies for coping with the inability to intervene as I would like is to realize that by responding to the assessments and being exposed to resources available for treatment, personnel may be more likely to ultimately get help for any mental health problems that have been developed. I recommend that researchers always be aware of local mental health resources whenever doing an assessment involving mental health problems among employees who are exposed to traumatic events. Ethical Dilemma #2: Encouraging participation in research while not being coercive. Description of Dilemma: Collecting data from employees working in high stress occupations such as the military often requires employees being surveyed in groups. In order to ensure higher levels of participation, I have worked with military leaders and convinced them that the topics we are studying (e.g. examining how the experience of traumatic events is related to the development of mental health problems, identifying those factors that buffer military personnel from mental health problems in the face of high levels of trauma) are important enough to devote a portion of the soldier's duty day to completing assessments. Therefore, soldiers are told to arrive at a specific location at a specific time in order to complete the assessment. Although soldiers arrive to the study in order to complete the assessment as part of their job, they still are not required to answer any of the questions and can skip any question they do not want to answer. Therefore, soldiers could theoretically choose to not answer any questions, but because they are present at the research project as part of their duty day, they may feel compelled to respond to all of the survey items. Responding to the Dilemma: We have adopted a couple of strategies approved by the IRB board in order to address the dilemma. First, soldiers are not required to answer any of the questions. If a soldier hands in a survey with nothing completed, we accept the survey and do not demand the survey be completed. Second, we include a question where we ask the participants whether they approve of us using their responses for research purposes. If they select "No," their responses are not included in the dataset. This way, they can complete the measure as part of their job duties, but they have autonomy over whether their responses are being used for research purposes. What I learned/recommendations for others: When I first started out doing

research in this area, I was upset when participants did not respond to the survey or allow their responses to be used for research. However, I realized the importance of providing the employees with the autonomy to participate in the assessments or not. In addition, I realized that if I effectively communicated the importance of the project to the employees, the percentage participating in the assessment and allowing their responses to be used for research would be higher.

Falling Asleep at the Research Wheel—Ethical Challenges of Sleep Research

Larissa Barber (San Diego State University)

Over the past 10 years, I have conducted a number of studies related to sleep, stress, and behavior in both working and college student populations. My early work focused on studying sleep using survey methodologies that explored evaluations of sleep in a naturalist setting rather than experimental designs. However, there has been increasing pressure to use experimental or quasi-experimental work in to increase internal validity claims (i.e., causality) when testing proposed theoretical models in occupational health psychology and organizational behavior journals. In keeping with this trend, my colleagues and I employed a quasi-experimental design to test negative reactions to hypothetical work scenarios based on minor sleep restriction. There were three ethical issues I thought I had adequately addressed with this design: (1) using a vignette approach with college students to avoid real world effects of negative sleep for the participants, (2) excluding people who have been diagnosed with a sleep disorder from the study, and (3) using a quasi-experimental manipulation of sleep where participants either came into to an 8:00AM or 10:00AM session. The session time approach was chosen because it does not differ from "typical" work or school activities experienced in daily life (as opposed coming in at 5:00AM or 3:00AM). The idea was that this would only result in a "minor" (i.e., 1-1.5 hour) sleep reduction among a non-clinical population, which is expected to have a healthy sleep duration of about 8 hours. After reviewing the data, however, the average sleep time in the "late" condition was around 6.5 hours, with the "early" condition resulting in about 5.5 hours. Although the reduction was indeed minor, it highlighted that college students without sleep disorders have generally poor sleep; thus, even "minor" sleep changes may push a large proportion of them into partial sleep deprivation levels that also have serious negative implications for functioning (i.e., < 5hrs; Pilcher & Huffcutt, 1996). In another sleep manipulation study published with college students about a year later (not mine), this difference was around 4.5 in the experimental sleep disruption condition compared to 6.5 among control participants. As a result of the above insight, I've avoided any type of sleep restriction in my research and I am more thoughtful about sleep issues in my research designs. There are two key issues that I wish I was more attentive to in the past. The first is understanding what constitutes a vulnerable sleep population outside of clinical disorders or diagnoses. The second is understanding how partial sleep deprivation can affect our functioning just as much—and sometimes even more—than full sleep deprivation. Since conducting that research, it has also occurred to me that, as an occupational health psychologist, I should consider how my research designs promote or undermine my broader professional effort to improve well-being. As a result of this experience, I have a few recommendations for addressing ethical challenges in research studies, especially those that are focused on how sleep is linked to negative experiences or behaviors (i.e., stress and counterproductive work behavior). One is to collaborate with a sleep laboratory to provide appropriate protection and "debriefing." In the sleep context this means providing a research environment where participants can be closely monitored during sleep deprivation and then have the opportunity to recover that sleep before leaving your care. Another strategy is to use "positive" sleep interventions, which increase sleep through interventions rather than restrictions. Though interventions can be challenging due to sleep issues arising from a number of causes outside employees' control, positive sleep interventions would strengthen claims of causality while even potentially benefiting our participants. I've often found that many participants are unaware of basic sleep hygiene issues and remedies, so I now include sleep hygiene information at the end of the study even in non-experimental work. Lastly, I would also recommend that authors work to educate their colleagues on ethical challenges of certain sleep designs in their manuscripts to increase awareness and understanding of these issues. Unfortunately, it can be difficult to publish non-experimental research because reviewers and editors often ask for sleep manipulations in the form of restriction. This is because there are quite a few articles published that do not follow ethical sleep manipulation guidelines. As a result, I published an article last year (Barber, 2017) that outlines these particular issues in hopes that researchers will feel more confident to tackle these issues when designing their work and preparing it for the publication process. References Barber, L. K. (2017). Ethical considerations for sleep intervention in organizational psychology research. Stress and Health, 33(5), 691–698. https://doi.org/10.1002/smi.2745 Pilcher, J. J., & Huffcutt, A. I. (1996). Effects of sleep deprivation on performance: A meta-analysis. Sleep, 19(4), 318–326. https://doi.org/10.1093/sleep/19.4.318

Ethical Dilemmas Faced as a Student Intervention Researcher

Kelly Cave (Colorado State University)

Occupational health psychology researchers are often faced with ethical dilemmas at some point in their careers. As a student researcher interested in interventions, I found myself exposed to these dilemmas early on in my graduate studies. I quickly learned that although the goal of intervention research is to enact good and improve the lives of participants, there is still potential for harm to arise. The focus of my contribution to this panel is to discuss some of the ethical considerations I faced while conducting a work-life balance training intervention for my master's thesis research. I will also review what I learned from these experiences and my recommendations for researchers who find themselves in similar situations. One of challenges I faced while conducting this intervention was navigating the emotional reactions some participants had to the subject material. During the presentation portion of the intervention, my advisor and I would present a wide-range of empirically-backed strategies that participants can apply in their everyday lives to improve their balance. These strategies would touch on both work-related factors (e.g. supervisor-support, organizational culture, etc.) along with non-work-related factors (e.g. family support, exercise, nutrition, etc.). Once the presentation was complete, participants were separated into two groups: one group takes part in a goal-setting activity while the other group takes part in a group discussion. It was during one of these break-out sessions that a participant needed to leave the room while fighting back tears. It was clear that something about the goal-setting activity brought out an emotional reaction that was unwanted at the time. In addition to this example, we found that the presentation also induced some negative emotions directed at the participants' organizations. We think this occurred

largely because the intervention made problems in the workplace more salient. As my advisor and I discussed solutions that other organizations have implemented to improve their employees' work-life balance, participants started comparing their current organization to these example organizations. This comparison ultimately led participants to conclude that their current organizations were not doing enough to help them handle their work-life balance challenges. Often, participants made their disdain very clear, both during the presentation (e.g. eye rolling, scoffing, and verbal comments) and after the presentation (e.g. approaching my advisor and I afterwards to express their disappointment with the support they currently receive from their organization). Lastly, my advisor and I found that on multiple occasions, participants would approach us on their own accord to share sensitive, personal information. Given the fact that we have no training in counseling psychology, we were unqualified to provide professional support to these people, yet we felt it was important to show our support and sympathy for these individuals as humans. This was a fine line we had to straddle, and as a result, I learned just how essential having mental health recommendations can be. Based on this experience, I recommend that anyone who is presenting on potentially sensitive topics investigates available resources ahead of time. This should include mental health resources, and in cases like ours, HR resources as well. Another ethical dilemma I considered at the forefront of my study was how my age (23 years) and status as a student would contribute to my perceived credibility. This was a big concern for me because I expected most of my participants to fall in the range of 30 to 50 years old with many more years of work experience and family responsibilities. My concern was that my age and lack of experience would not match the message being delivered, and I did not want to come across as condescending and out of touch. Since my experience did not match well with the experiences of our target population, I felt uncomfortable and unqualified to lecture on some of the strategies we covered. Because of this, I requested that my advisor, who closely matched the demographics and experiences of most of our participants, take this part of the presentation. I believe this was the best possible solution to this dilemma because her experiences allowed her to connect better with many of our participants than I ever could. My recommendation to other researchers and practitioners who need to present strategies and recommendations with which they have no previous experience is to have someone who is experienced with the topic deliver the information. An example of a bad fit between a presenter and an audience may be a wealthy financial advisor giving financial advice to an audience of people experiencing poverty. However, this misfit between presenter and audience can be reduced if the financial advisor once experienced poverty themselves. In other words, ask yourself, what type of presenter best relates to the background of your target population, and who will the audience want to listen to?

Learning Qualitative Data Collection and Analysis as a Student

Kelsie Daigle (Colorado State University)

This presentation discusses the major ethical dilemmas I have experienced conducting exploratory qualitative research for my Master's thesis as a graduate student. There are not explicit guidelines or standardized best practices for qualitative research, especially for exploratory designs. Accordingly, I decided to gather resources from committee members, publications from top tier journals, and methodological textbooks to design my study and familiarize myself with any the ins and outs of qualitative research. During this, I gleaned how an ethical dilemma may arise at every step in the exploratory qualitative research process. I felt immense ethical responsibility as both a researcher and mentor for undergraduate research assistants to conduct a rigorous and sound ethical study. For my Master's thesis, I explored how pregnant working women make decisions about parental leave and return to work. More specifically, I examined if and how expectant mothers consider individual factors (e.g., culture, health, income, family influence) and workplace factors (e.g., job demands, supervisor and coworker support, leave polices) in their planning for parental leave, time on leave, and returning to work. I conducted semi-structured phone interviews with adult pregnant working women in the U.S., audio recorded the phone conversation, transcribed the audio into Nvivo Software, coded the data using a codebook (i.e., thematic template), and used thematic analysis to find overarching themes and conclusions. This presentation will discuss 3 areas where I experienced key ethical questions/concerns in this project: 1) is this study design effective for my research questions; 2) how is the research team's assumptions and influence impacting the project (e.g., bias); and 3) how to establish a standard for data saturation then what strategies were appropriate for data analysis. 1) In my design, I initially assessed how qualitative research would stand as the appropriate method as opposed to quantitative. Thereafter, I had to decide if my topic and research questions warranted a grounded theory or exploratory research approach, and how to do justice to pregnant working women in various job types, income levels, and identities. 2) It is imperative to understand how the research team may influence a project in qualitative research at every level to avoid experimenter bias. The literature shows that researchers' assumptions, biases, and previous experiences may influence not only the research questions, but also how code data and how to derive major themes and conclusions. I will discuss how we used self-reflection activities and team discussions to monitor researchers' influence. 3) Determining saturation in the data is a major challenge that could have consequences for implications drawn from the research. After I reached saturation, I continued to carefully consider data analysis techniques regarding coding and thematic analysis. Conflicts in data analysis arise in deciding a) how to code the data, b) how to establish how many coding rounds are necessary, and c) what technique is most appropriate for thematic analysis. Accordingly, I will discuss how my research team and I had to consider our assumptions and biases to ensure an objective data analytic process. Response to ethically dilemmas or ambiguous decisions: Major ethical judgements I confronted go beyond the general APA ethical principles and arise in the day-to-day challenges of qualitative research, which are often grounded in a balance between rigorous science, ethical decision-making, and feasibility. To effectively navigate ethical dilemmas particular to my work, I used reflexivity (e.g., on APA ethical principles), my resources and network, and transparency in the research protocol. The laborious precautions I have taken as a graduate student learning qualitative data taught/reinforced invaluable lessons surrounding the responsibility we hold as researchers and how it affects what sacrifices we may have to make to keep a study idyllic, yet feasible. My process illuminated how qualitative studies may carry ambiguity clouded with ethical considerations in the absence of standardized practices/protocols for project design. Additionally, it was apparent to me that publications are not particularly transparent in their procedures, likely due to restrictions (i.e., page limits) making textbooks my favored published resource for setting guidelines in qualitative work. Recommendations for graduate students: Collectively, my recommendations for graduate students interested in conducting qualitative research include casting a

wide net when collecting methodological resources, and reflect on your decision-making at each step, ruminate on how your assumptions may or may not influence the process, and be as transparent as possible in your papers and publications.

5:45–7:00 p.m.
Independence Ballroom A

Film Screening of *The Company We Keep*, including Q&A with the Producers

Dave DeSario and Natasha Luckhardt

NOVEMBER 8

FRIDAY

8:00–9:00 a.m.
Liberty Ballroom B

Poster Session 2 and Total Worker Health Book Signing with John Howard, MD, MPH, JD, LLM and MBA, NIOSH Director

Interventions in the Workplace

A-1

Associations Between Workplace Exercise Interventions and Job Stress Reduction: A Systematic Review

Sungwon Park (University of Illinois at Chicago)

Research Context. Job stress can be defined as a psychological response to either emotional or physical challenges when workers' capabilities do not match the demands of their jobs. The causes of job stress are difficult to pinpoint, as they can be simultaneously related to multiple factors such as interpersonal problems, environmental conditions, inadequate job descriptions, and personal issues (National Institute for Occupational Safety and Health (NIOSH), 1999). A Bureau of Labor Statistics report published in 2004 classified job stress as an "anxiety, stress, and neurotic disorder." Although such disorders caused more than four times the number of days away from work than all nonfatal injury and illness cases as of 2004 (NIOSH, 2004), NIOSH has not reported data on this class of disorders since that time.

According to recent research, high job stress is correlated with reduced worker quality of life, detrimental effects on worker health such as increased risk of cardiovascular disease and mental disorder (Calogiuri et al., 2016; Freitas, Carneseca, Paiva, & Paiva, 2014; LaMontagne, 2012), and increased worker absenteeism and lower productivity. All these issues have a negative effect on companies' financial status as well (NIOSH, 2002). Consequently, providing exercise programs that reduce worker stress has demonstrated benefits for both individuals and organizations.

Exercise is one of the confirmed approaches for coping with psychological stress in general (Kettunen, Vuorimaa, & Vasankari, 2015; Van Rhenen, Blonk, van der Klink, van Dijk, & Schaufeli, 2005). However, relatively few research studies have been conducted on the effects of workplace exercise interventions on job stress.

Problem Statement. Despite the growing problem of occupational stress in the contemporary workplace and the related growth of employee absenteeism, the literature has given scant attention to the effectiveness of workplace interventions for reducing job stress. The purpose of this systematic review was to identify associations between workplace exercise interventions and job stress reduction in employees.

Procedures. A literature search was performed using five databases: CINAHL, Medline via PubMed, Scopus, PsycInfo, and Embase. Under the inclusion criteria, eligible studies were written in English, published between 1990 and October 2018, and focused on evaluation of workplace exercise programs with job stress as an outcome. Using PRISMA, 3,651 studies were initially identified. After applying the inclusion criteria, eight articles eventually were retained for detailed review.

Analyses. Using the Matrix Method (PRISMA, 2015), data extraction was completed using a table matrix to record information on a range of study details. The major categories of information recorded included study design, sample demographic characteristics, exercise intervention, job stress outcome measures, and main findings. The methodological quality of the studies was assessed using van Tulder's Risk of Bias Assessment tool (Furlan et al., 2015).

Results. In applying van Tulder's Risk of Bias Assessment tool, we found that six of the eight studies had relatively good quality, but only two (25%) reported a statistically significant association between a workplace exercise program and reduction in job stress. In the Calogiuri et al. (2016) study, an intervention group engaging in outdoor exercise sessions in a natural environment showed significantly lower job stress ($p < .001$) than a control group performing indoor exercises. In addition, in Lin, Huang, Shiu, and Yeh's (2015) study, a yoga exercise group showed a significant reduction in work-related stress ($p < .001$). Both of these studies were randomized controlled trials (RCT). One study's intervention included biking and a circuit-strength sequence, while the other study's intervention involved a yoga class that included breathing, meditation, and stretching. These studies were found to have good quality, receiving the highest and second highest scores among the eight studies based on van Tulder's criteria.

Implications. Based on the limited data available in the studies reviewed, researchers should use RCTs to study the effects of exercise interventions for reducing job stress and should incorporate multidimensional strategies that include exercise. Also, quality appraisal criteria should be considered when RCTs are designed to increase the possibility of identifying significant relationships between workplace exercise interventions and job stress reduction.

Conclusion. Findings from this review indicate that the effectiveness of workplace exercise interventions on job stress reduction has not been sufficiently investigated. Furthermore, the varied measurement instruments and intervention programs applied in the studies make a meaningful comparison of results difficult. In order to identify associations between workplace exercise programs and job stress reduction, future research and development efforts should include RCTs and longitudinal studies that apply consistent measures and interventions.

A-2

The impact of accommodations on mental health stigma

Christine Tulk (Carleton University)

The World Health Organization (2016) reports that depression and anxiety are leading contributors to disability in high-income countries. Although considered less severe than other mental disorders, depression and anxiety can be debilitating, resulting in cognitive, interpersonal, and motivational limitations that interfere with work performance and productivity (Peer & Tenhula, 2010). Job accommodations are intended to enable individuals with functional limitations to participate more fully in employment settings (Chow, Cichocki, & Croft, 2014) and are used to allow individuals to remain at work during periods of symptom exacerbation and to help individuals on leave return to work. There is, however, a gap in the research about how accommodations impact stigma. Individuals with mental health problems are often stereotyped

as incompetent, unreliable, dangerous, and malingering, and stigma theory (Goffman, 1963; Link & Phelan, 2001) suggests that receiving an accommodation would strengthen this stigma by increasing perceptions of difference. It is, therefore, important to investigate the impact of accommodations on stigma in order to prevent unintended negative consequences. In addition, understanding whether stigma can be reduced by providing educational information about the purpose of accommodations would provide insight into how best to prepare colleagues of an employee who will be receiving an accommodation.

To address this gap in understanding of how accommodations impact stigma, we will be conducting two studies using experimental vignette surveys hosted by the Qualtrics web platform. Data collection is planned for February and March of 2019 and is currently pending ethics approval from Carleton University. In Study 1, adults with experience in the paid workforce will be recruited using Amazon's Mechanical Turk web platform. Participants will be randomly assigned to one of six scenarios about a fictitious coworker returning to work after a leave of absence. Scenarios will vary the reason the fictious coworker was on leave (depression, anxiety, or surgery) and whether the coworker will be receiving an accommodation (yes, no) for concentration problems and fatigue. In Study 2, employees from a large Canadian public sector organization will be recruited using a posting in a weekly departmental e-newsletter. Participants will be randomly assigned to one of the same six scenarios from Study 1. To extend Study 1, half of the participants in Study 2 will also be randomly assigned to read educational information on the purpose of accommodations. In both studies, participants will answer items on negative stereotypes and demographics.

The data will be analyzed using the Hayes' PROCESS macro for SPSS (Hayes, 2013). The simple moderation model (i.e., Model 1) will be used for Study 1 and the moderated moderation model (i.e., Model 3) will be used for Study 2. Age, gender, supervisory status, degree of experience with mental health problems and job accommodations will be added as control variables for both studies based on prior evidence that these variables can impact beliefs in negative stereotypes. For Study 1, two categorical variables will be created: reason for leave [depression, anxiety, surgery] and accommodation [yes, no]. The simple moderation analysis will be run six times using each negative stereotype (dangerousness, blame, incompetence, unreliability, malingering, and negative work impact) as outcome variables. We expect a significant two-way interaction between reason for leave and accommodation such that belief in negative stereotypes will be higher in the accommodation condition for depression and anxiety but not for surgery. For Study 2, a third categorical variable will be created for educational information [education, no education] and the moderated moderation analysis will be run six times using each negative stereotype as outcome variables. We expect to find a significant 3-way interaction between reason for leave, accommodation, and educational information. In the no education condition, we expect to replicate the results from Study 1. In the education condition, we again expect a significant two-way interaction; however, the increase in the negative stereotype outcomes is expected to be smaller as compared to the no education condition.

This research will make a key contribution to existing research. Qualitative research highlights that individuals who receive job accommodations report experiences of stigma (Kensbock et al., 2017; Shultz et al., 2011), but this could result from the necessity of disclosing the mental health problem in order to request accommodation. In addition, although experts propose that increased education and knowledge of accommodations is critical to reducing stigma (Schultz et al., 2011), educational messages can have unintended consequences (Corrigan & Fong, 2014). Using the experimental vignette methodology will separate the effect of having a mental health problem from the effect of receiving an accommodation and test whether providing information on accommodations has any effect on these variables. Particularly relevant to societies that are increasingly aware of mental health problems, this knowledge will become more and more important to future workplaces as employees become more comfortable with disclosure and requests for accommodation.

A-3

Real-world Examination of Impact of an Online Stress and Mental Health Intervention on Employee Lost Time: An Implementation Study Exploring Employee Productivity and Attendance

Russell Morfitt (Learn To Live, Inc.)

Interventions for workplace mental health have been evolving and moving beyond past paradigms as delivery options not previously considered are being actively implemented. The development of online programs to address stress and mental health issues has created both new opportunities for employers to address the needs of evolving workplaces and new complexities in assessing how to implement available solutions.

Employers are becoming increasingly aware of the impact of stress and mental health problems on their employees. A recent survey by Northwestern National Life (Northwestern National Life Insurance Company, 1991) reported that 40% of employees describe their work as "very or extremely stressful." According to the Attitudes in the American Workplace VII (Harris Interactive, 2001), 42% of employees report "job pressures causing problems with lives outside of work and half report that the problem is getting worse, as they indicate that their level of stress is higher that year than in the previous year."

The financial costs to employers are great. In large part, as a result of lost productive time via absences and reduced productivity, behavioral health problems result in least $225M annually to employers in the United States (Stewart, 2003). Interventions that could impact behavior health and, by extension, employee well-being and productivity are clearly needed.

Evidence-based interventions for stress, depression, anxiety and other mental health problems have been developed, including cognitive behavioral therapy (CBT), but dissemination of high-fidelity interventions has been spotty (Barlow, Albano, Sanderson, & Wilson, 2017). Though numerous creative in-person solutions have been developed to allow service delivery in the workplace, dispersed workforce challenges add a layer of complexity to the success of these models. Additionally, epidemiological studies suggest that even among those with diagnosable mental health problems, only 1 in 4 seek in-person therapy. The is great need to provide accessible services to a dispersed workforce that includes sufferers of mental health problems and to provide that same workforce with preventative services.

The development of online interventions has offered the opportunity to provide access to psychological intervention tools remotely to individuals who have difficulty accessing evidence-based services, or any services at all. Numerous studies suggest that online interventions can offer similar outcomes to in-person psychotherapy (Andersson, 2018) in reducing mental health symptoms as measured through psychometric assessments. Few studies, however, have specifically explored the impact of online interventions for stress and mental health interventions on employee performance or attendance.

The present implementation study examines the self-reported changes in productivity and absenteeism risk attributable to mental health challenges when an online CBT-based service is provided to employees. Results include data from delivery of services to employee populations over a three-year period. The importance of active communication to employees and other stakeholders is discussed, as is the importance of a lexicon that balances the need to communicate service rigor with information about accessibility to individuals in the subclinical range. Other techniques for reducing barriers to successful implementation in an employee population are discussed as well.

A-4

I think I can! Increase in self-efficacy reduces substance abuse stigma among nursing students

Katherine Werth (Portland State University)

Substance use and mental disorders are serious healthcare concerns that contribute to multiple negative performance and safety outcomes in the workplace. An estimated 2% - 8% of nurses are addicted to some substance, with studies finding up to 32% of their sample reporting some form of drug use (Addiction and Psychological Dysfunctions in Nursing, 1984; Trinkoff & Storr, 1998). The high prevalence of substance abuse in the healthcare industry negatively affects quality of care for patients through substandard levels of care in individual interactions, a reduced tendency for health providers to educate and provide adequate resources to patients regarding substance abuse, and widespread substandard care due to higher rates of absenteeism leading to overworked and overscheduled nurses (Bush & Lipari, 2015; Pipe, Sorensen, & Reid, 2009).

Training peers to detect and address substandard care is an established practice to minimize the negative workplace effects associated with substance abuse (Patrick, 1984). Trainings often focus on increase in knowledge and self-efficacy and reduction in stigma and are often presented in person, online, or in textbooks, with web trainings linked to larger gains in self-efficacy and knowledge (McPherson, Cook, Bach, Hersch, & Hendrickson, 2006; Muramoto et al., 2014). In the current study, nursing students were educated via web training as the first portion of a two-part blended-learning substance abuse education and skill-building program for student nurses using a "flipped classroom" approach.

The training was completed by a sample of 72 nursing students across 2 schools in the Pacific Northwest. On average, participants were 29.70 years old (SD = 8.65), 86% identified as women, and 14% identified as men. Students completed knowledge, self-efficacy, and stigma measures before and after completing an online training module. MANOVAs were examined for the influence of location and gender and found that the effect of the training was not impacted by these potential moderators for any of the outcomes.

A repeated measures MANOVA was conducted to examine the difference in scores of self-efficacy ($\alpha T1 = .89$, $\alpha T2 = .94$), knowledge (sum of correct answers to a knowledge test), and stigma ($\alpha T1 = .80$, $\alpha T2 = .87$) at pre (T1) and post (T2) training. The omnibus MANOVA for the main effect of time was significant, $F(3, 69) = 77.96$, $p < .001$, Wilks' $\lambda = 0.23$, partial-$\eta 2 = .77$). Univariate effects demonstrated that self-efficacy increased, $F(1, 71) = 131.56$, $p < .001$, partial-$\eta 2 = .65$, from pre (M = 3.38, SD = 0.56) to post (M = 4.17, SD = 0.50), knowledge increased, $F(1, 71) = 125.62$, $p < .001$, partial-$\eta 2 = .64$, from pre (M = 6.79, SD = 1.86) to post (M = 9.35, SD = 1.40), and stigma decreased, $F(1, 71) = 60.00$, $p < .001$, partial-$\eta 2 = .46$, from pre (M = 2.29, SD = 0.54) to post (M = 1.81, SD = 0.51).

We also aimed to investigate the mechanism by which stigma decreased from pre to post training and hypothesized that change in self-efficacy would operate as a stronger explanatory mechanism for change in stigma perceptions compared to change in knowledge. To examine this hypothesis, we used MEMORE (Montoya & Hayes, 2017) for SPSS to test the indirect effect of change in stigma through change in self-efficacy and change in knowledge in parallel. Ninety-five percent confidence intervals were generated from 5,000 percentile corrected bootstrap samples. We found the indirect effect of pre-training stigma on post-training stigma through change in self-efficacy was significant, b = -.26 (SE = .09), 95% CI [-.44, -.08], but the indirect effect of pre-training stigma on post-training stigma through change in knowledge was not significant, b = -.01, (SE = .08), 95% CI [-.18, .13]. Further, the pairwise contrast between the two indirect effects was significant, b = -.25 (SE = .11), 95% CI [-.47, -.04], meaning that the indirect effect of pre-training stigma on post-training stigma was significantly stronger through change in self efficacy than through change in knowledge. These findings suggest that increase in self-efficacy is an explanatory mechanism for reduction in stigma, while increase in knowledge is not.

Trainings that lead to increase in self-efficacy and decrease in stigma in addition to knowledge acquisition can be beneficial to both trainees and their future workplaces. Increased self-efficacy and reduced negative reactions towards stigmatized individuals (e.g. LGBT community, individuals managing mental illness, the AIDS/HIV community) have been linked to increased physical health, higher levels of functioning, and better quality of life (Blixen et al., 2014; Chien, Lam, & Ng; 2015; Denton, Rotsky, & Danner, 2014; Li et al., 2011). Thus, our findings suggest that in order to successfully reduce stigmas, trainings should be designed to include opportunities and exercises to increase participants' self-efficacy alongside knowledge.

A-5

The Effects of an Educational Sleep Program on New Graduate Night Shift Nurses

Kyle Page (South Dakota State University)

Sleep is essential for maintenance of good health and well-being. The recommended eight hours of sleep can be difficult to achieve, especially for nurses who work the night shift. For nurses, sleep deprivation can affect patient safety and clinical performance. The effects of sleep fatigue specific to night shift nurses include increased illness and risk injury, reduced alertness, and a diminished response impairing performance and function (Brooks et al, 2017, Silva et al, 2017). It is therefore crucial for nurses entering the profession to establish positive sleep hygiene habits to obtain the best sleep possible.

To examine the effect of a sleep educational program in new graduate night shift nurses on sleep quality, quality of life, and fatigue severity. A prospective, experimental, pre-survey and post-survey design was used to examine the effect of an educational sleep program on new graduate night nurses. A total of 184 nurses completed the pre-survey (experimental [n=84], control [n=102]) and 41 nurses completed the post-survey (experimental group [n=20], control group [n=21]). Surveys measured subjective sleep quality/quantity and quality of life. Repeated measures ANOVA was used to test effects of the program and as there were roughly 20 individuals per group for the post-intervention sample, marginal significant findings are reported. For the

General Sleep Disturbances Scale there was a significant increase in level comparing within-group from pre- to post-intervention ($F(1, 35) = 5.50$, $p < .05$). When comparing between-group, there was not a significant main effect ($F(1, 35) = 2.40$, $p = .13$) but the interaction approached significance ($F(2, 35) = 2.63$, $p = .11$).

For the Pittsburg Sleep Quality Index (PSQI) aggregate total, although there was a main effect comparing within-group ($F(1,35) = 9.59$, $p < .005$), there was not a significant main effect when comparing between-group ($p = .62$) nor a significant interaction ($p = .57$). Similarly, for the sleep quality subscale of the PSQI there was only a marginally significant main effect for the within-group comparison ($F(1,39) = 3.71$, $p = .062$). For the sleep latency subscale of the PSQI there was only a significant main effect for the within-group comparison ($F(1,39) = 7.89$, $p < .01$). For the sleep duration subscale of the PSQI, although the within-group comparison ($F(1,39) = 1.87$, $p = .18$) and between-group comparison ($F(1, 39) = 2.06$, $p = .16$) were not significant, the interaction was marginally significant ($F(2, 39) = 3.24$, $p = .08$). There were no significant findings for the sleep efficiency subscale. For the sleep disturbances subscale, although the within-group comparison ($F(1,38) = .42$, $p = .52$) and the between-group comparison ($F(1, 38) = .69$, $p = .41$) were not significant, the interaction was marginally significant ($F(2, 38) = 3.80$, $p = .059$). For the sleep medication subscale, there was only a significant within-group increase ($F(1,38) = 9.23$, $p < .005$). Lastly, for the sleep dysfunction subscale of the PSQI, there was a significant with-group main effect ($F(1,37) = 7.24$, $p < .05$), a marginally significant between-group main effect ($F(1, 37) = 2.97$, $p = .093$), and a significant interaction ($F(2, 37) = 4.28$, $p < .05$).

For the Quality of Life Inventory (QOLI) aggregate total, there was only a marginally significant decrease for the within-group comparison ($F(1,39) = 3.13$, $p = .085$). Similarly, for the health and functioning subscale, there was only a marginally significant decrease for within-group ($F(1,38) = 2.81$, $p = .10$). For the social and economic subscale and the family subscale there were no significant effects. For the psychological and spiritual subscale of the QOLI, there was only a significant decrease within-group ($F(1,36) = 4.83$, $p < .05$).

For the Visual Analogue Scale to Evaluate Fatigue Severity (VAS-F) two subscales were analyzed. For the fatigue subscale, there was a significant within-group increase ($F(1,35) = 13.12$, $p = .001$) and a marginally significant interaction ($F(2, 35) = 4.02$, $p = .053$) but not a significant between-group comparison ($F(1, 35) = 1.25$, $p = .27$). For the energy subscale, the main effects for the within-group comparison was significant ($F(1,39) = 8.19$, $p < .01$) and the between-group comparison was marginally significant ($F(1, 39) = 3.95$, $p = .054$) but the interaction was not significant ($F(2, 39) = 2.25$, $p = .14$).

Although the sleep educational program may have some effect on quality of sleep and fatigue, quality of life can be improved. Focus on sleep, sleep hygiene and fatigue management strategies are beneficial in assisting new graduate nurses manage their sleep to improve sleep patterns thus leading to optimal clinical performance and patient safety.

A-6

Responsive evaluation of a stakeholder dialogue to promote health among employees with a lower socioeconomic position

Hanneke Heijster (Wageningen University)

Background. Large health inequalities exist in the Netherlands between individuals with an high Socio-Economic Position (SEP) and individuals with a low SEP. Low SEP individuals are expected to live 6 to 7 years shorter than those with high SEP, and even more than 15 years shorter in good health. In 2014, approximately 20% of Dutch individuals aged 25 and older had a low SEP.

Worksite health promotion (WHP) is considered as promising to improve health among low SEP employees. First, because as about half is employed, large numbers of low SEP individuals can be reached via the workplace. Second, because the workplace offers the possibility to target an individuals' health on various levels, such as individual behavior, parts of the physical and social environment and the work environment (Katz et al., 2005). This is favorable, because healthy behavior does not only depend on individual skills, but also by the presence of 'capabilities', as conceptualized by Amartya Sen (1992), i.e. a context that facilitates and enables.

Despite the workplace's facilitating possibilities, WHP often does not have the desired effects on low SEP employees. One explanation can be found in the fact that the complexity of the work setting is often ignored in WHP intervention programs. WHP involves a broad mix of stakeholders, such as the employer, intervention providers, insurance companies and research and knowledge institute. These stakeholders all have their own interest in WHP. Ironically, employees generally lack voice in WHP (Meershoek, Bartholomée & Horstman, 2010). As a consequence, interventions are developed and implemented based on the input of many stakeholder except the—probably most important—stakeholder: employees. This may lead to interventions that do not match employees' views and needs.

Next to that, the ethical issue how far an employer can go in terms of promoting health of employees often rises. Different views play a role in answering that complex and multifaceted question, such as on whether (and to what extent) employees are responsible for their health or whether their employer is.

In this project, a stakeholder dialogue (SD) as an integrated intervention for WHP is proposed. As the name suggests, SD allows various stakeholder perspectives to be heard, including the ones of employees. Next to that, the form of SD proposed in this project (Moral Case Deliberation (MCD) allows for ethical considerations to come to the table. This way SD may enhance mutual understanding among stakeholders (Weidema, Molewijk, Widdershoven, & Abma, 2012). Mutual understanding can contribute to the development of vision supported by all parties, which in turn can contribute to a better quality of health promotion.

Methods. Intervention: In dialogue sessions, stakeholders are invited to bring forward a health-related case to discuss, based on their own experience. Participants are challenged to explore their own thinking, and the perspective of others. By confronting different perspectives, this form of stakeholder dialogue creates a learning process.

Evaluation: The stakeholder dialogue is evaluated through responsive evaluation: a form of interactive, participatory research, making use of mixed methods (Abma & Widdershoven, 2006). These methods comprise interviews, survey data, recordings of the dialogue sessions, HRM-data, and participatory observations. Qualitative data will be analysed using thematic content analysis.

The intervention will be implemented and evaluated in two organizations, during an intervention period of 2 years per organization. Responsive evaluation comprises continuous follow-up during the intervention period, however a baseline will be mapped at the start of the project, and annual evaluations will be performed after one and two years.

Expected Results. Effects of the intervention are evaluated on health-related outcomes on an individual level (such as self-regulation),

on a team level (such as social support) and on organisational level (such as health registrations). Furthermore, an economic evaluation is performed on both monetary outcomes (budget) and on non-monetary value from a stakeholder perspective (social return on investment).

During the conference preliminary results and of the first annual evaluation and intervention guidelines for dialogues will be presented.

A-7

Active Workplace Study: Research to Practice

Sara Wild (Oregon Health & Science University)

As technology and automation have advanced, the number of workers in occupations that require physical activity has steadily declined. The population level shift in calorie expenditure that has resulted from this trend accounts for a substantial portion of the increased prevalence of obesity in the United States (Church et al., 2011). Changing workplace dynamics have made a significant impact on the health and safety of workers. Sedentary behavior and prolonged sitting increase risk for chronic diseases like diabetes and cardiovascular disease, and risk for all-cause mortality (e.g., Beach et al., 2005; Chau et al., 2013; Wilmot et al., 2012). It is therefore imperative to design and disseminate methods to eliminate or reduce sedentary time in the workplace.

While intervention development remains a focus within occupational health and safety research, the transfer of effective interventions into the workplace is considerably low. A review of healthcare dissemination researcher found that "...it takes an average of 17 years for research evidence to reach clinical practice" (Balas & Boren, 2000; p.66). Translating workplace intervention research into action is an essential step of utilizing science to inform best practices for employee safety, health, and well-being. Our goal is to develop, adapt, and disseminate the Active Workplace Program, a toolkit that will aim to reduce sedentariness in the workplace.

The Active Workplace Study is an intervention geared toward call center workers, who are among the most sedentary workers worldwide (Thorp et al., 2012). The six-month intervention, which applies the Total Worker Health¬ (NIOSH, n.d.), approach, introduces active workstations (Desk Cycle pedal stands) into the work environment. The intervention supports the use of pedal stands with training and motivational activities for employees and supervisors, with a goal of reducing sedentary behavior at work and improving employee health, safety, and well-being outcomes. The effectiveness of the Active Workplace Study intervention is currently being evaluated in a randomized controlled trial. Given our goal to disseminate the intervention, we are also evaluating the effectiveness of two less intensive intervention approaches, and developing a self-guided toolkit which will help make widespread dissemination more feasible.

The first alternative approach is currently being implemented in a sedentary worksite in Tigard, Oregon (n=24). The program is a three-month version of the original six-month intervention. It maintains all of the intervention components but adapts the methods to minimize researcher time requirements for implementation.

The second alternative approach will be implemented in one worksite in the spring of 2019 and will involve up to 100 participants. This approach shifts the focus of the intervention from all employees to only supervisors. All participants will have access to active workstations, but only supervisors will complete additional program activities, including computer-based training, goal setting, and behavior tracking. Supervisors will also lead health and safety discussions with their employees once a month.

In both alternative approaches, employees and supervisors will complete measures at baseline and at the conclusion of the three-month interventions. Sedentary time, standing time, and pedaling time will be monitored by a thigh-worn ActiGraph. A survey evaluates health, safety, and behavioral outcomes. Each pedal stand has a Fitbit attached to measure how pedal stands are used throughout the intervention. Analyses will evaluate the effectiveness of both alternative approaches, and compare their effectiveness to the full randomized controlled trial. We hypothesize that the alternative approaches will create statistically significant changes in sedentary behavior, employee health, safety, and well-being that are slightly smaller in magnitude than the full intervention. These results will inform the feasibility of widespread dissemination and also help us identify the components of the intervention that produce desired outcomes.

We are developing a toolkit for the Active Workplace Program, which will include all of the information needed for an organization to be able to implement the program in their worksite. The toolkit will include the benefits an organization will receive from the program, instructions on how to implement different doses of the intervention proven to be effective, and participatory strategies on how organizations can adapt the toolkit to fit their needs. The toolkit will facilitate implementation in a wide-range of sedentary occupational settings with the goal of improving health and well-being among sedentary workers.

Workplace Mistreatment, Threats and Violence

B-1

The Bright Side of the Dark Triad: The Buffering Effect of Narcissism

Aaron Van Groningen (Saint Louis University)

The Dark Triad - narcissism, Machiavellianism, and psychopathy - represent a subset of "socially aversive personalities" that "have attracted the most attention" (Paulhus & Williams, 2002, p. 556). Generally speaking, these traits consist of behaviors characterized by emotional coldness, deception, and self-promotion (Paulhus & Williams, 2002). Prior research on the Dark Triad has largely considered the traits in linear combination with each other; yet, these traits are empirically related to, but independent of, each other. Muris et al. (2017) reported that the strongest correlation is between psychopathy and Machiavellianism (r=.58), with the correlations between narcissism and psychopathy (r=.38) and Machiavellianism (r=.34) demonstrating greater independence. Hence, an individual could be high in one trait but not another.

There is some reason to believe that an individual's level of narcissism influences the relationship between the other Dark Triad traits and well-being. Narcissism tends to show a significant association with self-esteem, with some measures correlating as high as .42 (Rose, 2002), and self-esteem is an important factor linking narcissism to well-being (Rose, 2002; Sedikides et al., 2004). Skewed perceptions may provide narcissists with the ability to deflect self-criticism and reappraise their lives in more self-friendly ways. As such, those with higher levels of narcissism may show a decreased or nonexistent association between the other Dark Triad traits and various aspects of well-being:

H1: Narcissism will provide a buffering effect for Machiavellianism (H1a) and psychopathy (H1b), reducing their associations with well-being when narcissism is high.

Method. Participants were recruited from Amazon's Mechanical Turk (MTurk). Previous research has found data from MTurk samples to be comparable in reliability and validity compared to data from samples gathered using more traditional methods (Barger, Behrend, Sharek, & Sinar, 2011; Buhrmester, Kwang, & Gosling, 2011). The final sample size was 435.

Dark Triad. To measure the Dark Triad traits, we utilized the Short Dark Triad (SD3; Jones & Paulhus, 2014). The SD3 contains 27 items, with nine items used to measure each of the Dark Triad traits.

Well-Being Measures. The current study utilized four measures of well-being: the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010), the Flourishing Scale (Diener et al., 2010), and the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999).

Results. Results showed that the strongest correlation for the Dark Triad was between Machiavellianism and psychopathy (r=.51), while the weakest correlation was between Machiavellianism and narcissism (r=.24; Table 1). There were some similarities and differences in terms of the pattern of correlations between the Dark Triad traits and indicators of well-being. For example, the magnitude of the correlations between the Dark Triad and satisfaction with life were similar. Yet, narcissism was uncorrelated with the SPANE-negative score, whereas the other two traits were significantly and positively correlated with it.

In testing the buffering effects of narcissism, we found that narcissism interacted significantly with Machiavellianism for all well-being outcomes, but the critical value differed from outcome to outcome. The highest critical value occurred for happiness. When narcissism was more than .19 standard deviations below the mean, Machiavellianism had a significant negative association with happiness, an effect that applied to 43.7% of our sample (meaning it buffered the effects for 56.3% of our sample). Yet, narcissism had to be more than 1.51 standard deviations below the mean for Machiavellianism to demonstrate a negative association with flourishing, an effect that only related to 9.2% of our sample (meaning it buffered the effects for 90.8% of our sample). The results, therefore, suggest that when it comes to buffering the negative effects of Machiavellianism, narcissism provides greater protection (i.e., a lower critical value) for some well-being indicators than it does for others (i.e., a higher critical value).

In terms of H1b, the results were less supportive. Narcissism was only found to buffer the effects of psychopathy for satisfaction with life and flourishing. For flourishing, the critical value was even higher (0.62), meaning that psychopathy was associated with flourishing for 75.9% of the sample (and buffered the effects for only 24.1% of our sample). Therefore, unlike Machiavellianism, only those who reported higher narcissism scores received any well-being protections, and these protections occurred for only two well-being indicators.

Discussion. Narcissism has been described as being the lightest of the dark personality traits (Aghababaei & Błachnio, 2015; Furnham et al., 2013), largely due to the benefits it can avail. The current study demonstrated that narcissism tends to possess strong positive associations with various indicators of well-being, even when controlling for other traits and demographic factors. In addition, it provides a buffering effect for the narcissist, ameliorating the negative effects of Machiavellianism and psychopathy for several aspects of well-being.

B-2

Effects of Incivility on Voice Behavior

Nikola Fedorowicz (University of Houston)

Given today's complex business culture, employee suggestions help organizations better perform in a demanding and quickly-changing market (Tangirala & Ramanujam, 2008). Voice behavior refers to a process whereby employees offer suggestions and weigh in on organizational decisions to develop a more effectively functioning workplace (Van Dyne & LePine, 1998). However, organizations face challenges in obtaining employee input because aspects of the work environment often discourage employees from speaking up (Dutton & Ashford, 1993).

When employees perceive that either management or coworkers are likely to support them in expressing voice, they may be likely to do so. However, the probability of unsupportive others likely stifles voice. We suggest that incivility influences one's decision to manifest voice as it has an out-sized impact on the employee experience (Andersson & Pearson, 1999). Applying social exchange theory (Blau, 1964), we anticipated that incivility inhibits voice because it creates an unfavorable exchange between employees and discourages positive reciprocity toward the organization.

With a resource conservation perspective, we examined the indirect effect of incivility on voice through emotional engagement. Consistent with conservation of resources theory (COR; Hobfoll, 1989), we suggested that incivility negatively affects engagement because it depletes emotional resources (Cortina et al., 2001), encouraging disengagement and conservation of remaining resources. In turn, employees manifesting low emotional engagement may be unlikely to express voice because they do not derive meaning from their work and they are less willing to reciprocate proactively (Salanova & Schaufeli, 2008). Thus, we argue that incivility reduces voice behavior directly and indirectly through emotional engagement.

We also examined the role of emotional stability in this psychological process. Individuals with high emotional stability levels tend to be calm and level-headed, whereas low-emotional stability individuals are typically anxious and insecure (Colbert et al., 2004). Individuals low in emotional stability are more likely to perceive incivility as a stressor and a catalyst for negative reciprocity. Thus, they are less likely to express voice when incivility is high. Moreover, low-stability workers are more likely to report changes in their engagement as a function of incivility and they are more likely to express voice only when emotionally engaged (Brief, Butcher, & Roberson, 1995). We predict that the indirect relationship between incivility and voice will be stronger for those low in emotional stability.

We asked 135 non-tenure-track faculty at a large university in the southern United States to complete an online survey regarding their perceptions of workplace culture. We measured incivility using a seven-item scale by Cortina and colleagues (2001) using a five-point, Likert-type scale (1= never to 5 = very often). We measured voice using three items by Van Dyne and LePine (1998), emotional engagement using a six-item scale by Rich, LePine, and Crawford (2010), and emotional stability using ten items from the International Personality Item Pool (Goldberg, 1999). We assessed responses using a five-point, Likert-type scale (1= strongly disagree to 5 = strongly agree).

Incivility was negatively related to voice ($r = -.22$, $p < .01$) and emotional engagement ($r = -.35$, $p < .01$), and emotional engagement was positively related to voice ($r = .38$, $p < .01$). We employed Hayes' (2013) PROCESS macro model 4 and its bootstrapping option

to estimate the direct and indirect effects of incivility on voice. After controlling for emotional engagement, incivility was not directly related to voice (B = -.18, t = -1.58, p = ns). Further, the bootstrapped 95% confidence interval for the indirect effect of incivility on voice via emotional engagement 95% CI [-.27, -.05], suggests a significant indirect effect. This indicates that emotional engagement fully mediated the relationship between incivility and voice.

We employed the PROCESS macro using model 59 to test the conditional direct and indirect effects. As shown in Table 4, the centered cross-product terms contributed statistically significant unique variance at path a (b = -.16, SE = .06, $p < .05$; $\Delta R2 = .035$) but not at paths b (b = .25, SE = .18, p = ns; $\Delta R2 = .01$) and c′ (b = .15, SE = .12, p = ns; $\Delta R2 = .01$). We present in Figure 4 a graphical representation of the significant interaction at path a. The negative incivility-engagement relationship was stronger among those high in emotional stability.

Our results indicated that incivility may lead to reduced emotional engagement, which in turn, may yield reduced voice behavior. The results also revealed that incivility has a stronger negative effect on the engagement levels among those high in emotional stability than those low in emotional stability. Surprisingly, individual differences in emotional stability did not influence the effects of incivility on engagement or voice behavior. Considering the results of this study, organizations seeking to increase employee voice behavior should determine whether incivility is a problem in the workplace and further implement training and policies that prevent and discourage this form of mistreatment.

B-3

Willingness to serve as a professional reference: Does applicant incivility play a role?

Benjamin Walsh (University of Illinois Springfield)

Research documents the negative consequences of rudeness at work, which researchers label workplace incivility (Andersson & Pearson, 1999). Workplace incivility is considered an organizational stressor (Cortina et al., 2017), as incivility is associated with depleted well-being and greater turnover intent (Hershcovis, 2011). Scholars encourage employers to intervene to prevent incivility. One recommendation is to check applicant references under the assumption that employers can identify and eliminate uncivil applicants before selection (Lim et al., 2008; Pearson & Porath, 2005). Reference checks, which are used by more than 90% of employers (Heneman et al., 2015), are solicited from coworkers and/or supervisors (hereafter referred to as providers) of applicants from previous employment. Although reference checks have shortcomings (e.g., leniency; Muchinsky, 1979), they are valid predictors of job performance (Taylor et al., 2004). Research even attests to the validity of the referenced response rate, such that applicants for whom fewer solicited references are completed are more likely to be terminated from employment (Hedricks et al., 2013). For this reason, we study willingness to recommend (W2R), which we define as the degree to which providers are willing to serve as a professional reference for an applicant.

Whether applicant incivility influences providers' W2R remains unknown, although we suspect that it will. We reasoned that W2R is shaped by provider's impressions of the applicant's job performance. Job performance is multidimensional, including in-role, citizenship (OCBI, OCBO), and counterproductive performance (Viswesvaran & Ones, 2000), wherein incivility is a form of the latter. Given that incivility is deleterious to organizations, we hypothesized that applicant workplace incivility is negatively related to provider W2R, above and beyond applicant in-role and citizenship performance (H1).

We also sought to examine moderators of the relation between applicant incivility and W2R. First, we suspected that high applicant in-role and citizenship (OCBI, OCBO) performance may compensate for incivility, such that providers may be willing to overlook incivility among high performers. Applicant incivility may negatively relate to provider W2R when applicant in-role and citizenship performance are low, but the effect will be weaker when they are high (H2). Second, we theorized that applicant gender may also play a moderating role. According to social role theory of sex differences (Eagly et al., 2000), people expect women to be communal (e.g., nice, considerate) and men to be agentic (e.g., assertive, tough). To the extent that women engage in incivility, they violate their gender stereotype, whereas men's incivility may be excused. This suggests that applicant incivility may be negatively related to provider W2R among applicants who are women, but the relation will be weaker among men (H3).

Students in four classes taught by the first author were trained on ethical research, after which they were given extra credit for recruiting employed individuals to complete an online survey. Participants (i.e., the reference provider) were instructed to reflect on an employee (if a supervisor) or coworker (if not a supervisor) with whom they interacted most frequently at work (i.e., the prospective applicant). Then they completed measures of each construct in random order about the employee/coworker. In-role and citizenship performance (OCBI, OCBO) were assessed with Williams and Anderson's (1991) scales, and incivility was assessed with Blau and Andersson's (2005) measure. W2R was measured with a five-item scale developed for this study; an example is "I would gladly complete a telephone reference check for my (employee/coworker)." An initial sample of 924 participants completed the survey, but we removed 89 participants for careless responding (McGonagle et al., 2016), and 13 more participants due to missing data on a focal variable. Hypotheses were tested on the remaining sample of 822 participants. Providers and applicants worked in many different jobs and industries, were majority female (providers=63.9%; applicants=62.0%), and providers worked 37.9 hours/week on average (SD=12.1).

Data were analyzed in R v3.5.2. Table 1 shows descriptive statistics, reliability estimates, and correlations. Hypotheses were tested using multiple regression. All variables except W2R were mean-centered prior to analysis. Model 3 in Table 2 shows results from the test of H1. Applicant incivility was negatively related to W2R, thus supporting H1. For H2 and H3, none of the interaction terms were statistically significant when entered as a set. However, when entered separately, support was observed for H2 but not H3 (see results for interaction terms in Model 4 in Table 2). Results supported the compensatory role of in-role/citizenship performance, as the negative incivility-W2R relation was weaker when in-role performance (Interaction b=.21, 95%CI[.12,.29]), OCBI (Interaction b=.18, 95% CI[.10,.25]), and OCBO were high (Interaction b=.18, 95%CI[.10,.27]; see Figures 1-3). No evidence for H3 was observed as the interaction with gender was not significant (Interaction b=-.05, 95%CI[-.18,.07]). These results call into question the utility of reference checks to screen for incivility since top performers may be recommended for employment even when they are frequently uncivil. Future research directions and additional practical implications will be presented.

B-4

The Effect of Economic Conditions on the Prevalence of Abusive Supervision

Xinyue Zhao (University of Central Florida)

In 2007, the Workplace Bullying Institute polled 7,740 respondents, which showed that 37% of workers were bullied and 72% of bullies were bosses. Another poll by the Workplace Bullying Institute in 2009, in which 454 were workers surveyed, reported that 97% workers had experienced or witnessed bullying, and 28% workers reported that the bullying got worse after September 2008. It seems that some managers see their employees to be all but disposable, and the economic slump has triggered a rise in belligerent behaviors on the part of supervisors. But does a recession really unleash abusive supervisory behaviors?

We try to answer the question by conducting a cross-temporal meta-analysis to examine the effect of economic conditions on the prevalence of abusive supervisory behaviors. On one hand, recession affects organizations by letting organizations recognize that traditional management approaches have become inadequate and seek for a fundamental change in the relationship between employees and managements (Long & Warner,1987). On the other hand, organizations respond by layoff labors and cut wages and benefits (Long & Warner,1987). Recessions also affect individuals. For example, the number of temporary workers grows explosively during economic recessions in 1990, 2001, 2007 in USA (Luo, Mann, & Holden, 2010). In a recession, there is usually an initial decline in temporary workers and a sharp rise from the tough to the end of the recession (Holmlund & Storrie, 2002). Supervisors, who are responsible to carry out changes in turbulent economic conditions, are more likely to experience an increased level of work stress (Burton, Hoobler & Scheuer, 2012). The distressing in the work environment can lead to abusive supervision (Tepper, 2007). We chose five indicators that are most relevant and representative of people's standard of living (i.e. GDP, PPP, inflation rate, unemployment rate, and labor cost; Lepenies, 2016; Mankiw, 2014, p.196) to capture the changes in economic conditions.

Economic conditions can relate to abusive supervisory behaviors for four reasons. The first reason is the stress on supervisors and diminished self-regulation. To be specific, supervisors would become more impulsive under the strains of poor economic conditions and suppressing these aggressive behaviors requires self-control from the finite energy pool (Hagger et al., 2010); the diminishing self-control would lead to more abusive behaviors, and the burned-out supervisors may be less likely to care for their subordinates. The second reason is the spillover effects of aggression. Studies have supported that a rise in the unemployment rate is usually accompanied by a subsequent rise in rates of violence among job losers and other employees (Catalano, Novaco, & McConnell, 1997, 2002; Shoss & Penny, 2012). In this case, spillover refers to when the events in one context happened because of something else in other context. So the increased incidents of violence in the community may cause increased incidents of violence in organizations. It is plausible that supervisors imitate others aggressive behaviors and practice these aggressive behaviors in the workplace as well. The third reason is subordinates' poor performance. According to Yerkes and Dodson's (1908) inverted U-shape relationship between arousal and performance, when the level of arousal becomes too high, the performance is impeded. Dealing with all the negative moods and strains from the economic recession can hinder employees' performance. As a result, supervisors may use tyrannical supervisory styles as tactics to boom subordinates' performance. The final reason is anger displacement and reacting to injustice. It is easier for organizations not to meet the expectations of supervisors during economic recessions, and this results in a psychological contract violation. The aggression from the psychological contract violation of the organization would be displaced to subordinates. Moreover, organizations also gain competitiveness by reducing cost especially for larger firms (Latham, 2009). Mishra and Spreitzer (1998) argued that without trust and organizational justice, survivors of downsizing are likely to respond destructively because they believe there would be significant harm from the downsizing. Again, according to the ego depletion theory (Hagger et al., 2010), managing these destructive responses requires significant effort from supervisors, so when supervisors are out of energy, they are more likely to be abusive. Hence, we propose that within countries, during poor economic conditions (i.e. low GDP per capita, low growth of real GDP, high inflation rate, lower cost per hour, and high unemployment rate), employees report their supervisors as more abusive.

Having literature search and setting the inclusion and exclusion criteria, we are currently at the data analyzing phase. We coded 355 articles and yielded 422 independent samples. We are going to analyze the data using a mixed-effect model, in which we will transform the scale to the percent of the maximum possible score to compare the abusive supervisory behaviors across studies. The mixed mode regression model will first include one out of the five economic indicators and the last regression model will include all five economic condition indicators.

B-5

Role Overload and Counterproductive Work Behavior: On the Role of Narcissism and Emotional Intelligence

Colleen O'Brien (Carthage College)

Abstract: This study investigates the effect of manipulative behavior of narcissistic personalities on counterproductive work behavior (CBW). Furthermore, the catalyst effect of role overload (RO) and attenuating effect of positive emotions, a dimension of emotional intelligence (EI), are explored from the premise that manipulation will lead to higher engagement in CBW when RO is high and positive emotions are low.

Prior research suggested that narcissists do not exhibit empathy, a key factor of emotional intelligence. However, Wai and Tiliopoulos (2012) discovered evidence of little impairment in cognitive empathy among narcissistic individuals. In this research, it is suggested that the ability to manage one's emotions and to read a situation well can help narcissistic individuals determine when to select the appropriate behavior such as withdrawing from CWB and use their ability to manipulate when the occasion arise. Thus, we are interested in RO as an important role stressor that can alter one's engagement in CWB while using manipulation particularly when narcissistic individuals exhibit EI.

Procedures. In study 1, we contacted 263 students enrolled in a large comprehensive college of the Midwest of which 72 responses were received. Students were asked to complete a survey instrument that measured narcissism using an adapted version of the NPI (Ames, Rose, & Anderson, 2006), emotional intelligence using the Assessing Emotions Scale (Schutte et al., 1998), role overload using the the six questions defined by Thiagarajan, Chakrabarty, and Taylor (2006), and the counterproductive work behavior abuse dimension (Spector et al., 2006). In study 2, we employed a cross sectional survey method that used a snowball sampling technique to reach 415 individuals with an average age of 43 and 23 years of work experience. Participants

completed the same survey instrument as study 1. The surveys were administered electronically via a Qualtrics survey link.

Analyses. Exploratory Factor Analysis with Varimax Rotation were conducted with narcissism and with EI. Hierarchical moderated regression analysis was employed to examine the moderating effects of RO and positive emotions on the relationship between manipulative behavior and CWB.

Results. In study 1, results show that under condition of high RO, manipulation has a steep and strong positive relationship with CWB when narcissistic individuals exhibit high positive emotions. In study 2, we obtained a strong U-shape curvilinear relationship between manipulative behavior and CWB when RO was low and positive emotions were high. However, when RO was high, we obtained an inverted U-shape relationship when positive emotions were high.

Implications. This research shows that RO plays an important role in determining whether manipulative behavior result in CWB among narcissistic individuals who exhibit the ability to control one's emotions and to experience positive emotions. Such individuals strategically determine when to engage in CWB or withdraw from CWB based on extent of RO. The curvilinear effects obtained in study 2 reveal that positive emotions can prevent CWB when one adequately maintains an average level of manipulation in the context of low RO. One should note that in study 2, participants were more experienced and older. Consequently, age and experience, and generational effects are of particular interest.

Practical implications. Organizations should pay attention to CWB in the context of stressful working conditions. Narcissistic individuals who engage in CWB do it in a strategically calculated way and can hurt others in that process. This is most likely to happen when the narcissistic feels threatened by high job demands. Manipulation may constitute a response to excessive job demands.

B-6

The Role of Psychological Distance in the Offerings of Effective Apologies

Sana Rizvi (University of New Brunswick)

Apologies can be beneficial (Vazeou-Nieuwenhuis & Schumann, 2017). Indeed, they can increase victim forgiveness (Fehr et al., 2010), reduce victim aggression towards the offender (Ohbuchi et al., 1989), and improve customer satisfaction post-service failure (Wirtz & Mattila, 2004). Given these benefits, researchers have begun to examine the determinants of apologies (see Exline et al., 2007). For example, apologies are more likely to be offered when the transgression has occurred recently (Exline et al., 2011), and when the offender is in a close relationship with the victim (Exline et al., 2007). Research on dispositional predictors reveal a positive relation with offender agreeableness (Dunlop et al., 2015) and self-compassion (Vazeou-Nieuwenhuis & Schumann, 2017), and a negative relation with self-esteem and narcissism (Howell et al., 2011). My overall research extends this literature by examining the role of psychological distance in apology. Drawing on the construal level theory (CLT; Trope & Liberman, 2003; 2010) as a framework, I examine whether apologies can be promoted by cognitively removing the transgression from the self.

According to CLT, psychological distance refers to the subjective experience that an event is close to, or far from, the self. It is associated with how abstractly the event is mentally represented. In essence, individuals represent psychologically distant events by their essential, abstract, and global features (high-level construal), and psychologically near events by their peripheral, concrete, and local features (low-level construal; see Fujita et al., 2006). Furthermore, higher-level representations involve broad and global processing, where people think in depth, take the perspective of another, and consider the subordinate goals, pros, and desirability issues of taking an action (i.e., Liberman & Forster, 2009). In contrast, lower-level representations involve narrow and individuating processing, where persons think on the surface and focus on the concrete details. Events can be psychologically distanced from the self via time, physical space, and social dissimilarity.

Recently, I found that offender apologies can be fostered by varying the temporal distance of an offense. This is because with greater psychological distance, individuals construe the event at a high level, which promotes global processing. Accordingly, they consider the victim's perspective, and focus on the superordinate ends (e.g., relationship restoration), pros and desirability of providing victims with an apology.

The present study extends these findings by examining the apology components offered in psychologically distance conditions. Apologies comprise a number of components, including expressions of empathy, acknowledgment of violated rules, and compensation (see Fehr & Gelfand, 2010). It is possible to conceptualize different components of an apology as more or less abstract (see Rizvi & Bobocel, 2014). For example, expressions of empathy are a reflection of relational concerns, which require perspective taking and is evident when people are processing globally. Similarly, to acknowledge that rules were violated, one must apply moral principles, which are salient when events are mentally represented at a high level (Eyal & Liberman, 2010). In contrast, compensation refers to the offer of tangible goods in exchange for harm. Given the focus on concrete detail, and local processing, compensation might be more salient when an event is construed at a low level. Note, apologies expressing empathy and acknowledging violation of rules are more effective than apologies offering compensation (Schumann & Ross, 2010).

I argue that effective apologies (i.e., those expressing empathy and acknowledging rule violations) will be more salient in psychology distant (versus near) conditions. To test this prediction, an online study was designed and is currently in the implementation stage. Qualtrics is in the process of recruiting 300 participants, who must reside in the North America, be over 18 years, and work either full-time or part-time. Participants will be randomly assigned to one of two conditions: physically near or distant.

Participants will provide demographic information, and then read a transgression vignette (adapted from Struthers et al., 2005). In this scenario, the participant transgresses against a co-worker by taking credit for a joint project. The co-worker is either in the same (near) or a different (distant) location than the participant. A number of questions that assess apology behavior, components of the offered apology, and mechanisms for the main effect (i.e., pros) are then asked. Data collection will be complete by February 31, 2019. SPSS will be used to analyze the data (i.e., independent t-tests for main effects, PROCESS for mediation analyses).

My expected findings will have implications for both theory and practice. For theoretical purposes, it will highlight the cognitive underpinnings of apologies. In particular, how offenders mentally represent a transgression can affect their reactions to it. For practical purposes, my findings will suggest one way in HR professionals can manage or resolve workplace transgressions. In particular, when victims are subjectively distant, offenders should be encouraged to express

empathy and acknowledge the violation of rules in their apologies, thereby facilitating victim forgiveness and restoring the relationship.

B-7

Development and Validation of the Perceived Introvert Mistreatment at Work Scale

Mallory McCord (University of Minnesota)

Perceived introvert mistreatment at work (PIMAW), or the extent to which an individual feels they are the recipient of negative and/or unfair behaviors at work due to their introversion, is a novel construct in the organizational sciences. Study of this phenomenon is important for four key reasons: (1) although introverts are more likely to perceive introvert mistreatment at work, almost everyone has the potential to perceive introvert mistreatment due to within-person variance in introversion (Fleeson, 2004); (2) despite evidence that indicates extraversion explains minimal variance in job performance (Barrick, Mount, & Judge, 2001), the tendency to favor extraverts in organizational decisions (Judge & Kammeyer-Mueller, 2007) suggests widespread feelings of mistreatment among introverted individuals; (3) bias in favor of extraverts means organizations may be losing a competitive edge by not taking advantage of the unique talents of introverted individuals; and (4) unlike traditional discrimination, characteristics of the victim are likely an active ingredient in the PIMAW process.

To assist fellow researchers who are interested in conducting research on this topic, I developed and provide initial validation evidence for the 10-item Perceived Introvert Mistreatment at Work Scale (the PIMAWS). This study incorporated five independent samples, 974 participants, and multiwave (three months between administrations) and multisource data (132 significant others and 83 work peers). This work followed the steps outlined by Hinkin (1998) and occurred in four phases.

Phase 1 involved item generation and reduction. Based on theory and definition, 94 items were generated by modifying items from existing scales (e.g., Workplace Ostracism Scale; Ferris, Brown, Berry, & Lian, 2008) and writing items to capture additional content. Eight subject matter experts (SMEs) eliminated 68 items due to issues such as redundancy or a focus on affect rather than behavior. The remaining 26 items (Table 1) were then subject to analyses of substantive validity (Anderson & Gerbing, 1991) wherein twenty-five additional SMEs completed an item sort task. Drawing on both coefficient of substantive validity (csv) values and the proportion of substantive agreement (psa), I retained the 11 items with csv values > .80 and psa values > .85 in an effort to retain items with the highest values for both indices and to have an economic scale length, Finally, 138 employed individuals from Amazon's Mechnical Turk (Mturk) indicated how frequently each of these 11 items occurred in their workplace in the past six months. On average, 37% of the sample responded in the affirmative to the 11 items (Table 2). However, one item about mentorship was removed because not all jobs include mentorship.

Phase 2 examined the factor structure and reliability of those 10 items across three independent samples: 397 employed MTurk participants (Sample 1), 246 employed students (Sample 2), and 168 employees from a field sample (Sample 3) (Table 3 displays which samples took which measures and when). An exploratory factor analysis and parallel analysis using Sample 1 indicated that the 10 items form a unidimensional scale (Table 4; Figure 1). Results of confirmatory factor analyses (CFA) on Samples 2 and 3 suggest good fit for a unidimensional model (Tables 5 and 6). Finally, the coefficient alpha reliability for all three samples was .93 or higher, indicating sufficient reliability (Tables 7-9; Cortina, 1993). In conclusion, the 10-item Perceived Introvert Mistreatment at Work Scale (PIMAWS) is a reliable, unidimensional measure.

Phase 3 tested for method effects and examined the convergent and discriminant validity (Campbell & Fiske, 1959) of the PIMAWS using the same three samples as in Phase 2. Results of the latent variable modeling procedure (Williams & Anderson, 1994; Table 10) on Sample 1 indicate that the method effects of positive and negative affect do not bias measurement of the PIMAWS. Further, impression management has no method effect. Convergent and discriminant validity was examined across all three samples using three Methods. correlation (Tables 7-9), CFA (Table 11), and Fornell and Larcker's test (1981; Table 12). Results indicate that the PIMAWS is related to but discriminant from age, gender, and ethnic discrimination in addition to incivility, bullying, perceived organizational support, and leader member exchange.

Phase 4 established the criterion-related validity of the PIMAWS. Results (Tables 7-9) indicate that employees who perceive more introvert mistreatment may perceive a justice violation and later retaliate by increasing counterproductive behaviors. Further, those who perceive more introvert mistreatment are also more likely to report decreased job satisfaction and organizational commitment and increased anxiety, depression, symptoms of poor physical health, and turnover intentions. This is perhaps due to a stressor-stress-strain chain, negative appraisals of the job, and/or withdrawal.

In sum, the PIMAWS has satisfactory psychometric properties and can offer valuable insight into workplace mistreatment beyond the topics currently studied in the mistreatment literature. At this early stage, I encourage ongoing validation efforts of the PIMAWS in addition to research that investigates the unique processes surrounding this form of workplace mistreatment.

B-8

New Jersey Workplace Violence Legislation Evaluation Synopsis

Marilyn Ridenour (NIOSH)

Problem. In 2017, there were 13,080 nonfatal workplace violence injuries that required days away from work among healthcare and social assistance workers, which accounted for 71% of the nonfatal violence-related intentional injuries by other persons occurring in all private industries combined. In 2017, within the private health care and social assistance industry sector, the rate for nonfatal violence-related intentional injuries by other persons that required days away from work as a result of violence was 9.1 per 10,000 full-time workers, almost 5 times greater than the overall rate in private industry of 1.9 per 10,000 full-time workers. Because of higher violence-related intentional injuries by other persons among healthcare and social assistance workers and the social impact in New Jersey (NJ) of violence as an escalating problem in many healthcare settings, the NJ Violence Prevention in Health Care Facilities Act was enacted in September 2011 to prevent workplace violence. In September 2011, the enactment of the New Jersey Violence Prevention in Health Care Facilities Act required acute care, psychiatric and nursing home facilities to develop workplace violence prevention programs with minimum requirements of: a workplace violence committee, training in violence recognition and prevention, a workplace violence policy and plan, reporting procedures, work-site violence assessment, and worker participation. Healthcare

facilities covered by the Act were required to be fully compliant with the legislation by June 6, 2012. The objective of this analysis was to describe: hospital security programs' compliance with the Act and nurses and home healthcare aides participation in violence-based training, and to evaluate their experience with workplace violence.

Procedures/Methods. A cross-sectional survey was conducted of NJ hospital security directors at 52 hospitals (69% response rate) via a face-to-face semi-structured interview. In 2013, 309 (22.5% response rate) nurses returned a mailed survey and 513 (17% response rate) home healthcare aides returned a mailed survey in the state of New Jersey.

Analyses. For analyses of the hospital security director interviews, descriptive cross tabs and Fisher's Exact tests were utilized. For the nurse and home healthcare aide surveys, univariate and multivariate statistical analyses were conducted.

Results. The surveyed security programs (n = 52) reported partial compliance with the regulations. Forty-nine percent of Security Directors viewed training as a helpful feature of their program, but also had suggestions for improvement, such as targeted training for staff at highest risk of violence. Nurse survey Results. Ninety percent of respondents were female. Respondents who had heard of the regulation received a higher proportion of training (90%) than those who had not heard of the regulation (58%) (P<0.0001). Nurses who received at least 80% of the required training components were more likely to feel secure at work. When the perpetrator was a patient or a family member of a patient, the respondents experienced verbal abuse the most (n=175, 58%), followed by threats (n=159, 52%), and physical assault (n=118, 38%). Home healthcare aide survey Results. Ninety-four percent of the respondents were female. Respondents whose agency was part of a hospital were more likely to receive violence-based safety training than home healthcare aides whose agency was not part of a hospital (p=0.0313). When the perpetrator of violence was a patient or family member of a patient, the respondents experienced verbal abuse the most (n=128, 26%), then physical assault (n=79, 16%), and exposure to bodily fluids (n=66, 13%).

Conclusions. Training was viewed by administrators as a strength of the regulation. Training is an important tool to address workplace violence for nurses and home healthcare aides and is an important component of a workplace violence prevention program.

Work-Life-Family

C-1

Sleep-Deprived College Students: Resilience as a Moderator of Work-School Conflict on Negative Emotions and Sleep Health

Lisa Scherer (University of Nebraska Omaha)

The physical and mental strain of working while enrolled in college has been well-researched, but more than half of all students are still employed earning a wage today. According to Carnevale, Smith, Melton, and Price (2015), 70 percent of all students work while attending college, nearly 40 percent of undergraduates work at least 30 hours a week, and 25 percent of all students working full time. This strain on students can manifest in several ways including lower academic achievement (Markel & Frone, 1998), increased prevalence of mental health issues (Mounsey, Vandehey, Diekhoff, 2013), or inability to maintain proper sleep hygiene (Augner, 2011).

Resilience as a moderator has been studied with mostly direct physical and mental issues with successful correlations showing its impact on negative emotional responses (NERs) and stress (Abolghasemi, Varaniyab, 2010). As resilience is shown to be a reliable method of moderating stress related events, we have to examine what role it has in working and education environments as well. With the need to juggle work, school, and life stressors, resilience may be a key contributor to success in life.

This study was intended to examine the role that resilience plays in buffering the impact of WSC on NERs and sleep health of college students. We predicted that resilience would moderate the effect of WSC on NERs such under higher WSC, the negative effect of resilience and on NERs would be weaker under higher rather than lower resilience. For those experiencing lower WSC, higher versus lower resilience would exert negligible effects on NERs.

Participants included 103 college students (19 males, 83 female, 1 Non-Binary) ranging in age from 18-37 (M= 21.3, SD=3.01) from the University of Nebraska at Omaha. 87.4% of students reported being employed for wages. The average credit hours enrolled was 12.9 hours per student. The data was collected through Qualtrics, an online survey tool. The participants were offered the survey as a means of completing a class assignment or extra credit through the university's online portal, SONA.

Work-School Conflict. WSC was measured using a 5-item version of the scale developed by Markel and Frone (1998). Participants used a 5-point Likert-type response scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often) to rate how frequently they experienced each situation. A sample item is: "When I'm at school, I spend a lot of time thinking about my job." The overall Cronbach's alpha level for this scale was $\alpha = .88$.

Brief Resilience Scale. Resilience was measured using a 6-item scale developed by Smith, Dalen, Wiggins, Tooley, Christopher, and Bernard (2008). Participants used a 5-point Likert-type response scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often) to rate how frequently they experienced each situation. A sample item is: "I tend to bounce back quickly after hard times." The overall Cronbach's alpha level for this scale was $\alpha = .88$.

Negative Emotional Responses. The NERs were each measured using six questions from American College Health Association's National College Health Assessment (2005). Participants used a 5-point Likert-type response scale (1 = Strongly Disagree, 2 = Disagree 3 = Neutral, 4 = Agree, 5 = Strongly Agree) to rate how frequently they experienced each situation. A sample item is: "During the current semester, I have seriously considered suicide." The overall Cronbach's alpha level for this scale was $\alpha = .82$.

Sleep Health Index. The Sleep Health Index was measured using a five-item scale based on Scherer (2018). Participants used a 10-point scale (1 = Very Low <> 10 = Very High) to rate their response. A sample item is: "Please indicate your average quality of sleep over the past week?" The overall Cronbach's alpha level for this scale was $\alpha = .77$.

Descriptive statistics and intercorrelations between measures are listed in Table 1. As predicted, WSC was a positive predictor of the NERs; however, was not for sleep health alone. BRS was shown to moderate the negative impact of WSC on two of the NERs: depressed $\beta = 1.61$, $p < .001$, and overwhelmed $\beta = .32$, $p < .05$. Independently, BRS was able to moderate suicidal ideation $\beta = -.419$, $p < .001$. Hierarchical multiple regression analysis was computed to test the hypotheses. Results of the analysis are summarized in Table 3.

With the demonstrated role that negative emotional responses can have on sleep; mental health is a area of opportunity for future research in determining effective treatment plans for sleep related issues. Given

the important role of resilience in this and other studies, we will discuss challenges and opportunities in creating and evaluating the effectiveness of resilience interventions as delineated in the recent review by Forbes and Fikretoglu (2018), to enhance college student resilience.

C-2

Workaholism and Work-Family Conflict: The Moderating Role of Financial Resources

Amanda DeLongchamp (University of Minnesota)

Over the last thirty years, research on work-family conflict (WFC) has increased, suggesting that WFC can negatively affect employee well-being and performance in and beyond the workplace (Amstad, Meier, Fasel, Elfering, & Semmer, 2011). Much of the research on WFC focuses on demands created by the organization, including number of hours spent at work, work schedules, and job stress (Byron, 2005). Fewer studies explore the role of individual constructs such as workaholism, which pertains to addiction to and preoccupation and compulsion towards one's work (Clark et al., 2016) in predicting WFC. Additionally, considering that money has been rated as one of the top sources of stress among Americans (American Psychological Association, 2015), no study to date has explored the moderating effect of financial resources on the relationship between workaholism and WFC.

We undertook the current study to fill this void in the current WFC literature. Specifically, we explored the relationship between workaholism and WFC using experience sampling methodology (ESM). We hypothesized that workaholism would be positively related to WFC. Next, we investigated the moderating effect of two financial resources, namely perceived income adequacy (PIA) and job security on the relationship between workaholism and WFC within the Conservation of Resources (COR; Hobfoll, 1989) framework. We expected that both financial resources would buffer the relationship between workaholism and WFC.

Within the work-family literature, studies support that workaholism is positively related to WFC (Brady, Vodanovich, & Rotunda, 2008; Clark, Michel, Stevens, Howell, & Scruggs, 2013; Russo & Waters, 2006). Additionally, research illustrates that individuals who hold negative perceptions of income adequacy or lack job security are shown to experience greater WFC (Ford, 2011; Lauzun, Major, & Jones, 2012; Valcour, Ollier-Malaterre, Matz-Costa, Pitt-Casouphes, & Brown, 2011). Moreover, the COR theory postulates that individuals strive to acquire and maintain resources (Hobfoll, 1989). Within the COR framework, both PIA and job security may be considered resources. COR further asserts that individuals experience stress after a loss of resources, threat to existing resources, or inadequate return on investment made to increase resources. Therefore, in line with COR, when individuals perceive low PIA or job security, the relationship between workaholism and WFC should be stronger.

Method. A total of 130 participants who were members of Amazon's Mechanical Turk residing within the USA participated in the current study. On average, participants were 20.46 years of age (SD = 10.14) and employed for at least 30 hours a week. Over a period of ten work days, participants completed two surveys each day: one in the evening before leaving work and one at night before going to bed. Measures of PIA and job security were administered at Time 1.

Workaholism was assessed in the evening using the 10-item Dutch Workaholism Scale (Schaufeli, Shimazu, & Taris, 2009). Time- and strain-based WFC were captured at night using three items for each of the two dimensions (Carlson, Kacmar, & Williams, 2000). PIA was assessed using ten items (Cheung, 2014). Lastly, job security was measured using Oldham, Kulik, Stepina, and Ambrose's (1986) 10-item measure. All measures exhibited adequate reliability (i.e., .70 or higher; Nunnally & Bernstein, 1994).

Results and Discussion. Correlations among all study measures are presented in Table 1. In line with our assertion, workaholism was positively related to both time- and strain-based WFC. Additionally, both PIA and job security were negatively related to both forms of WFC.

Results of the multilevel regression analyses are presented in Table 2. First, we group-mean centered workaholism, and grand-mean centered PIA and job security. Next, we created two interaction terms by multiplying centered workaholism with centered PIA and job security. To provide a stringent test of our model, we controlled for several demographics, including age, gender, ethnicity, hours employed, marital status, and education.

As expected, workaholism was positively, and PIA was negatively related to both time- and strain-based WFC. Job security was unrelated to both forms of WFC. Additionally, PIA buffered the relationship between workaholism and time- and strain-based WFC (see Figure 1 and 2). Specifically, the relationship between workaholism and WFC (both time- and strain-based) was stronger when participants reported low versus high PIA. Job security did not moderate the workaholism-WFC relationship.

Our study is the first to evaluate the buffering effect of financial resources on the relationship between workaholism WFC within an ESM framework. Our findings suggest that PIA, but not job security, can buffer the negative effects of workaholism on WFC. Our findings have important implications for the recognition of the critical role of financial resources, such as PIA in reducing WFC across occupations. Organizations may consider initiatives to enhance employee attitudes regarding their income to alleviate the negative effects of workaholism on WFC. We urge researchers to explore additional financial resources that can further reduce WFC.

C-3

Women's Value Consonance in Organizations

Dulce Vega (Saint Louis University)

The authors argue that inclusiveness is important for organizations to better leverage the diversity in their organization. Inclusiveness enables female employees to obtain alignment between their 'ideal' values with their organizational culture. We posit that ideal-actual value consonance/dissonance between women's ideal organizational images and their actual workplaces are likely to hold important work-related and subjective well-being implications. We argue using person-organization fit and theory of work adjustment that the degree to which women and minorities can exercise their voice in the formation of policies and norms within their organization, there is likely to be more consonance between their values/interests and the places in which they work. Hence, having a voice will influence the level of value consonance women experience in their workplace.

175 women participated in the study via a snowball convenience sampling. Participants needed to be part-time or full-time working women. Undergraduate students in psychology courses at a midsize university were asked to recruit women from within their network. Using an ideographic mixed-methods approach (i.e., computerized

piping technique), women's value consonance/dissonance ratings were computed (Harvey, Blue, & Tennial, 2012). Data collection and data analyses was conducted.

Our results indicated that higher experiences of sexism and turnover were significantly associated with lower ideal-actual value consonance. Higher life satisfaction, engagement, work-life balance, and organizational identification were significantly associated with higher ideal-actual value consonance. No relationship was found between ideal-actual value consonance and counterproductive work behaviors. This study suggests that organizations need to consider ideal-actual value consonance as an important factor to focus on to address the retention of female employees.

Using a top-down approach, organizations need to act by implementing tactics that will help reduce gender-based barriers. Organizations can conduct an organizational audit that will inform them of barriers that women face daily. Using employee resource groups as a platform for women to meet with leaders in the organization as well as address their concerns in the organization can reduce the value dissonance felt by female employees (Schmidt & Nourse, 2017). We suggest that an inclusiveness can be operationalized through ideal-actual value consonance/dissonance ratings in organization; these ratings will be a reflection of the degree to which employees perceive themselves as having an impact and voice in their organization. We believe that this approach will help organizations distinguish between intent and impact of initiatives and intervention implemented.

C-4

In Helping Others, I Hurt Myself: A Qualitative Analysis of Work-Family Ambivalence among Nonprofit Workers

Angela Grotto (Manhattan College)

As complex and dynamic work environments elicit multifaceted responses from individuals, Ashforth and colleagues (2014) encouraged organizational researchers to adopt an ambivalence perspective. Likewise, because work-family (WF) experiences are complex and dynamic, Hoobler and Masterson (2017) developed work-family ambivalence (WFA) theory. WFA is the affective state of uncertainty toward one's work and family arising from opposing forces of WF conflict (WFC) and enrichment (WFE). Traditionally, WFC and WFE have been studied as separate experiences, but these episodes are believed to elicit countering emotions (e.g., frustration and pride) that, when combined, create psychological ambivalence. Unresolved feelings of WFA may negatively affect employees' personal life (e.g., recovery, Hoobler & Masterson, 2017), thus WFA research can advance our understanding of well-being.

Exploring WFA with individuals most likely to experience it, i.e., nonprofit workers, will help further develop WFA theory. Nonprofit workers, an understudied group in the WF literature (Chang et al., 2010; Casper et al., 2007; Saarenpää, 2015), tend to approach work with high dedication and involvement, which may create WFC. Indeed, individuals perceiving emotional ties to their work tend to devote longer hours and make personal sacrifices to fulfill their calling (Bunderson & Thompson, 2009; Serow, 1994), and this calling has reportedly interfered with family (Ng, Sorensen, & Feldman, 2007). Individuals with a calling have also reported high levels of career and life satisfaction (Duffy, Allan, & Autin, 2013), and thus may also experience WFE.

Our qualitative study fills a gap in the WF literature. Beigi and Shirmohammadi (2017) called for more qualitative WF research to address weaknesses in WF theory. Also, there is a need to explore the intersection of WF roles through a dynamic and holistic lens that acknowledges simultaneous experiences of WFC and WFE, a phenomenon nonprofit workers likely face continuously (Hoobler & Masterson, 2017), but is difficult to explore quantitatively. Using grounded theory design (Creswell et al., 2007) and critical incident technique (CIT; Butterfield et al., 2004; Flanagan, 1954), we aimed to further develop WFA theory by exploring nonprofit workers' experiences of WF events via two research questions: 1) Do specific incidents/events of WFC or WFE elicit distinct emotions that counter one another, but when combined create a sense of psychological WFA for nonprofit workers, and 2) What are the experiences of and responses to WFA?

Our interview questions were informed by ambivalence theory (Ashforth et al., 2014), subject matter expert feedback, and prior research. Our sample was full-time nonprofit workers from US organizations (n=31). Using CIT, we explored their experiences of and response to WFC and WFE episodes. Using grounded theory design, we collected three rounds of data, modifying our inquiry and codes each round, based on the previous round's findings. Across all interviews, we asked participants to share details of a time when work interacted with their personal lives, including context, feelings, thoughts, responses, and event outcomes.

Following Creswell's (2007) best practices, we conducted an inductive analysis. While ambivalence theory guided coding, we added new themes/codes based on multiple coding rounds of different subsamples to adequately cover WFA experiences. The first author conducted open coding on 50% of phase one interviews, coding for major categories of information and identifying emergent themes/codes describing WFA. Codes covered context, characteristics of the stimuli (work interacting with nonwork) which included ambivalent emotions/thoughts (i.e., WFA), responses to WFA, response characteristics (e.g., deal with source or symptoms of WFA), response types (e.g., avoidance, domination, compromise, or holism), and outcomes of the events. The first author then conducted a second round of open-coding on the remaining phase one interviews, breaking down the codes and determining what new themes/codes were needed (Strauss & Corbin, 1990). Then the first author determined the most useful codes/themes based on code frequency across phase one interviews (Lofland & Lofland, 1995). After collecting additional data, the first author conducted axis coding on a sample of phase two interviews, revising codes to build a model of WFA, using an ambivalence theory paradigm.

Over the next few months, we will code phase three data, interpret and summarize the results, and draw conclusions. First, the second author will pilot test the codes on a sample of phase three interviews, and then both authors will update the codes as needed. Next, IRR will be conducted and established using the final codes and a phase three sample. Lastly, both authors will apply the final codes to all 31 interviews and develop conclusions, which will help answer our research questions, further develop a conceptual model of WFA, and create propositions for future research. We expect that nonprofit workers will experience WFA in response to episodes of their work interacting with their personal lives. Additionally, we expect our results to increase our understanding of WFA, including how workers respond to WFA and how WFA impacts them, which has important implications for their work and well-being.

C-5

Back from the Daily Grind: Cluster Analysis of Commute Characteristics and Commuter Attitudes

Declan Gilmer(University of Connecticut)

Problem. The commutes to and from work are critical parts of the day for many employees who work outside the home, often because they create emotional responses that spill across work and home boundaries (Wener, Evans, & Boately, 2005). For some employees, commuting provides a beneficial buffer between home and work environments that allows time for relaxation and reflection. For others, the commute is a stressful experience that creates unpredictability, anxiety, and anger. Previous research has examined the variables that may predict positive and negative commute experiences and explored the bidirectional relationships between the daily commute and work and non-work experiences (Morrow, 1995). Research has also noted that these relationships are often inconsistent (Koslowsky, Kluger, & Reich, 1995). This study seeks to describe meaningfully distinct commuter groups based on aspects of the commute and commuter attitudes. In doing so, we shed light on reasons that commuters have the commuting experiences they do and provide insight for future research in the largely unexplored topic of commuting.

Procedure. We collected cross-sectional survey data from a group of 374 federal government workers in a major metropolitan area in the Northeastern U.S. The survey collected information about participants' commuting experiences, work and personal well-being, and demographic characteristics. After excluding participants who completed less than 50% of the survey or did not work sufficient days or hours to meet criteria (over 3 days and 20 hours per week), we were able to conduct analyses on a sample of 246 employees. Participants were 62% male, had a mean age of 41-45 years, mean tenure of 6-10 years, and mean one-way work to home commute time of 52.7 minutes. Commuting mode was relatively evenly split between car (45.9%) and public transit (54.1%).

Analyses. K-means cluster analyses were conducted to identify and describe meaningfully distinct groups of commuters. Variables utilized include individual scale items of average commute time from work to home (in minutes), commuting stress (e.g., "During my commute I feel angry."), commute predictability (e.g., "I can usually estimate exactly how long it will take me to get home."), and commute characteristics (e.g., "My commute is very demanding."). All variables were standardized for interpretability. Clusters were created using IBM SPSS 25 and used a maximum of 25 iterations and various cluster solutions. Final cluster centroids were graphed and interpreted.

Results. A four-cluster solution revealed notable differences between commuter groups. Cluster 1 (n=73) was characterized by long commute times, low commute predictability, and mean commute stress and commute characteristics (positive and negative). This group appeared to have the most unfavorable commute conditions, but their cognitive appraisal and attitudes about the commute were not overwhelmingly positive or negative. Cluster 4 had similar unfavorable commute conditions of a long commute and low predictability yet had high levels of stress and negative characteristics of the commute. This cluster emerged as a small (n=13) but distinct group that reacted negatively to commute conditions. Clusters 2 (n=73) and 3 (n=125) both had more favorable commute conditions: the commute times were at mean levels and commute predictability was high. However, these groups differed on their responses to these conditions. Cluster 2 appeared to have a positive reaction characterized by low commute stress and noted positive characteristics of the commute. Cluster 3, conversely, had a high level of stress and noted negative characteristics of the commute.

Further analysis of the four-cluster solution identified some interesting trends. First, number of days of insufficient sleep (during the past 30 days) differed widely among clusters. Cluster 4 had an average of 18.92 days of insufficient sleep, whereas other clusters had at least 7 fewer days of insufficient sleep. Additionally, contrary to expectations, mode of transportation did not appear to differ significantly among clusters, as each cluster consisted of 55-69% car drivers.

Practical Implications. This study provides evidence that not only do characteristics of commutes vary (e.g., commute time and predictability), but also employees' appraisals of and attitudes toward their commute. Clusters are descriptive but present a valuable opportunity to recognize what makes groups of employees with favorable commute conditions appraise the situation positively and experience low commute stress, and what makes another respond more negatively and experience higher commute stress. In doing so, employers may be able to develop accommodations to reduce unfavorable commute conditions and provide information to employees to change appraisals of commutes. Employee sleep is a potential predictor of commuting attitudes, as well as commuting safety.

Conclusion. All commutes and commuters are not created equal. As commuters return from "the daily grind", they can be grouped into clusters that show differing commute length, predictability, stress, and subjective commute characteristics. This has theoretical implications for work-life interface research and practical implications for commuters and their employers.

C-6

What did you do on the weekend? The relationship between different types of weekend activities and well-being

Mihyang An (University of Wisconsin Stout)

The research on the negative impacts of stressors on employees has led to a plethora of research on how to cope with and recover from these stressors (e.g., Almén, Lisspers, & Öst. 2019; Sianoja, Syrek, de Bloom, Korpela, & Kinnunen, 2018; Singh, Burke, & Boekhorst, 2016). The recovery process has been defined as, "a person's desire for being—temporarily—relieved from exposure to stressors in order to replenish his or her resources" (p. 330; Sonnentag & Zijlstra, 2006). Four methods of recovery have been explored: psychological detachment, relaxation, mastery, and control (Sonnentag & Fritz, 2007).

Sonnentag and Zijlstra (2006) stated that a lack of recovery can result in lower well-being, which can lead to both heath and work performance issues. The focus of this project will be employees' weekend activities associated with both psychological detachment and relaxation. When psychologically detached from work and relaxed, employees are disengaged from work. Recent empirical work supports the use of these strategies (e.g., Sonnentag & Fritz, 2015). These recovery strategies were recently examined meta-analytically (Bennett, Bakker, & Field, 2018). Authors summarized the results of 54 independent samples and found that psychological detachment after work had a stronger negative relationship with reported fatigue than relaxation or control experiences. However, with the limitation of 24 hours in a day, the question of recovery activities at other times of day are associated with the most well-being is important.

The purpose of this study is to extend our understanding of recovery experiences outside of work. While some have focused on employee experience after work (e.g., Sonnentage, Binnewies, & Mojza, 2008), or during work hours (e.g., lunchtime activities; Marjaana, Syrek, de Bloom, Korpela, & Kinnunen, 2018), the current study explores non-work hours during the weekend more broadly, as they relate to the experience of reported well-being.

Research Question: Which weekend activities are associated with the highest level of well-being (i.e., happy, meaningful, tired, and stressed)?

Method/ Participants, Procedure, and Measures. The current study utilized data from the American Time Use Survey (ATUS), which is a federally administered, survey on time use in the US (N = 11,385, 49.9% respond rate). The survey is sponsored by the Bureau of Labor Statistics and data are freely available for use. For this purpose, those 18+, who were working full time, were included for analysis if they were responding about their time use on a weekend (Saturday or Sunday) in the year 2013 (n = 2,287; demographics are in Table 1).

Using a computer-assisted telephone interviewing, respondents are asked to report on how they spent their time from 4:00 a.m. to 4:00 p.m. the previous day, including what they were doing and for how long, and who they were with. In addition to the time use survey, an additional brief survey on well-being sponsored by the National Institute on Aging was administered in the year 2013. In this brief follow up survey, respondents were asked to how happy, tired, sad, stressed, and in pain they felt during three activities at three randomly periods on the previous day, as well as how meaningful the activities were using 0 - 6 points scale.

Data Analysis. As mentioned above, surveys conducted in 2013 were utilized here and we included and analyzed the first activity among three activities. A 15activity ANCOVA was used to explore whether certain types of leisure activities (between subject IV) during the previous (weekend) day are associated with higher reported happiness and meaningfulness and lower reported stress and tiredness (DV) than others. Number of work hours was used as a control variable.

Results. Descriptive analyses of weekend activities are presented in Table 2. The results of ANCOVA across different types of activities showed that type of weekend activities significantly relate to happiness, meaningfulness, stressed, and tired controlling the effects of work hours (Table 3-6).

Discussion. This study showed that different types of weekend activities related to individuals' physical and psychological well-being. For example, individual still engaged in work or work-related activities reported being highly stressed and tired, but less happy and lower meaningful, whereas others doing sports, religious activities, and volunteering activities reported high happiness and meaningful, and lower stress and fatigue. The results aligned with previous studies showing recovery experience such as psychological detachment and relaxation related (e.g., Sonnentag et al., 2008; Sonnentag & Fritz, 2015), suggesting that further studies need to explore what types of activities are beneficial for workers to get recovery.

Organization- and Job-Level Environments and Practices

D-1

You're Not You When You're Not Supported: The Effects of Coworker versus Supervisor Social Support on Workplace Isolation and Affective Commitment

Natalie Armenteros (Florida International University)

The study of behaviors that isolate or disconnect others from social interaction has grown in recent decades (O'Reilly, Robinson, Berdahl, & Banki, 2015), as these experiences at work are associated with a variety of psychological and work-related consequences (Hitlan, Cliffton, & DeSoto, 2006; Mulki & Jaramillo, 2011; Mulki, Locander, Marshall, Harris, & Hensel, 2008). Although workplace isolation has garnered attention in the popular media as of late, empirical research on workplace isolation remains largely unexplored.

Workplace isolation is as a psychological construct consisting of two dimensions that describe employees' perceptions of isolation from the company and coworkers (Marshall, Michaels, & Mulki, 2007). The company dimension refers to perceptions of isolation from the organization when the need for task-related support from supervisors and the organization are not met, whereas the colleague dimension refers to perceptions of isolation from coworkers when the need for casual interactions and friendships are not met. Researchers have primarily focused on workplace isolation as a concern for employees engaged in virtual work, since these employees work remotely and lack personal contact with others in their organization (Mann, Varey, & Button, 2000; Pinsonneault & Boisvert, 2001). However, research has yet to examine how workplace isolation can affect employees working in non-virtual work organizational settings, and what resources can be offered to employees to reduce these perceptions of isolation.

The Job Demands-Resources (JD-R) Theory can be used to make predictions about job performance through motivational processes, which are triggered by job resources (Bakker & Demerouti, 2014). According to the JD-R, social support is a resource that satisfies the need for belonging and the absence of such a resource can evoke cynical attitudes towards work, such as perceptions of isolation (Bakker & Demerouti, 2007). Thus, social support can fulfill the need for belonging in an organization and may reduce perceptions of workplace isolation, which can result in higher levels of affective commitment. In fact, job resources including social support have been shown to be predictors of organizational commitment (Bakker, Demerouti, & Schaufeli, 2003).

The purpose of the current study was to investigate whether non-virtual work employees experience workplace isolation and how different sources of support affect perceptions of isolation at work and whether this is related to affective commitment.

This study used a cross-sectional survey design to collect data through an online research participation system from 156 participants across a wide range of occupations to test various models investigating the relationships between coworker and supervisor social support, colleague and company workplace isolation, and affective commitment. Mediation analyses were performed using the PROCESS Macro (Hayes, 2013). Results revealed that coworker social support and colleague workplace isolation were significantly and negatively related. Moreover, supervisor social support and company workplace isolation were also significantly and negatively related. However, only company workplace

isolation was significantly related to affective commitment, such that employees who perceived to be less isolated from the organization were more affectively committed to their organization. Therefore, only company workplace isolation mediated the indirect relationship between supervisor social support and affective commitment, indirect effect = .27, SE = .05, 95% CI [.17, .37]. Colleague workplace isolation did not mediate the indirect relationship between coworker social support and affective commitment.

Aside from showing that non-virtual work employees can and do experience workplace isolation, these results suggest that various sources of social support are integral in maintaining high levels of affective commitment. Additionally, only company workplace isolation is related to affective commitment. This may be because company workplace isolation is associated with recognized achievements and involvement with the organization that may lead to promotional opportunities. For most employees, feeling isolated from the company versus colleagues is more detrimental because of the career advancement opportunities associated with organizational decision-making. Employees who do not feel connected with their organization and are not recognized for their achievements may be more likely to leave the organization in search for jobs that can provide these resources.

Occupational health practitioners may use this to help inform strategies for improving workplace environments by implementing things such as mentoring programs, reward systems, or employee resource groups. Organizations who are interested in maintaining high levels of organizational commitment in their employees may want to ensure that they provide adequate social support, particularly from supervisors, whom employees may perceive to be more closely tied to their growth and development within the company.

D-2

Differences in Binge Drinking by Occupation Group among Currently Employed U.S. Adults across 32 States, BRFSS 2013-2016

Taylor Shockey (NIOSH)

Excessive alcohol consumption is responsible for 88,000 deaths per year in the United States, including 1 in 10 total deaths among working-age adults, and cost the U.S. $249 billion in 2010, including $179 billion in lost productivity (1-3). Binge drinking is responsible for most of the deaths and costs from excessive drinking, and is associated with many health and social problems, including heart disease, violence, motor vehicle crashes, and unintended pregnancies (2,4). The prevalence, frequency, and intensity of binge drinking is known to vary by socio-demographic characteristics (e.g., age, sex, and household income). However, there is limited information on how alcohol use, including binge drinking, varies by occupation.

Two state-specific studies of binge drinking by occupation were conducted in North Dakota and California, respectively. In North Dakota, farm or ranch employees had the highest prevalence of binge drinking (45.3%) and healthcare workers had the lowest (13.2%). In California, installation (31.8%) and construction (31.4%) workers had the highest risk of binge drinking compared to professional and related workers who had the lowest risk at 16.6% (5,6). However, it is unclear whether these findings are representative of binge drinking by occupation across multiple states. Furthermore, neither of these studies assessed the frequency, intensity, or total binge drinks per binge drinker by socio-demographic characteristics or by occupation group; this information is important for identifying disparities in binge drinking and for planning prevention strategies.

We used data from the 2013-2016 Behavioral Risk Factor Surveillance System (BRFSS) to assess differences in binge drinking among currently employed U.S. adults by sociodemographic characteristics and by occupational groups. The BRFSS is an annual, state-based, random-digit dialed landline and cell phone survey of the non-institutionalized, U.S. adults that collects information on health conditions, health behaviors, and access to health care. The core BRFSS questionnaire contains four questions on alcohol consumption during the past 30 days, which were used to calculate four binge drinking measures: prevalence (proportion of respondents who reported consuming ≥five drinks on an occasion for men, or ≥four drinks on an occasion for women); frequency (average number of binge drinking episodes among binge drinkers); intensity (average largest number of drinks consumed on an occasion among binge drinkers); and total annual binge drinks per binge drinker (based on binge drinking frequency and intensity). The National Institute for Occupational Safety and Health (NIOSH) sponsored an optional BRFSS module to record employed or recently employed respondents' industries and occupations. The 32 states that administered the optional module for at least one year from 2013-2016 were included in this study.

We calculated prevalence estimates and 95% confidence intervals for binge drinking by major and detailed occupation groups, adjusting for sex, age, and race/ethnicity. Binge drinking frequency, intensity, and total annual binge drinks per binge drinker were also calculated for the major occupation groups. SAS-callable SUDAAN was used to perform data analyses to account for the BRFSS' complex sampling design.

Among the major occupation groups, binge drinking was most common among construction and extraction workers (26.3%), and the workers in these occupations who binge drank reported the highest total annual binge drinks per binge drinker (749 drinks/binge drinker). However, the highest frequency of binge drinking was reported by installation, maintenance, and repair workers who binge drank (64.2 episodes per year). In contrast, farming, fishing, and forestry workers who binge drank reported the highest intensity of binge drinking (9.4 drinks per binge). Among detailed occupational groups, binge drinking was most common among production worker supervisors (31.3%); advertising, marketing, promotions, public relations, and sales managers (28.8%); and services sales representatives (28.8%).

The results of this study emphasize the need to adopt a comprehensive approach to reducing excessive alcohol use, particularly binge drinking, among workers across occupation groups, including evidence-based clinical prevention strategies and community-based strategies (7,8,9,10,11). For example, alcohol screening and brief intervention (ASBI), which has been recommended for adults by the U.S. Preventive Services Task Force, is an effective strategy for reducing alcohol use in clinical settings (7). Other approaches may be needed for workers in occupations where access to Employee Assistance Programs (EAPs) may be limited or in occupations where the work structure makes administration of interventions difficult (e.g. working in the field, temporary workers, etc.). Ultimately, workers and employers can both play a role in reducing excessive alcohol consumption in an effort to improve workplace safety and health.

D-3

The Stigma of Reporting Stress-related Concerns at Work

Zachary Klinefelter (Clemson University)

Employees often hesitate to discuss their occupational health concerns with their employer. The literature shows that employee hesitancy to report these issues may be an important barrier to improving occupational health. Yet, most of this research is based on the reporting of physical safety concerns at work, and relatively little is known about how such processes may influence employees' willingness to discuss stress-related occupational health issues, particularly in relation to their perceptions of negative consequences after discussing such issues. The present research examines the stigma climate that exists within workplaces for reporting stress-related concerns, as well as the broader psychosocial safety climate within the workplace, as predictors of two important occupational health outcomes: bullying and burnout.

One factor likely related to the climate of stigma surrounding the reporting of stress-related concerns is the overall climate within the organization regarding psychosocial safety issues. We argue that the climate related to the stigma of reporting stress concerns is distinct from psychosocial safety climate (PSC) and important to study in the work stress context. Specifically, while PSC encourages policies, practices, and procedures that promote psychological well-being, stigma is concerned with the fear of negative consequences if one were to report an issue at work. A high level of PSC may elicit an expectation of a workplace without psychosocial issues, and therefore a fear that there could be negative consequences if one were to report such issues. Additionally, while stigma has been examined in many different contexts (e.g., mental health), to our knowledge, no studies to date have examined stigma related to reporting stress at work.

Method. Participants for this study were 500 working adults in the U.S., who responded to surveys at Time 1 and Time 2, separated by a month. The participants for this study were recruited online through Amazon's Mechanical Turk (MTurk). MTurk members who worked 20 hours or more per week were encouraged to participate. After excluding participants based on their performance on four attention check items or for completing the survey too quickly, the final sample size for analyses was 500 participants with complete data from both time points. Participants who completed the survey in its entirety and passed all attention checks were compensated $3.00 for participation in each of the two surveys. The survey measured participants' perceptions of PSC in their workplaces, their perceptions of stress-reporting stigma, their experiences with bullying at work, and burnout. Additionally, the survey asked participants for demographic information.

Results. Confirmatory factor analysis (CFA) revealed that the measure of stress-reporting stigma created for this study showed good fit with the data. Additionally, comparison of a four-factor model with alternative models supported the use of four factors. Moderation analyses using Hayes Process Macro revealed main effects of stress-reporting stigma and PSC in the prediction of burnout. In general, stress-reporting stigma was associated with increases in burnout, whereas PSC was associated with decreases in burnout. Finally, Poisson regression was used to examine the interaction of PSC and stress-reporting stigma in the prediction of bullying at work. Analyses showed significant main effects for stress-reporting stigma and PSC in predicting bullying, as well as significant interactions. Across the analyses, increases in PSC and decreases in stress-reporting stigma were associated with decreases in bullying. The significant interaction effects showed that when stress-reporting stigma was high, the relationship between PSC and bullying was weaker than it is when stress-reporting stigma is low. Regression analyses and an additional CFA provide evidence of the incremental validity of stress-reporting stigma as distinct from PSC in predicting burnout and bullying.

Discussion. The current study sought to bring to light a potentially overlooked aspect of reporting stress-related concerns in the workplace. Our analyses revealed that stress-reporting stigma is distinct from psychosocial safety climate and can lead to increased burnout and increased experiences with bullying. Furthermore, the existence of a strong PSC in a workplace does not preclude stress-reporting stigma from leading to increased experiences of bullying. Limitations of this study include using just a single source of data; self-report, and collecting data at just two time points only separated by a month. Strengths of this research include using well-validated measures of bullying, burnout, and PSC, as well as developing a new measure for stress-reporting stigma. Additionally, though just one month separates the two surveys, this study contributes to the stigma and climate literatures by using more than a single time point of data. This study implies that developing and maintaining a psychosocial safety climate within an organization is not sufficient to preclude bullying from occurring. Therefore, organizational interventions targeting bullying should also consider stigma as an additional target. Future research should continue to develop the theory and measurement surrounding how stigma operates in workplaces. Researchers should also examine additional outcomes of stigma as stigma may not be unique to bullying and burnout.

D-4

The role of self-efficacy and overwork climate in Workaholism

Silvia Silva (ISCTE University Institute of Lisbon)

Workalohism was first defined 48 years ago as "addiction to work, the compulsive and uncontrollable need to work incessantly" (Oates, 1971). Although, since then, several perspectives proliferated about the Workaholism definition it is considered consensual that is an addiction to work. This addiction involves feeling compelled or driven to work because of internal pressures, having persistent and frequent thoughts about work when not working, and working beyond what is reasonably expected (as established by the requirements of the job or basic economic needs) despite potential negative consequences (Clark et al., 2014, p. 1840). Clark and colleagues (2014) in a recent meta-analysis emphasized the negative outcomes of Workaholism such as increased job stress, work–life conflict, burnout, decreased job and life satisfaction, and poor physical and emotional/mental health. Nevertheless, there is still a need for better understanding the contexts and conditions that promote Workaholism and specifically the way context variables interact with individual variables. Self-efficacy is a very important individual characteristic that plays a critical role in well-being and performance at work but has revealed inconsistent results in predicting Workaholism. At the same time, it is recognized that the organizational climate has an important influence on the individual's cognition, emotion, performance and well-being (Carr et al., 2003) however, only some few studies have explored the relation with workaholism.

Considering this state of the art this poster follows the research of Mazzetti et al., 2014 and aims to provide empirical evidence on the moderating effect of perceived Excessive Work Climate (CTE) on the relationship between perceived Self-efficacy (AE) at work and Workaholism, a relationship that is not clear in the literature. This model was tested using a self-report questionnaire with validated scales and with data from two samples. One sample (sample 1) consisting of 187 portuguese workers belonging to different organizations. The second

sample included 381 participants, belonging to the same organization (a representative sample of a multinational company that provides Retail Real Estate Services). The results obtained explained between 7% and 28% of the workaholism variance and suggest that the CTE as a positive and significant predictor of Workaholism. Additionally, it was found that AE is a positive predictor of Workaholism, however, this correlation was only significant for sample 1. Contrary to expectations, the moderating effect of CTE on the relationship between AE and workaholism was not observed. This study contributes to a better understanding of workaholism predictors, expecting that it may, in some way, empower the leaders of organizations to mitigate the likelihood of development or reinforcement of this addiction.

D-5

Workplace Telepressure in Organizations: Are Disconnection Policies Helpful?

Larissa Barber (San Diego State University)

Employees often feel the need to be technologically tethered to the workplace through to meet the needs of supervisors, colleagues, and clients. For example, one survey of American professionals found that 30% continuously have their email open while working, and 58% report that they responded within one hour (Wright, 2017). The term workplace telepressure was coined to describe this urge to be responsive to others through information communications technologies (ICTs) combined with a preoccupation with fast response times (Barber & Santuzzi, 2015). Taking steps to reduce this heightened responsivity pressure is a growing concern among organizations. For example, many companies are considering "disconnection" policies that discourage employees from responding to work emails after hours—21% of U.S.-based and multi-national companies reported having formal policies regarding technology use outside of work hours (Society of Human Resource Management, 2012). Yet, there is little evidence that such policies are the most effective way for reducing the pressure to stay connected. Guided by social influence and social information processing theories (Cialdini & Goldstein, 2004; Walter, 1992), we explored whether employee reports of formal organizational policies and informal managerial practices would predict workplace telepressure. Using organizational support theory (Eisenberger et al., 1986; Rhoades & Eisenberger, 2002), we also examined whether perceptions of whether the organization is family-supportive predict workplace telepressure.

We collected data using an online survey questionnaire from a crowdsourcing forum (Amazon's Mechanical Turk). Our sample included 482 full time (35hrs a week or more) U.S. employees across diverse occupations and organizations. Questions regarding formal policies and informal managerial practices surrounding technology use expectations during nonwork (see Figure 1) and work hours (see Figure 2) were assessed with a mix of closed-ended (yes/no) and open-ended measures. We also included validated measures of family-supportive work environment (14 items; Allen, 2001) and workplace telepressure (6-items; Barber & Santuzzi, 2015). Reliability estimates for measures, descriptive statistics, and bivariate associations among measures are reported in Table 1.

We analyzed our data using structural equation modeling (see Table 2 for path estimates). Employees' perceptions of formal organizational policies surrounding response expectations both during and after work hours were not associated with workplace telepressure, nor were informal managerial practices discouraging responses after work hours. Instead, perceptions of informal managerial practices encouraging specific responses during work hours and low family-supportive work environments predicted workplace telepressure. We also conducted exploratory analyses on policy enforcement and specific response time expectations. Among employees who reported having a formal policy that discourages after-hours responding (n = 385), only 63.9% said the policy was consistently enforced by the organization, managers, or other organizational leaders. Among employees who did not have a formal policy (n = 97), only 35.8% said having a formal policy that discourages employee use of message-based technology would be beneficial to them. Alternatively, 41.3% said that having a formal policy that discourages employee use of message-based technology would be problematic for them. The qualitative data in open-ended responses suggested that participants were not convinced that a policy would lead to substantive behavioral change, or that it would also lead to more restrictions on personal flexibility and the ability to address time-sensitive matters. We also asked participants to report expected response time for three different modes of communication (email, text, and voicemail) according to formal policy and informal practices. As shown in Figure 3, the majority of respondents reported that both formal and informal expected response times somewhere within 24 hours for all three forms of communication. More than half of participants who responded to these questions reported that the expected report time for both formal policy and informal practices was within 0-6 hours.

These findings have two key implications for organizational policies and practices. First, organizations should target informal managerial practices regarding response times during work hours and poor work-life culture if they want to reduce the pressure to stay electronically tethered to work. Before adopting policies related to after-hours technology use, organizations must also carefully consider effective implementation challenges and drawbacks of formal policies. Our results suggest that there is no quick fix for reducing workplace telepressure via policy adoption. Rather, large-scale improvements to a supportive work environment (Kossek, Lewis, & Hammer, 2010) and altering technology use norms may be helpful in reducing workplace telepressure among employees. Second, employees perceive both costs and benefits of existing organizational policies that discourage technology use outside of established work hours. Workers who thought a policy would be beneficial were in the minority; additionally, close to half of the workers were concerned that such policies would cause more issues, especially in terms of restricting flexibility. Thus, organizations should carefully consider whether and how to adopt formal disconnection policies to avoid unintended consequences.

D-6

Predictors of Participation in Workplace Health Promotion Programs: A Review and Recommendations for Research and Practice

James Kunz (Colorado State University)

Less than 11% of Americans regularly engage in optimal health habits (e.g., refraining from smoking, exercising at least three times per week; Yang, Cogswell, Fanders et al., 2012). However, significant improvement on health in the 21st century may come from within the workplace, as the World Health Organization has prioritized the workplace as an environment for health promotion (Workplace Health Promotion, 2019). Workplace health promotion programs (WHPPs) have produced

beneficial health outcomes for employees such as improvement in exercise frequency, weight loss, smoking cessation, blood pressure, and cholesterol (Anger et al., 2015). Moreover, WHPPs are associated with increased cost savings for employers such as a reduction of $3.27 in medical care costs and a $2.73 reduction in absenteeism costs for every dollar spent on WHPPs (Baicker, Cutler & Song, 2010). Yet in a review of the literature, the median participation rate for employees with WHPPs available to them was only 33% (Robroek, van Lenthe, van Empelen & Burdorf, 2009).

The purpose of the present study was to review existing research to summarize what we know about predictors of participation in WHPPs over the last 10 years since the most recent review conducted by Robroek et al. (2009). To understand factors associated with increases in WHPP participation and guide future research and practice on this topic, it is useful to have a current understanding of what predicts participation in such programs. Consequently, we reviewed both quantitative and qualitative studies regarding predictors of participation in WHPPs. We also distinguished between predictors of workers' intentions to participate and actual participation in WHPPs (among those who had programs available to them). Moreover, we also examined predictors of participation in different types of WHPPs (e.g., whether the WHPP was delivered online, in-person, or both, as well as whether the WHPP was only educational or included screenings or physical activity).

First, we investigated demographic characteristics as predictors of WHPP participation. Generally, our results indicated a positive relationship between age and participation in WHPPs across varying contexts. Robroek, Lindeboom, and Burdorf (2012) noted this was consistent with past literature. The relationship between sex and participation in WHPPs in recent research is mixed. A number of studies have found males more likely to participate in WHPPs. However, this finding contradicted prior research that indicated males typically participate less in WHPPs (Abraham, Feldman, Nyman & Barleen, 2011). The studies that have investigated the relationship between marital status and participation in WHPPs have consistently found mixed results, and the same was true for income as a predictor for participation in WHPPs.

Next, we investigated workers' health and well-being as predictors of WHPP participation. Many health characteristics or habits are negatively related to WHPP participation including smoking, cardiovascular disease, abnormal BMI, and other health conditions. Conversely, positive affect and prior exercise habits were typically positively associated with WHPP participation. Still, the positive relationship between prior exercise behavior and participation in WHPPs may depend on the type of prior exercise behavior. For instance, individuals with a past history of exercise within a fitness center were more likely to participate in a WHPP (Abraham, et al., 2011; Middlestadt et al., 2011). However, a negative relationship between past exercise behavior and WHPP participation was found for participants who had a past history of exercise outside of health facilities (e.g., jogging on nature trails), which may suggest that those who enjoy outdoor activities may not find indoor workout facilities appealing (Abraham et al., 2011).

The theory of planned behavior helps explain the relationship between attitudes and participation in WHPPs (Ajzen, 1991; Payne, Jones & Harris, 2002). Specifically, positive attitudes toward physical activity are consistently, positively related to participation in WHPPs. Regarding beliefs, an internal health locus of control was positively associated with WHPP participation and belief about one's health status was inversely related to participation in WHPPs. Mediators and moderators of these relationships will also be discussed, including self-efficacy regarding physical activity, social support from colleagues and supervisors regarding participation in WHPPs, and workplace barriers (e.g., location/distance).

Recognizing predictors of participation in WHPPs in different contexts may aid in understanding what WHPPs are best suited for different populations. Moreover, understanding what predicts participation or non-participation in WHPPs may aid in recruitment efforts, as well as eliminating barriers that deter employees from participating. As noted, increased participation in WHPPs can improve employee health and well-being, as well as reduce costs for employers. Our presentation at the WSH conference will summarize more findings in detail and provide recommendations for future research and recommendations for WHPP design and implementation.

D-7

Fire under Control: Firefighters' Leadership Styles, Empowerment and Psychological Well-being

Michael Frueh (Central Michigan University)

Few studies have examined the relationship between leadership styles and psychological well-being among professional firefighters (e.g. Angelo & Chambel, 2015; Varvel, 2007). These studies have found that supervisors' support was negatively related to firefighters' burnout (Angelo & Chambel, 2015) and stress perception (Varvel, 2007).

However, leadership studies conducted in other occupations have demonstrated that multiple leadership behaviors are important factors related to followers' well-being (i.e. Bedi, Alpaslan, & Green, 2016; Montano, Franke, & Hüffmeier, 2017). Supervisors with a negative leadership style like abusive supervision are toxic to the well-being of their followers (Bowling & Michel, 2011; Zhang & Liao, 2015), are not trusted (Brown et al., 2005; Vogel et al., 2015), and result in followers with a decreased sense of empowerment (i.e. Mackey et al., 2015). On the other hand, supervisors with positive leadership styles like transformational, authentic, and ethical leadership, have followers with high psychological functioning and well-being (e.g. Bedi et al., 2016), and foster trustful (e.g. Hoch et al., 2016) and empowered followers (e.g. Hoch et al., 2016;). In addition, A few studies found that trust in the leader mediates the relationship between transformational leadership and psychological well-being (e.g. Kelloway et al., 2012; Liu et al., 2010).

Hypothesis 1: Abusive supervision is negatively related to followers' psychological well-being; authentic, ethical, and transformational leadership are positively related to followers' psychological well-being.

Hypothesis 2: The relationships between leadership styles and psychological well-being are mediated by empowerment.

Hypothesis 3: The relationships between leadership styles and psychological well-being are mediated by trust in the leader.

Method. Participants were 129 professional firefighters (working at least 35 hours a week). Among them, 92% worked in the U.S. and 8% worked in Switzerland. Participants were recruited either by online invitations or during visits to fire departments. Participants completed a survey at time I about their supervisors' leadership style and at time II (n = 129) about mediators (trust in the leader and empowerment) and the outcome (i.e. psychological well-being).

Measures. Authentic leadership was measured with the Authentic Leadership Questionnaire (ALQ; Walumbwa et al., 2008).

Transformational leadership was measured with the MLQ Form 5X (Bass & Avolio, 2004).

Ethical leadership was measured with Brown and colleagues' Ethical Leadership Scale (ELQ; 2005).

Abusive supervision was measured with Tepper's Abusive Supervision Scale (2000). Empowerment was measured with a scale developed by Spreitzer (1995).

Trust in the leader was measured using a six-item measure adapted from Cook and Wall's Interpersonal Trust at Work scale (1980).

Psychological well-being was measured with the 12-item version of the General Health Questionnaire (GHQ; Goldberg, 1972).

Control variable. Participants' country of origin was considered as a control variable, but it made no difference in the results.

Results. Correlations provided general support for most of the hypotheses (Table 1). Abusive supervision was related to lower psychological well-being ($r = -.23$, $p < .01$), and ethical and transformational leadership were associated with greater psychological well-being ($r = .24$, $p < .01$, and $r = .23$, $p < .01$, respectively). Contrary to predictions however, authentic leadership was not related psychological well-being. Consequently Hypothesis 1 was only partially supported.

Mediation analysis. To test the mediation hypotheses (Figure 1), we used bootstrapping procedures, which provide estimates of the indirect effects (Preacher & Hayes, 2004). From a simple mediation analysis conducted using ordinary least squares path analysis, the four leadership styles did not indirectly influence psychological well-being through their effect on trust in the leader (Table 2). However, from a simple mediation analysis, authentic leadership, ethical leadership and transformational leadership, but not abusive supervision, indirectly influenced psychological well-being through their effect on empowerment.

Discussion. Evidence from the 129 firefighters generally supported significant relations between their evaluations of leadership styles (AL, AS, ethical, and TFL) and well-being through the mediating effect of empowerment but not trust in the leader. Surprisingly, authentic supervisors did not generate higher psychological well-being, and AS was not related to empowerment, which is not consistent with previous research (e.g. Banks et al., 2016). It is noteworthy that empowerment mediated the relations between the positive leadership styles (i.e. followers' ratings of AL, TFL, and EL) and psychological well-being, but did not act as a mediator for the relation between the negative leadership style (abusive supervision) and psychological well-being. The failure of trust in leader to mediate these processes was inconsistent with previous research (e.g. Read & Laschinger, 2015).

Future research should examine further the impact of leadership in fire departments to determine the best form of leadership in this situation, and to see whether these results generalize to other outcomes such as job performance and turnover. In the meantime, for purposes of improving and maintaining firefighters' well-being, fire departments could find ways to train leaders in behaviors that will engender the psychological experience of empowerment in their subordinates.

D-8

Linking Satisfaction with Physical Work Environment, Telecommuting, and Job Performance via Job Satisfaction

Seulki Jang (Penn State Mont Alto)

Introduction. We examined the relationships between SPWE and various performance outcomes. Although some studies showed the relationship between SPWE and performance outcomes (e.g., Sundstrom, Burt, & Kamp, 1980), they were published decades ago. We attempted to demonstrate the relationships with more recent data. Also, we subdivided performance outcomes into more specific types (i.e., task performance, OCB, CWB, safety performance, and creativity performance) to provide richer information. Moreover, we proposed overall job satisfaction as a mediator of the relationships, as satisfaction with a specific factor influences overall job satisfaction evaluations (e.g., Ibrahim et al., 2016) and job satisfaction predicts job performance (e.g., Judge & Bono, 2001). Finally, we hypothesized that the relationship between SPWE and overall job satisfaction would be stronger for employees who spend more time at work (less telecommuting) compared to employees who spend less time at work (more telecommuting) given that employees who spend more time at work (less telecommuting) are exposed to the physical work environment factors longer. A conceptual model is presented in Figure 1.

This study contributes to the existing literature in several ways. First, this study underscores the importance of SPWE and expands limited understanding of SPWE with recent empirical data. Additionally, this study reveals the mechanisms of the relationships between SPWE and different performance outcomes and demonstrates what population is more affected by SPWE.

Method. We collected three time point survey data through Qualtrics online panels. In Time 1, 1,062 full-time employees participated. In Time 2, 615 employees returned and participated (the average time interval = 9.84 days, SD = 3.81). In Time 3, 417 participants returned and participated (the average time interval = 9.48 days, SD = 2.72).

In Time 1, SPWE (Kim & de Dear, 2013; see Appendix A) and demographic information were collected. In Time 2, telecommuting was measured as the average number of Cammann et al., telecommuting hours per week (Golden & Veiga, 2005). In Time 3, overall job satisfaction (Cammann et al., 1979), task performance (Williams & Anderson, 1991), OCB (Settoon & Mossholder, 2002), CWB (Robinson & Bennett, 2000), safety performance (Neal & Griffin, 2006), and creativity performance (Zhou & George, 2001) were assessed. All Cronbach's alpha values were above .70.

Results and Discussion. Descriptive statistics and correlations are presented in Table 1.

A Moderated Mediation Model. We performed a moderated mediation model using a path analysis on Mplus 7.4. Unstandardized coefficients are reported in Tables 2 and 3. The model fit was acceptable, $\chi 2(10) = 38.38$, $p < .01$, CFI =.90, RMSEA = .08. Results showed that SPWE was associated with safety performance ($\gamma = .27$, $p < .01$), but not with the other four outcomes. Also, SPWE positively related to satisfaction ($\gamma = .63$, $p < .01$).

As shown in Table 3, overall job satisfaction fully mediated the relationships between SPWE and task performance ($ab = .068$, $p < .01$), OCB ($ab = .098$, $p < .01$), CWB ($ab = -.032$, $p < .01$), and creativity performance ($ab = .081$, $p < .05$); however, safety performance was not ($ab = -.024$, $p > .05$). The findings make sense as physical work factors such as deemed light would directly affect safety performance even without emotional evaluations of the physical work factors.

Furthermore, telecommuting hours significantly moderated the relationship between SPWE and overall job satisfaction ($\gamma = -.01$, $p < .05$). A simple slope test revealed that the positive effect of SPWE on overall job satisfaction was stronger for individuals who telecommuted less ($\gamma = .73$, $p < .01$) than those who telecommuted more ($\gamma = .52$, $p < .01$), which suggests that SPWE is more critical for those who spend longer time in the workplace.

Lastly, the total moderated mediation model was not significantly different between individuals who telecommuted more and those who

telecommuted less on task performance (estimate = -.02, p = .08), OCB (estimate = -.03, p = .08), CWB (estimate = .01, p = .09), safety performance (estimate = .01, p = .72), and creativity performance (estimate = -.03, p = .12). It indicates that the indirect paths were not significant different between high and low telecommuting groups on the five performance outcomes.

Implications. This study reveals a theoretical mechanism of how SPWE influences work performance. Furthermore, this study demonstrates that the mechanism varies depending on specific types of work performance. Practically, this study suggests that companies that hardly offer telecommuting options should pay more attention to physical work environmental factors for the sake of employee satisfaction and performance.

D-9

Social support, work-life-balance, and emotional exhaustion among German health care workers in disability institutions

Lara Lindert (Uniklinik Köln)

Background. According to current data of the BKK Federal Association mental disorders are the second leading cause for absence of work days of German health insureds. Absence of work days due to mental disorders rose continuously between 2007 and 2017 (Knieps & Pfaff, 2018). Particularly professionals interacting with other people most of their working time are affected by mental health problems (Knieps & Pfaff, 2016). In the field of health care burnout among employees can lead to absenteeism and cause higher turnover rates. Burnout in health care workers accompanies with less patient orientation and safety and less quality in care (Ehresmann, Kockert, & Schott, 2015; Moss, Good, Gozal, Kleinpell, & Sessler, 2016). So burnout in health care workers not only affects the health of employees, but also the situation of their patients. Furthermore mental disorders cause high economic costs due to sickness leave (BMAS/BAuA, 2016). It is already known that working conditions can affect mental health in positive and negative ways: High work demands can restrict mental health of employees whereas resources can help to prevent mental disorders or burnout (Rothe et al., 2017). Especially in the health care sector there are often high work demands on employees (e.g. high workload) (BIBB/BAuA, 2012). Kowalski et al. (2010) identified workload, latitude in decision making and male gender as significant predictors for emotional exhaustion among professionals working with people with disabilities. The present study focuses on the resources that might help to raise mental health of health care workers in disability institutions and reduce the negative impact of disadvantageous work demands. The aim of this study is to investigate the associations between emotional exhaustion, social support through colleagues and supervisors, and work-life-balance for German health care workers in disability institutions.

Method: This study is based on the data of an employee survey among German health care workers in six disability institutions. The collection of data has already been finished: 308 employees received a paper-based questionnaire, 175 participated (response rate: 56.8%). As dependant variable emotional exhaustion was measured by the subscale of the Maslach Burnout Inventory-General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). As independent variables social support through colleagues and supervisors measured by Udris & Rimann (1999) and work-life balance measured by Pfaff et al. (2004) were used. The data was examined by a binary linear regression analysis in IBM SPSS Statistics 25. The emotional exhaustion scale was divided into two groups according to Kowalski et al. (2010): a high/moderate risk group and a low risk group. Social support and work-life-balance were used as interval scales. As control variables gender and age were added to the model.

Findings: Of the 175 participants 62.3% were female and 35.4% were male. In terms of burnout 62% of the participants were assigned to the "no risk group", whereas 38% were assigned to the "moderate/high risk group". The binary logistic regression analysis demonstrated positive effects of social support through supervisors (OR, 2.903; CI, 1.532-5.499) and work-life-balance (OR, 2.447; CI, 1.481-4.043) on emotional exhaustion for German health care workers in disability institutions. Also male gender was identified as predictor for emotional exhaustion (OR, .210; CI, .085-0.518). Nagelkerke's Pseudo-R2 was .406 which corresponds to a large effect according to Cohen (1992). The effect of social support through colleagues was not apparent in this sample.

Discussion: Regarding to the effects of social support through supervisors and work-life-balance on emotional exhaustion the findings support the hypotheses, that these factors can influence emotional exhaustion positively. To examine the effects of these variables on the relationship between work demands and mental disorders further research should focus on the moderator effects of social support through supervisors and work-life-balance on the relation between work demands and mental health. As well the fact that social support through colleagues has no impact on burnout in this sample needs to be checked and explained in further research. In their daily work health care workers are mostly interacting with patients and have not much time to care for their relationships with colleagues (Frowein, 2005). This might explain that the effect on emotional exhaustion was not apparent in this sample. Nevertheless, the results show that good social support through supervisors and good work-life-balance can help to improve mental health of health care workers in disability institutions, which can be considered when conducting interventions to improve mental health in this setting.

D-10

Development of DPQ-Process - a process tool to assist workplaces in their efforts to improve psychosocial working conditions

Thomas Clausen (The National Research Center for the Working Environment (NFA), Denmark)

Statement of the problem. Psychosocial working conditions are important determinants of worker well-being and many studies have provided evidence of an association between an adverse psychosocial work environment and outcomes related to the health and well-being of employees (Theorell et al., 2015; Madsen et al., 2017; Theorell et al., 2016; Clausen et al., 2014; Knardahl et al., 2017; Clausen & Borg, 2010).

In Denmark, it is commonplace for workplaces to use screening questionnaires to identify strengths and problems in the psychosocial work environment. In many workplaces, efforts spent at problem identification seems to hold priority over the subsequent efforts aimed at improving the psychosocial working conditions. Hence, many workplaces experience difficulties in their efforts to improve the psychosocial work environment, and these difficulties may be ascribed to lack of tools and know-how to deal successfully with the process.

The aim of this project was to construct, test, and develop a process tool to guide workplaces through the steps that are necessary to improve the psychosocial work environment. The process tool

is based on the workplace version of the Danish Psychosocial Work Environment Questionnaire (DPQ) (Clausen et al., 2018) and, hence, labelled DPQ-Process.

Procedures. We have conducted a thorough review of the literature of workplace interventions to identify methods, processes and tools that may improve the identification of issues in the psychosocial work environment in workplaces and facilitate subsequent action.

The results from the literature review were used to develop a pilot version of the process tool in collaboration between researchers at the National Research Centre for the Working Environment and an experienced occupational psychologist.

The pilot version of the process tool has both been presented to and discussed with researchers and practitioners in the field. The pilot version of the tool has also been tested in companies. A large scale-test of the process tool will be conducted in the second half of 2019.

Feed-back from the early stages of testing the process tool has been used to refine the pilot version, and feed-back from the large-scale test of the questionnaire will be used to develop a final version of the process tool.

Data are collected using semi-structured qualitative interviews and focus-group interviews.

Analyses. Results from the literature review and the test of pilot versions of the process tool will be used to assess workplace's needs for methods, processes and tools to improve the psychosocial work environment.

Results. The DPQ-Process tool is based on participatory methods as previous studies have shown the benefits of involving the employees in initiatives aiming at improving the psychosocial working conditions. First, solutions to specific problems in the psychosocial work environment may be enriched by drawing on the expertise of employees in the process. Second, involving employees may boost their feelings of ownership of the process. Such feelings of ownership may increase the possibilities that the process of improving the working conditions may be successful.

The literature review provided clear evidence that the process of implementing action plans was often overlooked. Therefore, it is emphasized that a clear focus on implementation, evaluation and process learning is important for a successful process.

In developing the process tool, we have identified five distinct phases that a process aiming at improving the psychosocial work environment should run through. These are:

1)start-up and planning of the process,

2)surveying the psychosocial work environment and reporting of results,

3)prioritization of goals and formulation of action plans,

4)implementation and follow-up on action plans, and

5)evaluation of the process and lessons learned

The process tool contains written text and video material that describes the five phases of the process and concrete tools to assist the workplaces in their efforts to improve the psychosocial work environment.

The process tool also contains an operational definition of what the psychosocial work environment is and what characterizes the dimensions of the psychosocial work environment that are measured in the Danish Psychosocial Work Environment Questionnaire (DPQ).

Practical implications. The DPQ-Process tool may contribute to improving the capacity of workplaces to facilitate processes aiming at improving psychosocial working conditions. The DPQ-Process tool may therefore, in a wider perspective, contribute to improving worker well-being and efficiency in the production processes while simultaneously reducing cases of sickness absence and turnover in workplaces.

Conclusions. The research group has identified a clear need for process support for workplaces who are interested in improving their psychosocial work environment. The presented process tool may constitute one solution to satisfy this need.

D-11

The Moderating Effect of Supervisor Support on Occupational Stress and Correlates of Suicide

Christina Engelken (Sam Houston State University)

Among law enforcement officers, occupational stress often cannot be prevented due to the uncontrollable nature of the job. Indeed, a number of physical and psychological conditions arise from chronic occupational stress in law enforcement. These include a greater frequency of physical complaints (Burke, 1994; Hartley, Burchfiel, Fekedulegn, Andrew, & Violanti, 2011; Johnson et al., 2005), depressive symptoms (Gershon, Barocas, Canton, Li, & Vlahov, 2009; Obidoa et al., 2011), and higher rates of posttraumatic stress disorder (PTSD) compared to the general public (French, 2017; McCanlies et al., 2014). Further, while the research on suicidality in probation and parole officers is scarce, the level of suicidality among police and correctional officers has been found to be more than twice that of the national average (New Jersey Police Suicide Task Force Report, 2009; Violanti, Robinson, & Shen, 2013). Although prior research has examined potential strategies for stress intervention, few have examined the effect of supervisor support on the relationship between different types of occupational stress and individual outcomes in police, correctional, and probation/parole officers. For this study, occupational stress is measured in two dimensions: operational and organizational. Operational stress results from the occupation itself while organizational stress results from procedures or policies within the agency (McCreary & Thompson, 2006). For example, operational stress may result from critical incidents while organizational stress may arise from excessive paper work. Past research on the individual effects of operational and organizational stress has been inconclusive. Predictably, multiple studies have found a strong connection between operational stressors such as critical incidents and PTSD (Brough, 2004; Carlier, Lamberts, & Gersons, 1997; Ward, Lombard, & Gwebushe, 2006). However, Maguen et al. (2014) found the relationship between critical incident exposure and PTSD to be mediated by routine organizational stressors. Indeed, many studies have found organizational stressors to be significantly predictive of PTSD symptoms, sometimes even more so than exposure to critical incidents (Abdollahi, 2002; Carlier et al., 1997; Collins & Gibbs, 2003; Liberman et al., 2002). Organizational support theory suggests that perceived support from a supervisor may mitigate negative consequences of occupational stress (Rhoades & Eisenberger, 2002). The high rate of suicide is arguably the most pressing problem among this population. For this reason and as a means of reducing suicidality, correlates of suicidal ideation (i.e., depression, PTSD, and hopelessness) will be assessed. Thus, the present study aims to assess the impact of supervisor support on the association between different types of occupational stress (i.e., operational and organizational) and depression, PTSD, and hopelessness. Various criminal justice agencies in the southern United States participated in this study. Participants were administered the following measures: The Police Stress Questionnaire (McCreary & Thompson, 2006), Survey of Perceived Supervisor Support (Kottke &

Sharafinski, 1988); PTSD Checklist for DSM-5 (Weathers et al., 2013), Patient Health Questionnaire Depression Scale (Kroenke, Spitzer, and Williams, 2002), and Beck's Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974). At present, 113 individuals have participated in this study although the data collection phase of the study has not yet ended. Data collection for this study will be complete mid-February. Using regression analysis, we hypothesize that both types of occupational stress will be related to each of the individual outcome variables. We further hypothesize that perceived supervisor support will have a unique interaction effect on both organizational and operational stress and negative individual outcomes, though the interaction between organizational stress and supervisory support is predicted to have the greatest impact. Examining the associations between organizational and operational stress, supervisor support, and individual outcomes is important in the development of potential prevention and intervention strategies for law enforcement officers who experience negative psychological health outcomes as a result of occupational stress.

D-12

Job Security, Organizational Commitment, Psychological Safety Climate: A Moderated Mediation Model Predicting Intrinsic Motivation

Anton Sytine (Clemson University)

The retention of high performing employees is critical to the continued success of organizations and allows them to flourish in an ever-changing global economy. Although employees may recognize the personal, financial, and social need for their job, it does not guarantee that they are motivated to perform to the best of their abilities. What contributes to employee motivation is a complex and multi faceted issue that is the focus of the present study.

The purpose of the present study was to examine alternative possible antecedents to intrinsic motivation; as well as test a moderated mediation model that uniquely examines the relationship between job security, organizational commitment, psychological safety climate, and intrinsic motivation among employees.

Previous research has demonstrated that employees who are more satisfied with their job security were more committed to the organization (Ashford, 1989; Rosenblatt & Ruvio, 1998; Yousef, 1997). Job security may provide employees with the belief that regardless of economic conditions they will continue to have a job with their organization. Employees with more job security may be more committed to the organization due to a sense of loyalty to the organization for continuing to employ them and provide for them. Greater organizational commitment may then facilitate an employee's motivation to perform.

In addition, the presence of high or low psychological safety may affect the relationship between employees' commitment to the organization and their intrinsic motivation. Low psychological safety may decrease the positive effects of organizational commitment on motivation, while high psychological safety may enhance organizational commitment and therefore motivation, even in the presence of low job security.

The present study examined the longitudinal relationship between job security and intrinsic motivation mediated by organizational commitment (affective, normative, and continuance). In addition, psychological safety climate was included in the model as a moderator of the organizational commitment-motivation relationship. An assessment of the moderated mediation model was conducted via PROCESS v3.2 model 14 (Hayes, 2018).

The results of the moderated mediation partially supported our hypotheses. We found that job security at Time 1 significantly predicted intrinsic motivation at Time 2, fully mediated by Time 1 affective organizational commitment. Job security at Time 1 was also found to significantly predict intrinsic motivation at Time 2, partially mediated by Time 1 normative organizational commitment. Continuance organizational commitment at Time 1 was not significantly related job security at Time 1 or intrinsic motivation at Time 2. In addition, psychological safety climate at Time 1 significantly interacted with both affective and normative organizational commitment at Time 1 to predict intrinsic motivation at Time 2, in the complete moderated mediation model (Figure 1 & 2).

The results of the current study have numerous implications for organizations. The positive relationship between job security and intrinsic motivation may demonstrate that employees who feel that they are secure in their job that will continue to have their financial needs met may apply their cognitive resources towards intrinsic factors and yield greater performance and engagement. Furthermore, the greater sense of security may enhance employee's sense of loyalty to an organization that continues to provide them with an opportunity to work and provide for themselves and their family financially. Which may thus facilitate an employee's ability and desire to work for the satisfying nature of the work itself. The addition of an organizational climate that provides a sense of psychological safety and recognizes the need and value of maintaining the psychological health and well-being of its employees magnifies the employees' commitment to the organization, therefore resulting in greater intrinsic motivation. These findings demonstrate the need for organizations to foster and promote a positive psychological safety climate. This may come in the form of creating awareness about the benefits of a safe psychological climate, as well as training managers and subordinates, and possibly unions, about strategies and protocols that may enhance the psychological safety in the organization. Finally, organizations ought to provide a greater sense of job security among its employees, whom may then fear less over providing for themselves and their families financially, and thus focus on the pleasure and interest of their work.

To succeed in the continuously changing global economy, organizations need to make continuous strides to enhance the workplace as well as the workforce. This may be achieved by providing employees greater job security as well as creating and maintaining a positive psychological safety climate, which may foster employees' commitment to the organization and facilitate their intrinsic motivation in the hopes of yielding greater engagement and performance.

D-13

Altruism in the Workplace: Correlation Between Teamwork and Organizational Citizenship Behaviors (OCBs)

Jessica Gomez (Albizu University)

The study of Organizational Citizenship Behaviors (OCBs) is increasing due to recent research linking them to key components in an organization, including job satisfaction and productivity (Brief, 1998). OCBs are voluntary actions done in the workplace with the intent of benefitting the organization (Allen & Rush, 1998). This study was designed to examine the relationship between OCBs and Teamwork. Convenient sampling was used to recruit 323 participants to take a survey. After reviewing the informed consent and completing a demographics

portion, the survey consisted of 19 items that measured the two constructs addressed. The results from this study indicated a significant positive correlation between OCBs and Teamwork. The implications from this study are applicable in the field of human resources and may be considered in the selection process.

OCBs are discretionary actions done outside of the employee's prescribed job duties. There are two categories of OCBs: OCBI relate to self-direction and benefiting other individuals, while OCBO focus on organizational impacts (Gatewood, 2016). Examples of OCBI include altruistic behaviors such as assisting coworkers or inspiring motivation. Altruism refers to the selfless concern for the well-being of others. An example of OCBO is adhering to company rules when not being monitored. As such, OCBs are done without expecting compensation and with the intent of facilitating goal attainment. OCBs are linked to work-related outcomes such as improvement in job performance and satisfaction, and decreased turnover (Allen & Rush, 1998).

Teamwork in the workplace involves a group of employees organized to accomplish a goal (Khuong & Tien, 2013). Working in teams can have numerous benefits, including minimizing job anxiety, increasing productivity, motivation and job satisfaction, and having diverse input for a diverse, well-rounded output. Groups with effective leadership have been found to perform higher and be more inclined to participate in OCBs (Setiyono & Suparman Lalu, 2018). Similarly, individuals with collectivistic values seem to perform OCBs more often than people with individualistic values (Moorman & Blakely, 1995).

Convenience sampling was used to recruit a total of 323 participants. The respondents were 26% male and 74% female with ages ranging from 18 to 81, mode age was 25. Participants were limited to 18 years and older with job experience. Individuals were recruited via phone, email and social media outlets. The study concluded with 71% of participants working full-time and mode hours worked per week being 40. The majority of the sample identified as Hispanic/Latin (53.3%), with the other largest racial group being Non-Hispanic/White (37.5%).

The 10-item short version of the Organizational Citizenship Behavior Checklist (OCB-C) was used in this study (Fox & Spector, 2009). The OCB-C instrument has 10 items following a 5-point Likert scale ranging from 1 (never) to 5 (every day). The International Personality Item Pool (IPIP) was used to attain 9 items to measure the construct of Teamwork (Goldberg et al., 2006). These items also followed a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

After participants were recruited, they completed an online survey that took approximately 15 minutes. The survey began with an informed consent form that explained confidentiality, anonymity, the study's intent, voluntary participation, and the right to withdraw. Next was a brief demographics section followed by 19 items measuring the two constructs.

The pretest criteria for conducting a correlation analysis include checking the data for normality, linearity, and homoscedasticity. The first two criteria were met, but homoscedasticity was not. Regardless, a correlational analysis was conducted for OCBs and Teamwork. The analysis revealed a small but statistically significant positive correlation ($r = +0.114$, $p = 0.040$, $\alpha = 0.05$). This means that as OCB scores go up, Teamwork scores also go up, and vice versa. The finding implies that individuals who are highly successful in group work may have a higher inclination to exhibit OCBs. This result supports the results of Setiyono and Suparman Lalu (2018), relaying how successful teams are more likely to exhibit OCBs. A limitation to this study is the reduced internal validity due to selection bias. Convenience sampling decreases confidence in the results' generalizability. The results of the study support the initial hypothesis for a correlation between OCB and Teamwork. Findings from this research may have applicable implications for HR personnel. For example, organizations that often use group work can benefit in using the OCB-C during the screening process, because high scores in OCB will also reflect a high likelihood to be successful in team engagements.

D-14

Do workplace aesthetics matter? Testing the moderating effects of need for aesthetics and general mindfulness

Lydia Johnson (The University of Tennessee at Chattanooga)

Minimal research has examined the impact of aesthetically pleasing workspaces and/or work environment elements on employee outcomes such as negative work attitudes, job satisfaction, or resource recovery needs. The purpose of the present study was to test if aesthetic elements in a workspace or work environment matter to employees, and if this effect is moderated by the extent to which employees are generally mindful and have a need for an aesthetically pleasing workspace (NFAPW).

Several theories and related fields of research support the notion that the aesthetics of a space has psychological benefits. For example, Kaplan's attention restoration theory (Kaplan & Kaplan, 1989) supports the notion that the aesthetic components of an environment influences the degree to which that environment may facilitate a person's restorative experiences (Kaplan, Bardwell, & Slakter, 1993). Per William James' (1892) work on voluntary attention and involuntary attention/fascination, due to the way aesthetically pleasing environments tend to naturally capture our fascination and thus require less voluntary attention, an aesthetically pleasing workplace might function as a less draining and more restorative environment than a less aesthetically pleasing workplace. Finally, Maslow's early writings on human motivation describe a need for aesthetics, yet 60 years later there is still relatively little research on this concept. Thus, this study examined need for aesthetics as a hypothesized moderator of the relationship between workplace aesthetics and employee outcomes.

Related to all of this, little research has examined whether individuals' mindfulness levels influence the impact or effects of workplace interventions that change the physical work environment. In other words, it is not yet known if one's tendency to notice their surroundings impacts the degree a workplace environmental intervention is successful. Thus, we also considered mindfulness as a hypothesized moderator of the impact of workplace aesthetics on employee outcomes. Five research

questions were also evaluated in this study. These questions further explore the concept of NFAPW, evaluate how different mindfulness dimensions may impact the core hypothesized relationships, and compare the impact and value of different types of visual elements within the workplace.

Data were collected from adult fulltime employees ($N = 175$), with the most frequently reported industries being education, manufacturing, and utility services. Data were collected using an internet-based survey that included measures of mindfulness, negative work attitudes, job satisfaction, post work recovery needs, relevant individual differences (i.e., sex, personality), a new 10-item scale measuring NFAPW, a new 6-item scale measuring perceived workplace aesthetics (PWA), and a list of 12 aesthetically pleasing visual elements. Additionally, participants were asked to upload three photos of their workspace and

broader workplace. With these measures, we were able to evaluate PWA and the prevalence of aesthetic elements (PAE).

Quantitative data were analyzed using correlational and regression-based techniques and all photos and open-ended response answers were thematically coded for their relevance to the PWA and PAE constructs. Results suggest that together, NFAPW and general mindfulness affect employees' work attitudes. Specifically, for individuals with a high NFAPW and general mindfulness, negative work attitudes were lower in more aesthetically pleasing workplaces, but higher for those in non-aesthetically pleasing workplaces. Additionally, when analyses were conducted without covariates, NFAPW moderated the relationship between prevalence of aesthetic elements and resource recovery needs. Main effects or moderation effects were not identified for job satisfaction.

Several research questions were additionally explored in this study. First, we found that different dimensions of mindfulness affect the relationship between the independent and dependent variables in different ways. For example, the mindfulness dimension observing outside moderated the relationship between PWA and job satisfaction and the dimension describing moderates the relationship between PWA and resource recovery needs. Second, certain visual elements were found to be more common in workplaces that were rated as aesthetically pleasing; direct natural light, other decorations (i.e., personally meaningful items), colorful accents/decorations, nature artwork/photographs, and windows with natures views were. Each of these same visual elements were also rated as the most important by participants to have present and visible in their office. Last, although no significant 3-way interactions were found, it does appear that the impact of workplace aesthetics are stronger for individuals high on both NFAPW and mindfulness.

The findings in this study have several important implications for both research and practice. First, both the NFAPW and PWA scales demonstrated high internal consistency and could be used in future research or used in conjunction with other existing measures of work design characteristics. Second, 60% of participants reported they would like the aesthetics of their workplace improved. When paired with the relatively high levels of NFAPW found in this sample, this implies that organizations have many opportunities to positively impact their employees by increasing the aesthetics of the workplace. Finally, researchers and practitioners should further examine incorporating certain specific visual elements in workplace interventions as they may have a stronger impact on employees.

Workplace Stress and Related Outcomes

E-1

Stressed, Exhausted, and Hurting: Delineating the Path Between Psychological Job Demands and Musculoskeletal Pain in a Manufacturing Workforce

Ethan Gossett (University of Connecticut)

Objective: An extensive body of research from ergonomics and occupational health suggests there is a positive relationship between physical job demands and musculoskeletal disorders (MSDs) in the workforce (da Costa & Vieira, 2010; Marras, 2009). In parallel, the field of pain science, including pain psychology and neuroscience, has investigated the interaction of psychosocial and biological factors in pain processing (i.e., the biopsychosocial model of pain) for over fifty years (Gatchel, 2007). Yet, these two lines of inquiry, pain science and occupational health, remain largely disjointed. Much of the research on musculoskeletal pain in occupational health has been over-reliant on outdated biomedical models which target exposure to biomechanical stress (Marras et al., 2009). Prior work in experimental and clinical pain research has demonstrated that anatomical abnormality (e.g., herniated discs in the spine, loss of knee cartilage, osteophytes) is a poor predictor of pain and disability (Edwards et al., 2016; Finan et al., 2013). Researchers now realize psychological factors, such as pain beliefs, attention, and anxiety, modulate the pain pathway and affect pain perception. Although pain science has made considerable progress in delineating psychological and social determinants of pain, most research has focused on the former and not the latter, leaving job demands at the wayside (Blyth, Macfarlane, & Nicholas, 2007).

There has been increasing interest into the impact of psychosocial job demands on musculoskeletal disorders recently (MacDonald and Oakman, 2015). However, much of this work has treated physical demands as a confound instead of a contingency of interest, neglected the role of stress as it relates to psychological job demands and psychological strain (e.g., burnout), and lacked an integrative framework of the two (Eatough et al., 2012; Vargas-Prada and Coggon, 2015). Such thinking overlooks the dynamic relationships subsumed in the biopsychosocial model of pain. Thus, the purpose of this study was to investigate the indirect effect of psychological job demands on pain outcomes and the effect of various mediators and moderators of this relationship derived from the job demands-resources (JD-R) framework. A conceptual diagram with putative mechanisms is illustrated in figure 1.

Methods. A total of 833 employees from six light manufacturing sites completed a survey on work characteristics, perceived stress, burnout, and health conditions which included modified versions of the Job Content Questionnaire (JCQ), Stress in General scale (SIG), Oldenburg Burnout Inventory (OLBI), and a 5-point verbal response scale of pain intensity across seven regions of the body – neck, shoulder, wrist or forearm, hands, low back, knee, and foot. The JCQ psychological (JCQ-PSY) and physical job demands (JCQ-PHY) subscale, SIG pressure subscale (SIG-P), the OLBI exhaustion subscale, and a composite of the total pain summed across seven body sites (0 = no pain in any region, 28 = extreme pain at all sites) were used to assess key variables in the study. Conditional process analysis based on multiple linear regression was used to examine contingent mechanisms which relate job demands, perceived stress (SIG-P), exhaustion from work (OLBI exhaustion), physical job demands, and pain.

Results. Simple mediation analysis yielded a moderate indirect effect of psychological job demands on pain via OLBI exhaustion ($\beta = 0.133$, 95% CI: [0.098 – 0.169] with 10,000 resamples). Although there was no direct effect of psychological job demands ($b = 0.098$, $p = 0.361$) or perceived stress ($b = -0.035$, $p = 0.760$) on exhaustion, there was a significant interaction effect between psychological job demands and perceived stress on exhaustion ($b = 0.112$, $p < 0.05$). There was no direct effect of exhaustion on pain ($b = -0.218$, $p = 0.545$), but there was a direct effect of physical job demands ($b = -2.084$, $p < 0.001$) and a significant interaction between physical job demands and exhaustion ($b = 0.829$, $p < 0.001$). Last, conditional process analysis revealed a moderated-moderated mediation such that the indirect effect of psychological demands on pain through exhaustion was significantly greater at moderate and high levels of perceived stress and physical demands compared to low levels (Effect: 0.093, SE = 0.051; 95% CI: [0.011 – 0.209] with 10,000 resamples).

Conclusions. Findings from the current study suggest the indirect effect of psychological job demands on pain mediated by exhaustion is also moderated by perceived stress and physical job demands. This

work highlights the complex and synergistic relationship of biological, psychological and social factors in musculoskeletal pain, which may explain small or non-significant effects reported in prior work. There are limitations to the current study, the greatest being use of a cross-sectional design. The possibility that pain causes exhaustion cannot be excluded, nor should it be. Reciprocal effects between exhaustion and pain are likely. Future research using prospective designs, such as a cross-lagged panel, will help elucidate the direction and strength of this relationship.

E-2

Joint Effects of Sense of Control, Job Control, and Dispositional Mindfulness as Relating to Work Engagement

Marviene Fulton (University of North Carolina Charlotte)

Work engagement (WE) is a positive mental state consisting of vigor, dedication, and absorption (Schaufeli et al., 2002). Employees with high levels of WE have better task performance, higher commitment to their companies, and find their work "fun" (Schaufeli, 2016). We draw upon Self Determination Theory (SDT) (Ryan & Deci, 2000) to propose that sense of control, job control, and mindfulness positively predict WE. We further propose that mindfulness and job control have joint moderating effects on the relationship between sense of control and WE, such that mindfulness buffers a negative relationship between sense of control and WE when job control is low.

According to SDT, satisfaction of psychological needs through autonomy, competence, and relatedness produces intrinsic motivation (Ryan & Deci, 2000; 2008). Extrinsically, or controlled, behaviors and emotional states deplete energy, while intrinsically motivated activities and autonomous self-regulation do not use internal resources and increase vitality (Ryan & Deci, 2008). WE is intrinsically motivated as it involves investment of internal resources; yet instead of depletion, it is characterized by vigor (Schaufeli et al., 2002; Stefano & Gaudiino, 2019).

Sense of control is, "the belief that one can determine one's own internal states and behavior, influence one's environment, and/or bring about desired outcomes" (Wallston et al., 1987, p. 5). Sense of control positively correlates with well-being, and due to its link to autonomous functioning, we expect it to positively relate to WE (Hypothesis 1). However, high sense of control not always beneficial; in uncontrollable situations, high sense of control causes considerable stress (Heidemeier & Goritz, 2013).

Job control is the actual or perceived control, or authority, a person has concerning their work tasks and how they are completed (Llorens, Salanova, Torrente, & Acosta, 2013). In accordance with SDT, job control should positively relate to WE (Hypothesis 2). We also expect the relationship between sense of control and WE to be weaker for those with low job control (Hypothesis 3).

Mindfulness refers to being fully aware of the moment as it is happening, with non-judgmental selflessness and open-minded acceptance (Davis & Haynes, 2011). In addition to a cognitive state, mindfulness is a dispositional trait that varies between people and can be strengthened through meditation (Kiken, Garland, Bluth, Palsson, & Gaylord, 2015). One's level of dispositional mindfulness affects the frequency and length of their mindfulness experiences. Mindfulness is thought to relate to autonomous motivation (Schultz & Ryan, 2015); we therefore expect mindfulness to relate positively to WE (Hypothesis 4). We further expect mindfulness to buffer the aforementioned negative effect of low job control on the sense of control - WE relationship (Hypothesis 5).

Participants (N = 277) were employees of a large U.S. university, age 18+, who worked 30+ hours per week and had job-related customer contact. An advertisement was posted on a university website; participants completed a 20-minute online survey and received a $10 incentive.

A 15 item scale from Brown and Ryan (2003) was used to assess trait mindfulness. A five-item scale from Lachman and Weaver (1998) was used to assess sense of control. A three-item scale from Smith, Tisak, Hahn and Schmieder (1997) was used to measure job control. An 18-item scale from Rich, LePine, and Crawford (2010) was used to measure WE.

Scale descriptive statistics, correlations, and coefficient alphas are in Table 1. We tested main effects and interactions using hierarchical linear regression. As recommended by Dawson (2014), we standardized the predictor variables before creating interaction terms. We entered the three predictors (step 1), then the three two-way interaction terms (step 2), then the three-way interaction term (step 3). We interpreted results from step 3.

Sense of control ($\beta = .17$, $p = .004$), job control ($\beta = .38$, $p < .001$), and mindfulness ($\beta = .17$, $p = .003$) all positively predicted WE, supporting H1, H2, and H4. The two-way interaction term for sense of control x job control was significant ($\beta = .14$, $p = .019$), supporting H3. The three-way interaction term was also significant ($\beta = -.16$, $p = .009$), supporting H5.

We plotted the three-way interaction using Excel and tested for slope differences using tools from Dawson (2014; see Figure 1). Overall, as sense of control increases, WE increases, especially at high job control. When job control is low, the relationship between sense of control and WE is weaker; yet, mindfulness buffers this effect. When job control is low and mindfulness is high, the relationship between sense of control and WE is significantly stronger than when it is low. This slope at low levels of job control and mindfulness was significantly different from the other three slopes, supporting our proposition that mindfulness is effective when job control is limited and sense of control is high. This finding is useful for organizations with positions that are inherently low on autonomy.

E-3

Influence of a Cognitive Behavioral Training Programme on Burnout and Depression

Hugo Figueiredo Ferraz (International University of Valencia)

Introduction: Recently Burnout was included in the 11th Revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon (WHO, 2019). The rate of burnout has increased considerably to the point that it is now recognized as one of the psychosocial phenomena that causes the most damage in the workplace and one which will probably be a pressing social problem in the future. According to Gil-Monte (2005) burnout is a psychological response to chronic work-related stress that appears in professionals in service organizations who work in direct contact with the clients or users of the organization. It is a non-psychiatric syndrome characterized by cognitive deterioration (i.e., loss of enthusiasm toward the job), emotional deterioration (i.e., psychological exhaustion), and attitudes and behaviours of indifference, withdrawal and, sometimes, abusive attitudes toward the client (i.e., indolence). In addition, in some cases,

negative attitudes on the job, especially toward the people with whom the worker establishes work relationships, lead to high feelings of guilt. The research has identified physiological and psychological symptoms associated with burnout among teachers, as cortisol dysregulation (Bellingrath, Weigl and Kudielka, 2008) and depressed affect (Shin, Noh, Jang, Park, and Lee, 2013).

Objective: This longitudinal study was carried out to assess the efficacy of a cognitive behavioral training program that was designed to modify the cognitive and emotional processes related burnout, depression and its effects on salivary cortisol levels, over a 7-month period in a sample of high school teachers.

Method: The entire sample was made up of 66 high school teachers, 8 (12,1%) men and 58 (87,9%) women. Of these, there were 30 teachers in the training group and 36 teachers in the non-training group.

Instruments: Burnout levels were evaluated with the Spanish Burnout Inventory (SBI) (Gil-Monte & Figueiredo-Ferraz, 2013). Depressive symptoms were estimated by the Zung Self-Rating Depression Scale (ZSDS) (Zung 1965) and Psychosomatic disorders were measured by subscale UNIPSICO (Figueiredo-Ferraz, Gil-Monte, Ribeiro do Couto, and Grau-Alberola, 2013). The levels of cortisol were measured by Cortisol Awakening Response (CAR). The saliva samples were kept in a freezer at 20º C, and later analysed following the ELISA method. The training program was divided into twelve on-site sessions (e.g. Training in the concept of work-related stress; Training in cognitive techniques; Training in physiological techniques; Control over emotions).

Procedure: The training received by the participants was carried out by clinical psychology practitioners. The study was divided into three time periods, with a gap of three months between T1 and T2 (training program) and four mouths between T2 and T3 (Follow up). In order to compare the results, training group and non-training group was divided into two groups with high levels of psychosomatic disorders and low levels of psychosomatic disorders. Participation was voluntary, and confidentiality was guaranteed.

Results. The training program significantly reduced burnout and depression levels in the training group with high levels psychosomatic disorders from T1 to T2, and it significantly decreased cortisol levels from T1 to T2. T The results in the trained group have remained stable in T3. No significant differences were found in the other groups from T1 to T2 and from T1 to T3.

Conclusion. Findings show that the training program was effective in significantly reducing the burnout levels in the training group with high levels psychosomatic disorders compared to the other groups. In the same way it was effective in reducing the levels of depression related to work stress in the training group with high levels psychosomatic disorders. It was also found that the training program had an indirect significant effect on cortisol levels. The study may be an important point of reference for clinicians and therapists, facilitating both the diagnosis and treatment of different types of burnout. Although our study has been carry out in a sample of teachers, burnout also affects members of other helping professions. This study could also be useful in detecting the need for intervention programs in order to reduce work stress and to prevent negative consequences as depression.

E-4

Re-Thinking Burnout in Healthcare Leadership: The Contribution of Profile Analytics

Michelle L. Flynn (Clemson University)

Healthcare providers are in critical need of new methods to help understand and counter the occupational and environmental conditions that often lead to burnout (Garcia-Izquierdo & Rios-Risquez, 2012). Burnout, conceptualized as the opposite of engagement, describes a combination of emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment. Past research has considered and investigated the implications of experiencing different patterns, or profiles, of burnout subscales rather than aggregating scores across subscales (Cherniss, 1980; Golembiewski & Munzenrider, 1988; Leiter & Maslach, 2016). However, fewer works have examined the differential outcomes of these distinct profiles. Toward this end, this study replicates and extends Leiter and Maslach's (2016) work by using latent profile analysis (LPA) to explore the effect of five burnout profiles in a sample of healthcare leaders, demonstrating the differential impact that these profiles have on outcomes for leaders. This study provides implications for understanding the benefit of a latent profile approach to the study of both burnout and leadership development. Table 1 highlights hypotheses for this study.

Methods. Sample. Participants were 350 medical professionals at a large hospital in the southern United States. The sample was 78.9% female. Most of the participants (68.6%) had spent at least one year working in direct patient care, and all participants were leaders of a team or unit. Participants were 92.0% white, 5.4% black or African American, 1.7% Hispanic or Latino, 0.6% Asian, and 0.3% of one or more race. Average tenure at the organization was 13.2 years.

Measures. Burnout was measured using a subset of items from the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996), allowing us to capture the three sub-facets of burnout: emotional exhaustion (i.e., exhaustion; 4 items, ¬ = .89), depersonalization (i.e., cynicism; 5 items, ¬ = .87), and personal accomplishment (i.e., inefficacy; 6 items, ¬ = .79). Unit performance was measured using three items (¬ = .73). Mindful attentional awareness (MAA; e.g., "I run through activities without really paying attention to them) was measured using five items (¬ = .89). Work meaning (e.g., "My work is meaningful") was measured using two items (¬ = .88). Authentic emotion (e.g., "The emotions I express at work are genuine") was measured using three items (¬ = .73).

Procedure. Study participants completed two surveys regarding their experiences working at the organization, separated by 3-4 months.

We conducted latent profile analysis (LPA) on employee burnout data using a robust maximum likelihood estimator in Mplus 7. We used adjusted Bayesian information criterion (aBIC) values, bootstrap likelihood ratio tests, and high entropy values (>.70) to identify profile solutions with the best fit (Pastor, Barron, Miller, & Davis, 2007).

After the optimal profile solution was identified, we conducted pseudo-Wald chi-square tests, which account for classification uncertainty, to test outcome variables.

Results. Burnout Profiles. Results indicated that a 5-profile solution, with two end-state and three intermediate-state profiles resulted in optimal model fit (Figure 1; Table 2). Table 3 shows class membership counts and descriptive statistics for the 5-profile solution.

Outcomes. Descriptive statistics for all outcome variables are included in Table 4. The chi-square test for unit performance was significant, $\chi2(4) = 15.45$, $p = .004$ (Figure 2). In line with our hypothesis, ineffective employees did not report significantly different perceived unit performance than burned out employees ($\chi2(1) = 0.37$, $p = .543$), but reported significantly lower perceived unit performance than engaged employees ($\chi2(1) = 6.22$, $p = .013$). However, ineffective employees did not report significantly lower unit performance

than overextended employees ($\chi2(1) = 2.35$, $p = .125$) and disengaged employees ($\chi2(1) = 2.22$, $p = .136$).

The chi-square test for MAA was also significant, $\chi2(4) = 28.20$, $p < .001$ (Figure 3). In line with our hypothesis, overextended employees did not report significantly different mindful attentional awareness than burned out employees ($\chi2(1) = 2.82$, $p = .093$), but reported significantly higher mindful attentional awareness than engaged employees ($\chi2(1) = 24.84$, $p = .028$). However, overextended employees did not significantly differ from disengaged ($\chi2(1) = 3.09$, $p = .079$) or ineffective employees ($\chi2(1) = 1.18$, $p = .277$).

The chi-square test for work meaning was significant, $\chi2(4) = 60.96$, $p < .001$. In line with our hypothesis, disengaged employees did not report significantly different work meaning than burned out employees ($\chi2(1) = 0.734$, $p = .392$), but reported significantly lower work meaning than engaged employees ($\chi2(1) = 27.93$, $p < .001$). However, disengaged employees did not significantly differ from ineffective ($\chi2(1) = 0.570$, $p = .450$) employees on work meaning

Discussion. Our study replicates Leiter and Maslach's (2016) findings, providing support for two endpoint and three intermediate burnout profiles in a sample of healthcare leaders, and extends these findings, linking them to important work variables including MAA, work meaning, authentic emotion displays, and, ultimately, unit performance.

E-5

Job strain, physical job demands, and opioid use disorder in US workers

BongKyoo Choi (University of California Irvine)

Background. There were 47,600 opioid-related overdose deaths in 2017 in the United States (US), which is equivalent to 130 deaths per day [1]. During the recent two decades, the rate of opioid-related overdose deaths has quadrupled in the US: 2.9 per 100,000 standard population in 1999 to 14.9 in 2017. Also, about 1.6 million US adults aged 26 or older had an opioid use disorder (OUD) (a problematic pattern of opioid use that leads to serious impairment or distress) [2]. However, little is known about the occupational risk factors for OUD, a strong predictor for opioid-relate overdose deaths [3,4]. The purpose of this cross-sectional study is to examine the associations between adverse working conditions (physical job demands, job control, psychological job demands, job strain, social support at work, job insecurity, and work hours) and OUD in a working population who participated in the National Survey of Midlife Development in the United States (MIDUS) II Study.

Methods. The MIDUS II study was conducted in 2004-2006 as a follow-up survey of the MIDUS I study (1994-1995) that had been originally designed to investigate the roles of behavioral, psychological, and social factors in understanding age-related differences in physical and mental health. Among the participants of the MIDUS II study (N=4,032), 2,134 workers (1,059 men and 1,075 women; mean age, 51 years) were chosen for the current study. Workers with OUD were defined as those who reported a self-medication of painkillers including opioids (e.g., Demerol, Darvon, and Percodan) or heroin in the last 12 months and additionally agreed to two or more of the following questions: (1) used much larger amounts or for a longer period than intended, (2) under the effects or suffering aftereffects while at work or school, or while taking care of children, (3) under the effects or feeling aftereffects in a situation which increased your chances of getting hurt, (4) any emotional or psychological problems from using substances, (5) a strong irresistible desire or urge to use substances, (6) spent a great deal of time using substances or getting over aftereffects, and (7) used more than usual to get the same effect or the same amount had less effect on you than before. Physical (biomechanical) job demands were assessed with three questions ("How often does your job require..."): (1) a lot of physical effort, (2) lifting loads weighing 50 pounds or greater, and (3) crouching, stooping, or kneeling. Several psychosocial working conditions - skill discretion, decision authority, job control, psychological job demands (time pressure and workload), supervisor and coworker support at work, job insecurity, and working hours - were measured with a self-administered questionnaire [5]. For analyses, the scores of physical and psychosocial working conditions were dichotomized at their medians. Job strain was defined as a combination of low job control and high psychological job demands. In addition, musculoskeletal disorders (arthritis, rheumatism, or other bone or joint diseases; sciatica, lumbago, or recurring backache) and mental disorders (anxiety or depression) in the past 12 months were assessed and considered for analyses.

Results. The prevalence of OUD was 3.7 % (80 out of the 2,134 workers; 4.2% in men and 3.3% in women). In bivariate analyses, low skill discretion, low job control, high psychological job demands, job strain, high physical demands were significantly ($p < 0.05$) associated with OUD. After controlling for sociodemographic variables (age, sex, race/ethnicity, marital status, education, and household income) and job strain, high physical job demands were associated with OUD: the prevalence ratio (PR) (95% confidence interval (CI)) was 1.70 (1.06-2.72, $p = 0.027$). After controlling for sociodemographic variables and physical job demands, psychosocial working conditions (high job strain, low skill discretion, and high psychological job demands) increased the risk for OUD: PR of job strain was 2.14 (1.37-3.33, $p = 0.001$). After additional adjustment for musculoskeletal and mental disorders, PRs of high physical job demands and job strain were 1.67 (1.04-2.66) and 2.01 (1.29-3.13), respectively.

Conclusions. This is the first study that tested and demonstrated the associations between adverse working conditions (low learning opportunities on the job, high time pressure and workload, and high physical demands) and OUD in a nation-wide sample of US middle-aged working populations. Injuries due to heavy physical and psychological work demands and subsequent treatment with narcotics, and self-medication of narcotics to cope with work stress may explain the identified associations in the current study. Longitudinal studies are urgently needed to examine the associations between adverse working conditions, OUD, and opioid-related overdose deaths in US working populations. This study implies that improving physical (biomechanical) and psychosocial working conditions may be an important strategy for the prevention of OUD and opioid overdose deaths in US workers.

E-6

Lessons Learned from Healthcare Frontline Employees: The Role of Emotional Intelligence and Self-Efficacy in Managing the Effects of Workplace Stress

Monique Dawkins (Columbia University)

Research Problem. Nonclinical frontline employees (FLE) work in a complex role that provides critical administrative support to healthcare organizations and they are extremely vulnerable to workplace stress. Stress is an expected hazard of working as an FLE. Hartline and Ferrell (1993) have reported that FLEs "are typically underpaid, under trained,

overworked and highly stressed" (p. 62). Singh (2000) eloquently summarized the ongoing battle that FLEs face in the workplace by stating: "dealing with the stress created by expectations and demands of customers and management, FLEs seek coping resources that will help them self-regulate and stunt the dysfunctional effects of stress on their performance and well-being" (p. 19). There is limited published findings that center on non-clinical healthcare employees and the existing research does not elaborate on these employees manage stress in the workplace.

Methods. An exploratory study was conducted and a convenience sample of 51 healthcare frontline employees was recruited to participate in this study. Participants volunteered to complete an online demographic survey, which included the Perceived Stress Scale (PSS), Brief COPE and SSEIT assessment tools, which measured the employee perception of stress, use of coping strategies and ability to use emotional intelligence. A subgroup (20) of the larger sample participated in an individual semi-structured interview. The interviews were facilitated to gain further insight into what strategies were learned and how the employees learned to cope with stress. The findings from both the survey and interview were analyzed and findings were garnered and reported as part of the study.

Analysis. All of the assessments instruments that were included in the demographic survey, were quantified. The stress instrument was completed by all of the 51 participants. High stress was reported by 3% of participants, moderate stress was reported by 30% of participants and low stress was reported by 18% of participants. The Brief COPE instrument was completed by (41/51) participants and both adaptive and maladaptive methods were shared and useful toward helping the participants cope with workplace stress. The SSEIT scale was completed by (44/51) participants. High levels of emotional intelligence was reported by 16% of participants, moderate EI was reported by 80% of participants and low emotional intelligence was reported by 4% of participants. Detailed findings that defined perceived stress triggers and ways of learning were included in the descriptive analysis findings that were reported as part of the study.

Results. Stress triggers, coping tendencies and emotional intelligence proficiencies were uncovered in this study. The learning process was crucial to the individual's ability to cope with stress in the workplace and many failures led to transformative learning lessons. Self efficacy was evident in the FLE's high confidence levels and willingness to teach each other how to navigate fast paced and unexpected environments.

Practical Implications. Despite reported moderate and high stress levels, the majority of frontline employees had a baseline of moderate emotional intelligence and utilized myriad self effacious induced techniques to combat workplace stress. Many of the participants desired to provide ongoing feedback to managers and stakeholders in an attempt to optimize their daily experiences and reduce unnecessary conflict and stressful interactions.

Conclusions. The outcome of stressful workplace experiences informs the self-efficacy of the frontline employee and can enhance the aptitude of using technical ability and personal empowerment, which ultimately aids in adaptive coping efforts. Frontline employees that participated in this study accepted their limited locus of control in the workplace and relied on utilizing emotional regulation during conflict. Participant's also utilized self-efficacious approaches to personally overcoming stress and also desired to regularly provide feedback to their managers and senior leaders. The findings in this study brought awareness to the front line employee struggles and victories in their attempts to provide exceptional customer service while minimizing stress in the workplace.

E-7

The Protective Effects of Reactive Approach Motivation in the Context of Burnout

Eric Damecour (Saint Mary's University)

Problem. Given the amount of time spent at work, the quality of people's experiences within workplaces are essential to their overall well-being. Unfortunately, many modern-day workplace settings elicit high degrees of stress (Porath & Pearson, 2010; Schaufeli, Martinez, Pinto, Salanova, & Bakker, 2002) and thus, are detrimental to well-being. Regardless, some individuals can thrive in emotionally and physically demanding workplace settings better than others. Indeed, a large and growing body of research suggests that some people are quite adept at engaging defensive reactions to threats, and that such defenses do, in fact, mitigate the negative emotional consequences that such threats would otherwise produce (see Jonas et al., 2014 for a review). Therefore, two studies were conducted to observe the protective effects of reactive approach motivation (RAM) against such threats as incivilities, and their negative health related consequences (e.g. burnout).

Procedures. In Study 1, we asked 72 university students to complete an online study that was described as a survey examining 'the university experience'. Participants were randomly assigned to either an incivility or civility condition in which they were asked to recall and describe an incivility (or civility) from their professor. Thereafter, burnout (Maslach, 1998), state-level approach motivation (see Hayes, Ward, & McGregor, 2016) and state-level depression (Speilberger, Ritterband, Reheiser, & Brunner, 2003) were assessed. In Study 2, we attempted to replicate the results found in Study 1 within more traditional workplace roles and supervisor- subordinate relationships by assessing 233 participants through the Mturk platform. For the second study, the procedure remained highly similar to that of the first study with the inclusion of an added test of content validity, a measure of work engagement (Schaufeli, & Bakker, 2004)

Analyses . Using conditional process modelling, simple mediation models were used to analyze the data. More specifically, the simple mediation analysis was conducted to examine the indirect effects of incivility, (X) to RAM, (M1), and then to burnout experiences (Y).

Results. In Study 1, when examining cynicism, results showed a significant negative indirect effect (b = -.27, 95%CI [-.671, -.008]) from incivility (vs. civility), to RAM, to cynicism, as well as a significant positive direct effect (b=.896, 95%CI [.041, 1.75]) from incivility (vs. civility) to cynicism. Similarly, when examining professional self-efficacy, results showed a significant indirect effect (b=.27, 95% [.028, .600]) from incivility (vs. civility), to RAM, to professional self-efficacy. Exhaustion did not demonstrate the same trends s the other burnout experiences; however, the overall exhaustion level appears to create a glass ceiling effect (5.42 out of 7) and thus requires further investigation.

In Study 2, when examining exhaustion, results showed a marginally significant negative indirect effect (b = -.068, 90%CI [-.160, -.002]) from incivility (vs. civility), to RAM, to exhaustion, as well as a significant positive direct effect (b = .494, 95%CI [.055, .932]) from incivility (vs. civility) to exhaustion. When examining cynicism, results showed a marginally significant indirect effect (b = -.088, 90%CI [-.193, -.001]) from incivility (vs. civility), to RAM, to cynicism, as well as a significant

positive direct effect (b = .40, 95%CI [.038, .762]) from incivility (vs. civility) to cynicism. When examining professional self-efficacy, results showed a similar issue as exhaustion in Study 1 (M= 5.64, out of 7).

Although Study 2 does not appear to sufficiently replicate effect sizes and significance of the indirect effects from Study 1, the incivilities to RAM connection was much stronger in Study 1 (b=.366, 95%CI [.047, .686]) than Study 2 (b=.17, 95%CI [-.034, .377]). In contrast, the rest of the connections remained consistent, thus suggesting that there might be something about Study 1's sample better enabled that sample to activate RAM in response to the incivility.

Practical Implications. It is suspected that the differentiating factor for RAM activation between the two studies resides in the persistence and frequency of the threatening stimuli. Indeed, a recent study by Trifiletti, Pedrazza, Berlanda, and Pyszczynski (2017) suggests that lasting incremental strain, as in burnout development, functions to prevent anxiety buffering mechanisms like reactive approach motivation (RAM). Therefore, a third study is currently under investigation to confirm the persistence and frequency-based hypothesis.

The present studies have several implications for understanding burnout and threat defense. Organizations may be able to assist employees in engaging RAM by means of facilitating conditions that promote RAM, and thereby buffer against the development of burnout and its inevitable health consequences (i.e., depression). The results may also be applied to hiring practices to identify at-risk individuals.

As for threat defense, until now, approach-oriented responses to threat have been assumed to mitigate anxiety by virtue of restoring motivational clarity. The current research, however, presents evidence that RAM also functions in a different way in which it prevents feelings of depression by means of preventing the withdrawal responses to threat.

E-8

Work Stress and Sleep Quality: The effects of problem- and emotion- focused coping

Wheeler Nakahara (University of Central Florida)

The current study examines the moderating effects of problem- and emotion-focused coping on the relationship between two stressors (workload and incivility) and sleep-quality. We propose that workload and incivility will be negatively related to sleep quality and that problem- and emotion-focused coping will differentially moderate the relationship between the aforementioned stressors and sleep quality.

Workload has been measured in terms of hours worked, quantity of an item produced, or the mental demands associated with a task (Spector & Jex, 1998). Empirical evidence has shown that job demands, such as workload, are negatively related to sleep quality (De Lange et al., 2009; Knudsen, Kanazawa, Suzuki, Onoda, & Yokozawa, 2006; Lin, Liao, Chen, & Fan, 2014). Therefore, it is hypothesized that workload will be negatively related to sleep quality.

Hypothesis 1. Workload will be negatively related to sleep quality.

Andersson and Pearson (1991), defined incivility as a "low-intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect." Experiencing incivility is positively associated with sleep problems (Holm, Torkelson, & Bäckström, 2015; Demsky, Fritz, and Hammer, 2018), therefore it was hypothesized that perceptions of incivility will be negatively related to sleep quality.

Hypothesis 2. Incivility will be negatively related to sleep quality.

Coping is defined as a "person's cognitive and behavioral efforts to manage (reduce, minimize, master, or tolerate) the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources" (Folkman, Lazarus, Gruen, & DeLongis, 1986). Although emotion-focused coping is aimed at reducing the negative emotions experienced due to stressors, it is possible that using such coping strategies can exacerbate strain outcomes (Koeske & Koeske, 1993; Mearns & Cain, 2003; Lewin & Sager, 2009; Boyd, Lewin, & Sager, 2009; van der Colff & Rothmann. 2009). One study that examined sleep-quality as a strain (Sadeh, Keinan, and Daon, 2004) found that emotion-focused coping potentiated the relationship between stress and sleep quality, while problem-focused coping attenuated the relationship. Therefore, we propose the following hypotheses.

Hypothesis 3. The negative relationship between workload and sleep quality will be stronger for those who report higher levels of emotion-focused coping.

Hypothesis 4. The negative relationship between incivility and sleep quality will be stronger for those who report higher levels of emotion-focused coping.

Unlike emotion-focused coping, we hypothesize that problem-focused coping will buffer the relationship between workload and sleep quality. Problem-focused coping may be more effective for workload with workload, because employees typically have more ways to cope with workload (e.g., work harder, ask for help from co-workers) compared to other stressors. In contrast, employees have fewer options when they experience incivility so it is unlikely that problem-focused coping would be effective. Therefore, we hypothesize that problem-focused coping will not buffer the relationship between incivility and sleep quality. No hypothesis regarding the moderating effect of problem-focused coping on the relationship between incivility and sleep.

Hypothesis 5. The relationship between workload and sleep quality will be moderated by problem-focused coping such that the negative relationship between workload and sleep quality will be weaker for those who report higher levels of problem-focused coping.

Method . Participants and Procedure. Participants were recruited through Amazon's Mechanical Turk (MTurk) and were required to be at least 18 years of age and employed. Quality control checks were included in the survey to control for careless responses to the survey. After excluding individuals who did not complete the measures and who did not pass quality control checks, the final sample size was 481.

Analyses . Hierarchical linear regression in SPSS was used to test our hypotheses. Following suggestions made by Aiken and West (1991), we plotted our significant interactions.

Results . Results are provided in tables 1-3 and the interactions are plotted in figures 1-3 (see attached files). Hypotheses 1, 2, 3, and 4 were supported. However, hypothesis 5 was not supported (the interaction term was significant, but in the opposite direction).

Conclusion . Our results suggest that individuals who experience greater workload and incivility experience poorer sleep quality. Moreover, our results provide evidence that emotion-focused coping exacerbates the relationship between those stressors and sleep quality. One explanation for this is offered by Sadeh et al. (2004). In short, focusing on one's emotions may heighten arousal which is incongruent with sleeping. Contrary to our fifth hypothesis, problem-focused coping also exacerbated the relationship between stressors and sleep quality. Because measurement was cross-sectional in nature, it is possible that people were engaging in problem-focused coping at night (similar to ruminating about a problem) instead of sleeping. We suggest more

rigorous investigations of the effects of coping with stressors on sleep using longitudinal or daily diary methods.

E-9

Work and Sleep in the Health and Retirement Study: What Role Do Occupations and Retirement Play?

John Sonnega (Eastern Michigan University)

This poster presents research examining the association between occupations and sleep in later life. Sleep problems become more common with age and have been related to physical and mental decline. In particular, short sleep duration, defined as fewer than 7 hours of sleep per night, is related to a wide range of poor health outcomes. But other symptoms indicative of sleep quality can have deleterious consequences as well. Sleep problems have been shown to vary by occupation, but few studies have examined occupation and sleep in later life periods. Occupational factors like job stress, longer hours worked, and physically demanding work have been shown to be associated with shorter sleep duration and poorer sleep quality in younger populations of workers. In younger populations, occupations that have higher levels of shift work have a greater prevalence of short sleep duration (Shockey & Wheaton, 2017). These authors use data from the Behavioral Risk Factor Surveillance System (BRFSS) to examine characteristics of sleep by occupational group. The two groups with the worst sleep profiles were Health Care and Food Services work. Less is known about the relationship between these occupations and sleep in later life, when sleep difficulties become more prominent. We build on earlier work by examining the intersection of work characteristics, occupation, and measures of sleep in men and women who are nearing retirement. We also extend earlier work by examining changes that may be associated with retirement and whether or not occupation and work characteristics have any lasting impact on sleep patterns after retirement. Among older adults, work serves multiple functions as people transition to retirement. Individuals vary in both the need to work and the desire to work in later life. Occupations may have differential impacts on sleep outcomes later in life. We hypothesize that occupational groups will vary in sleep outcome in an older population, with physically demanding and high stress occupations more likely to be associated with poorer sleep. We also examine whether occupation continues to have an influence on sleep even after retirement. We use data from the Health and Retirement Study (HRS), a longitudinal biennial survey of a nationally representative sample of adults over age 50 to examine this question. HRS features rich measurement across a wide range of domains. To expand our ability to characterize work, we leverage the ability to link the HRS to the Occupational Information Network (O*NET) database. Sponsored by the U.S. Department of Labor's Employment and Training Administration, the O*NET database provides detailed occupational information that was compiled from a combination of surveys among workers, expert assessments, and tests. Our measure of sleep from the HRS included time to bed, time of waking, sleep duration, and sleep quality. HRS asks respondents to self-report on retirement, and we use this variable to define retirement. We use the longitudinal HRS data, from the 1992 through the 2014 waves of the HRS, to ask whether sleep changes over the retirement transition and whether occupation and occupational characteristics influence sleep both before and after retirement. We conducted descriptive analyses to initially characterize relationships among the study variables. Similar to the method reported on by Fisher et al. (2014) in a study of changes in cognitive functioning through retirement, we utilized latent growth curve modelling to study potential changes in sleep over the retirement transition, combining our measures of sleep duration and quality. Our preliminary results show that the occupational categories of Healthcare Support, Healthcare Practitioners, and Food Preparation showed shorter sleep durations and poorer sleep quality, similar to earlier findings. As expected, higher stress and more physically demanding work was associated with worse sleep. Interestingly, we find that occupational and work characteristics appear to continue to exert an influence on sleep in older ages. Older working adults may experience work related sleep disturbance similar to younger workers, and these effects may endure into retirement.

Research and Intervention Methods

F-1

Development and Validation of the Wellness Attitudes Questionnaire

Gage Ammons (Northern Kentucky University)

Health and wellness initiatives have been a focal point of organizations for several decades. Accompanying workplace wellness interventions have produced not only meaningful financial returns on investment for organizations but also safer, healthier workplaces, and higher performing employees. Eight dimensions of wellness consistently have been proposed in the literature (i.e., emotional, environmental, financial, intellectual, occupational, physical, social, and spiritual). However, we were unable to locate a previously validated scale that empirically measured these dimensions of wellness or the attitudes underlying each dimension. Thus, our primary goal was to create and evaluate a measure of wellness attitudes to assess individual dispositions toward dimensions of wellness.

We developed our measure after reviewing the literature and conducting cognitive interviews with multiple subject matter experts. Our final scale was comprised of 64 items (i.e., 8 items per theorized dimension) which were evaluated using a 7-point Likert response format ranging from 1 (strongly disagree) to 7 (strongly agree). Our participants were 430 students attending an urban Midwestern university, where they received course credit for participating in research.

Although the literature proposed eight distinct, independent dimensions of wellness, our exploratory factor analysis, using principal axis factoring with oblique rotation, found only three factors. Based on item content, we labeled these dimensions as individual contentment (seven items), attitudinal apathy (five items), and perceived environmental wellness (four items). A fourth factor, occupational unwellness, appeared, however this factor was omitted due to instability (i.e., less than 3 items). Internal consistency reliabilities (coefficients alpha) of the three factors varied from strong to acceptable. The contentment factor had a Cronbach's alpha of .90, the apathy factor .75, and the environmental wellness factor .86. Convergent and discriminant validity were established using four external scales that assess job satisfaction (Job Satisfaction Survey, 1985, Spector), work stress (Stress in General Scale, 2001, Stanton, Balzer, Smith, Parra, & Ironson), life stress (Perceived Stress Scale, 1983, Cohen, Kamarck, & Mermelstein), and general health (Short-Form 36, 1994, McHorney, Ware Jr., Lu, & Sherbourne).

In terms of factor interrelations, although contentment and apathy were significantly correlated ($r = -.44$, $p < .01$) they represent independent dimensions. Apathy and environmental wellness were significantly

correlated ($r = .16$, $p < .01$). A marginally significant correlation emerged between the contentment and environmental wellness factors ($r = .06$, $p > .05$).

The wellness dimension, contentment, was positively correlated with the job satisfaction survey, $r = .21$, $p > .01$, negatively correlated with the perceived stress scale $r = -.54$, $p < .01$ and negatively correlated with the stress in general scale $r = -.19$, $p < .01$. Significant correlations were found between contentment and all dimensions of the Short-Form 36 except physical functioning. Apathy was negatively correlated with the job satisfaction survey, $r = -.23$, $p < .01$, positively correlated with the perceived stress scale, $r = .51$ $p < .01$, and positively correlated with the stress in general scale, $r = .28$ $p < .01$. Negative statistically significant correlations were found with all dimensions of the Short-Form 36 except health change, physical functioning, pain, and role limitations due to physical health. Environmental wellness was not correlated with either the job satisfaction survey or the perceived stress scale. Environmental wellness shared a significant correlation with only the role limitations due to emotional problems dimension of the Short-Form 36, $r = -.12$, $p < .05$, and a significant correlation with the stress in general scale, $r = .10$, $p < .05$.

Although the eight theorized dimensions may make logical sense, the current study found only three dimensions embedded in a scale purposefully constructed to represent each of the eight dimensions. Additional empirical research is needed to determine which dimensions of wellness emerge in organizational settings to better understand employee attitudes toward workplace wellness interventions. Additionally, the present study suggests that the contemporary domain of wellness and wellness attitudes requires theoretical reexamination accompanied by rigorous empirical evidence of construct validity. We hope that this preliminary study will stimulate researchers to more closely examine the concept of wellness and wellness attitudes to improve the effectiveness of interventions that are designed to benefit both organizational performance and employee health.

F-2

Burnout Sixty Years On

Amanda Mauthe-Kaddoura (University of Lethbridge)

Henderson (1957) used the terms "emotional exhaustion," physical weakness, and the need to be alone to describe civilizations in disarray. A Burnt-Out Case, a novel published in 1960 by Graham Green, describes the experiences of living and working in a Congo leper colony in the 1950s. Kennedy in her 1964 note, Lest We Burn Out, argued that the conversations around counselling burnout should be extended to the field of education and teachers. A few years later, Herbert Freudenberger presented the first descriptive account of "burnout," in which he observed that certain individuals within the human services professions came to be inoperative as a result of exhausting their physical and mental resources. Various concepts had been used earlier to describe similar experiences (e.g., overstrain, shell-shock, nervous tension) and practitioners and workers showed signs of burnout long before it first appeared in print. Nonetheless, the significance of Freudenberger's discovery, along with its timing, serves as a poignant reminder for both present realities and future promises. Today, burnout seems to be more widespread, of longer duration, and more virulent than most people believed—a kind of workplace pandemic affecting occupations, cultures, and countries alike.

From 1957 to 2005, over 10,000 reference citations were identified in separate bibliographies on burnout (i.e., Perlman & Hartman, 1982; Kleiber & Enzmann, 1990; Lubin, Robinson, & Sailors, 1992; Boudreau & Nakashima, 2002; Boudreau, 2005) further reinforcing its importance. Building on these early efforts, the proposed paper/poster features a single integrated, bibliographic source of available burnout references for the period, 1957 to 2018. This bibliography offers the most comprehensive and usable set of burnout references available.This burnout bibliography was developed using different versions of EndNote; the current version in use is X9. In order for a citation to be included in the bibliography, several key strategies guide the reference search process: 1) the word burnout or one of its related forms (e.g., burnt out, emotional exhaustion) must appear in the abstract or title. For definitional purposes, burnout refers to the occupational, emotional, or psychological phenomenon often characterized by emotional exhaustion, depersonalization, and low personal accomplishment. 2) Citations that reported measuring some element of burnout were included whereas citations that merely use burnout to introduce a different topic were not included. 3) Citations in any language were included.

To date, a comprehensive catalogue totaling 58,969 unique burnout references from 1957 to 2018 has been compiled. A total of 101 active databases (e.g., PsycInfo) from 18 active providers (e.g., ProQuest) and 15 previous bibliographies were used in the development of the bibliography. (Note: These totals will be updated for any November 2019 presentation). The bibliography includes a variety of sources such as journal articles, conference papers, books, magazines and newspaper articles, theses, and websites. The bibliography of burnout citations in the EndNote X9 format is searchable using different fields including title, year, occupation, author, keyword, and source type. The bibliography contains abstracts for more than half of the captured reference citations.

In an attempt to measure the validity coverage of the burnout bibliography, two different sets (39 & 13) of review and meta-analysis articles (1993-2014) were examined by independent raters (Kappa Statistic = .96 for both sets/raters). The results indicate that 95.6% of all of the relevant references in the sample of 52 burnout review articles are in the current version of the burnout bibliography. Such a result further supports the reliability, accuracy, and the exhaustive coverage of the bibliography.

For the paper/poster, a series of findings will be featured including: burnout reference count by years, most prolific authors in the field, occupations with the greatest number of publications, top 10 burnout researchers, most popular journal outlets, most frequently used measures of burnout, most studied occupations, and the top countries represented across the almost 60,000 references in the current version of the bibliography.

By providing a comprehensive and up-to-date list of references, this bibliography serves as an invaluable resource for global researchers, students, and practitioners interested in examining either the general topic of burnout or the more specific discussions of burnout experienced across occupations (e.g., nursing, teaching). Anyone interested in doing burnout meta-analyses may want to consult this reference source before beginning any web searches. Finally, one might even consider using the bibliography as its own data set to examine and report on the changing trends within the field (e.g., use of different measures) of burnout that have emerged over the last seven decades.

F-3

Is Your Diary "Reliable"?: A Review of Current Measurement Practices in ESM Research

Anthony Nguyen (Portland State University)

Experience sampling methods (ESM) have seen increased usage in organizational research over the past few decades due to its advantages in examining dynamic organizational processes over time that occur in situ (Beal, 2015; Beal & Weiss, 2003). ESM studies enable researchers to examine questions focused on changes based on a representative sampling of real-time experiences as they naturally occur (Beal & Weiss, 2003; Fisher & To, 2012; Ohly, Sonnentag, Niessen, & Zapf, 2010; Reis & Gable, 2000).

Our research aims to diagnose potential issues in estimating and reporting scale reliability amongst published ESM studies in organizational research, by reviewing the different types of reliability estimation methods used in publications as well as their frequency of usage. Such diagnoses are crucial for evaluating the current state of science in ESM research on organizational phenomena and for proposing standardized practices to guide future research. We also review the extent to which scholars use shorter scales in ESM studies, in an effort to understand the potential implications of such practice for scale reliabilities. We hope to build upon prior reviews on ESM methods (Beal, 2015; Fisher & To, 2012; Ohly et al., 2010) by systematically and quantitatively summarizing the prevalence of using shorter scales in organizational sciences.

Recent reviews noted that it is common practice in organizational research to estimate and report a range of or an average internal consistency reliability of the scale across all measurement points for the same group of participants. However, such methods do not separate variance of item and scale scores at the between-person level from the within-person level, and are likely to generate biased reliability estimates that may inaccurately correspond to the level of focal research questions.

In recent years, more advanced methods for estimating level-specific reliability have been developed. These methods allow for the partitioning of item and scale variance at the between-person and within-person level and are well-suited for ESM studies in organizational research. These methods include: Cranford and colleagues' (2006) generalizability theory-based reliability estimation; Geldhof, Preacher and Zyphur's (2014) multilevel confirmatory factor analytical framework; and Nezlek's (2007; 2011) hierarchical linear modeling framework. However, due to a lack of standard guidelines for computing and reporting reliability, it is unclear if appropriate methods are currently being used to measure reliability in the ESM literature.

Another common issue of reliability estimation in ESM research relates to scale length. Using shorter scales in ESM research has been suggested as an acceptable practice to address challenges with study implementation (Fisher & To, 2012; Ohly et al., 2010). However, using shorter scales in ESM research inevitably creates problems with reliability estimation, as shorter scales are less reliable than their longer counterparts (Bolger, Davis, & Rafaeli, 2003).

Building on prior ESM reviews, our meta-analytic review focuses on 1) the state of practices in estimating and reporting reliability coefficients specific to the research questions at the between-person versus within-person level, and 2) the prevalence of using shorter scales. We conducted our review on ESM studies published in ten representative empirical journals (Academy of Management Journal, Administrative Science Quarterly, Human Relations, Journal of Applied Psychology, Journal of Occupational and Organizational Psychology, Journal of Organizational Behavior, Organizational Behavior and Human Decision Processes, Personnel Psychology, Journal of Occupational Health Psychology, and Work & Stress) over a span of five years (2011-2015).

Our search yielded 103 studies across the ten journals. Only 12 out of 103 studies reported reliability based on proper variance partitioning across levels, and 75 included scales with three-or-fewer items.

Our results indicate that in organizational ESM research the current practice of estimating and reporting scale reliabilities is often not consistent with the research questions specific to a particular level of analysis. This is concerning because reliability estimates as reported in the vast majority of ESM studies can be biased, and therefore counterproductive for the scientific process of accumulating evidence for measurement quality of scales used in ESM settings. Many scales used for ESM research are adapted from the non-ESM literature and evidence for their measurement quality in ESM settings is crucial for establishing their validity for continued usage. Furthermore, the biased reliability coefficients may have implications for hypothesis testing and research conclusions. Future research should assess to what extent the current common practices of estimating reliability in organizational ESM research may be biasing results, in order to offer quantifiable suggestions on how to best appropriately measure reliability as it pertains to the specific types of research questions being asked.

Our results also indicate that using shorter scales to assess within-person variations is quite prevalent. Therefore, future research should also seek to quantitatively examine the implications of using shorter scales relative to longer scales for scale reliabilities at the between- and within-person level, respectively. This may help better inform researchers of the benefits and drawbacks of using shorter scales in their research designs.

F-4

Development and Validation of a Work Life Balance Scale for Future Generations

Philip Moberg (University of Northern Kentucky)

With progressive generational change in today's society, the dynamics of the workplace are evolving as well. It has become increasingly essential that work obligations be flexible to accommodate the daily life activities to which individuals dedicate time away from their work environment. In a study conducted by the Society of Human Resources Management (SHRM; 2002), 70% of employees reported experiencing an unhealthy balance between their work and personal lives (Rife & Hall, 2015). Research suggests that this shift in preference for improved work-life balance can be attributed to multiple factors including increasing numbers of women entering the workforce, growing life expectancy, technological advancements, and lack of parental benefits (United States Council of Economic Advisers, 2014; Gyanchandani, 2017).

The goal of the current study was to develop a new instrument to assess perceptions of work-life balance and to investigate its underlying factor structure, construct validity and reliability.

Hypotheses. We proposed that work-life balance is comprised of three underlying dimensions, perceived satisfaction, support, and empathy experienced in work and nonwork settings (H1). To assess construct validity, we predicted positive factor relations with two theoretically related constructs of work engagement (H2) and organizational commitment (H3) and negative relations with four constructs,

trait anxiety (H4), general stress (H5), turnover intention (H6), and absenteeism (H7).

Method. Sample and procedure. We digitally administered the new work-life balance measure and six accompanying validity scales to a sample of employed undergraduate students (N = 342) attending an urban, Midwestern university in the U.S., who voluntarily participated in exchange for course credit. Complete data sets were obtained from 322 respondents who were primarily female (n = 276, 82%), ranged in age from 18 to 30 years, and were employed at least 10 hours per week.

Measures. We constructed 42 items representing three proposed dimensions of work-life balance, the perceived (a) satisfaction, (b) support, and (c) empathy experienced in work and nonwork settings. To assess the level of stress associated with work-life balance, we adapted four items from the job stress scale of Shukla and Srivastava (2016) that focused on work and nonwork activities.

To assess construct validity of the work-life balance dimensions, we administered previously validated measures of global stress (Perceived Stress Scale; Cohen, Kamarck, & Mermelstein, 1983), anxiety (JIP Anxiety Scale, International Personality Item Pool; Jackson, 1994), turnover intention (Turnover Intention Scale - 6; Roodt, 2004), absenteeism (Employee Absenteeism Scale; Paget, Lang, and Shultz, 1998), organizational commitment (Allen & Meyer, 1990), and work engagement (Work & Well-being Survey; Schaufeli, 2003).

Results. Exploratory factor analysis using principal axis factoring with oblique rotation conducted on the 46-item work-life balance scale produced four factors that we interpreted to represent Work Affect, Nonwork Support, Perceived Isolation, and Activity Balance based on an examination of item content. Thus H1, which proposed three underlying factors (i.e., perceived satisfaction, support, and empathy experienced in work and nonwork settings) was only partly supported.

The four factors demonstrated acceptable levels of internal consistency reliability ranging from .77 to .87 and explained 43.1% of scale variance. Factor intercorrelations ranged from -.12 to .14 ($p < .05$), suggesting independent factors, although one moderate correlation emerged between Work Affect and Activity Balance ($r = .30$, $p < .05$). Factor correlations with external validity construct measures ranged from -.66 to .71, with 22 of 24, and with two exceptions, consistent in direction with hypotheses H2 through H7.

Discussion. Based on prior research and review of the relevant literature, we proposed three dimensions to represent work-life balance, perceptions of satisfaction, support, and empathy experienced in work and nonwork settings. Examination of EFA results revealed four essentially independent underlying factors that differed somewhat from those hypothesized, Work Affect, Nonwork Support, Perceived Isolation, and Activity Balance.

Although we acknowledge that this preliminary measure requires further development (e.g., additional items, incumbent samples, validation studies, confirmatory factor analysis), we believe that the present study represents an initial step toward a valid, reliable measure of work-life balance that may provide organizations with practical insights regarding individual sources of imbalance and guidance to potential interventions.

F-5

Tell Me More: The Utility of Text Mining for Qualitative Intervention Data

Kristin Horan (University of Central Florida)

Researchers and practitioners in psychology recognize the advantages of incorporating qualitative research methods to supplement quantitative methods. The richness of data generated from open-ended responses can be helpful in understanding context, grounded theory in the shared experiences of the target population, and providing illustrative examples of quantitative relationships (Schonfeld & Mazzola, 2013), prompting recent calls for more methodologies that incorporate qualitative data, such as mixed methodologies (e.g. Spector & Pindek, 2016). These recommendations have implications for researchers and practitioners who create, implement, or evaluate occupational safety and health interventions (Schonfeld & Mazzola, 2013). Qualitative data affords a deeper understanding of participant experience or change processes, as well as novel methods of measuring target variables. Despite the benefits of the use of qualitative data, analysts may shy away from its use for practical reasons. Analysis of qualitative data is time-consuming, often requires additional interpretation, may require training of multiple raters, and researchers may feel that subjective interpretation of text can introduce bias (e.g. Auerbach & Silverstein, 2003).

To maximize the benefits of the use of qualitative data and minimize practical concerns, the authors investigate the use of text analysis to analyze qualitative intervention data. Text analysis involves analyzing and extracting information from unstructured text-like responses to open-ended questions (Cambria & White, 2014). Text analysis long relied on basic textual properties, like word frequency, to drive analyses, but is now able to incorporate advanced textual properties such as text mining (Cambria & White, 2014; Kobayashi, Mol, Berkers, Kismihok, & Den Hartog, 2017). Text mining borrows from a diverse set of fields including machine learning, natural language processing, and statistics to allow for a deeper and more thorough extraction of information from text through the use of pattern-based and probability-based models (Kobayashi et al., 2017). Researchers have begun to explore the relevance of text mining for Industrial Organizational Psychology (e.g. Campion, Campion, Campion, & Reider, 2016; Kropp, Kind, & Yost, 2017). Text mining may address the aforementioned concerns in intervention analysis by reducing rater recruitment and training, analysis time, and subjective bias.

However, before advocating the use of text mining for intervention data, there is first a need to demonstrate that qualitative data analyzed using text mining delivers comparable insights and conclusions to more traditional methods. The present research aims to address this need by using text mining to compare interpretation of intervention outcomes using text mining and traditional rater analysis in qualitative dependent variables for a peer mental health support intervention.

Methods. Approximately 30 first responder personnel participated in a peer mental health support training workshop that was designed to promote greater awareness and use of open-ended, validating, and reflective responses and encouragement to seek treatment when talking to coworkers about mental health concerns. The eight-hour workshop was led by three graduate students in Clinical Psychology. The learning methods focused didactic education, role play exercises, and a written practice workbook. Participants completed the Helpful Responses Questionnaire (Miller, Hedrick, & Orlofsky, 1991) at pretest and post-test in which they provided open-ended responses to written prompts.

For the traditional analysis, trained undergraduate research assistants read each responses and coded for the number of open-ended, validating, reflective responses and the number of responses that were encouraging of treatment seeking. For the text analysis, structured

search terms will be created based of of the codebook used in data entry for the traditional analysis. We will use a probability-based technique called latent Dirichlet allocation (LDA). LDA falls under a subset of text mining called topic modeling (Blei, Ng, & Jordan, 2003). Topic models are probabilistic models that automatically extract constructs or themes from unstructured text by examining the pattern of term frequencies in the text (Blei et al., 2003).

Codes extracted from both the traditional analysis and text analysis conditions will be used to create a pre-test and post-test helpful responses scores and a paired samples t-test will be used to assess whether the intervention produced a significant increase in helpful responses. All data have been collected and are currently being entered. Data entry is expected to be completed by May 1, 2019 and data analysis is expected to be completed by August 1, 2019.

Anticipated Results & Discussion. We expect that the intervention conclusions will be similar across traditional and text analysis conditions, meaning that interpretations about whether or not the peer mental health support intervention produced a significant change in helpful responses from pretest to post-test will be the same regardless of the analytic approach. These anticipated results would have implications for researchers and practitioners evaluating interventions in that they would provide support for the use of text mining to minimize practical concerns for analyzing qualitative intervention data.

F-6

Baptist and Nazarene Church clergy health and well-being self-care: a mixed methods study

Jamie Green (Nottingham University)

Background. Christian church leadership is a unique multi-faceted occupation with leaders performing many roles such as public speaker, counsellor, and company director (Edmondson, 2015). These vocational demands and devotion to church activities may negatively affect leaders' holistic health (physical, mental, and spiritual). What appears evident from North American literature is that the holistic health of clergy, despite some religious coping strategies, falls short against comparative adult populations (Cowper, 2012; Lifeway Research, 2015; Proeschold-Bell & LeGrand, 2010; WesPath Benefits / Investments, 2017). Some describe the demands of the role as being 'brutal' (Cannon Green, 2015). One survey of 1,500 United Methodist Church ministers showed that 84% reported being on call 24/7, 54% stated feeling overwhelmed, and 48% reported feeling the demands of the role were more than they could handle (Lifeway Research, 2015).

Mental ill-health, stress and burnout are known to be mitigated by robust self-care strategies such as exercise, clinical supervision, religious coping activities, nutrition and other therapeutic practices (Killian, 2008; Poulos et al, 2018; Walsh, 2011). Many Christian denominations globally are beginning to promote self-care (Nies, 2010; The Baptists Union GB, 2016; The Church of England, n.d.; The Duke Endowment, 2018). Yet a number of clergy appear reluctant to adopt these assistive practices deeming them inward looking and self-serving (Fuller, 2018). However, this notion may lead clergy to develop compassion fatigue whereby chronic self-neglect perpetuates burnout, common among professional caregivers (Figley, 2002).

What is evident from recent US graduate theses (Cowper, 2012; Elders, 2010; Jenkins, 2018; Morrow, 2018; Rowell, 2010), is a call from established and new clergy to protect and promote physical, psychological, and spiritual health in the role. However, published research into the current holistic health status, beliefs and behaviours of ministers, globally, is sparse. Most authors have documented the topic of psychological health only, not accounting for the holistic biopsychosocial nature of health. Proeschold-Bell et al, appear one of the few research groups to have produced works designed to initiate discussion on clergy health (Duke University, 2018). Proeschold-Bell et al (2011; 2013), also remain the only research group to date to comprehensively utilise a theoretical model in their Methodist health behaviour research. Few, if any, further attempts have been made to examine holistic health with respect to occupation specific and theologically influenced behaviours.

In the context of the United Kingdom (UK), few studies have examined clergy health. The little research that has been conducted has focussed on clergy in the Anglican Church (Warwick University, 2017). To date, no UK research has been conducted on the health and well-being of clergy in the Baptist and Nazarene Churches that differ from the Anglican Church organisationally and theologically.

The Baptist church, being the fifth largest Christian church in the world with over 47.5 million members (BBC, 2009; Baptist World Alliance, 2017), has approximately four thousand churches in the UK with circa 239,235 registered members, not including attendees who have chosen not to become official church members or children (Baptists Together, 2017). The Church of the Nazarene has 90 UK churches with 3,334 members; it has a global reach of 2.5 million members (Nazarene, 2017; Nazarene UK, 2018). It is common in both denominations for churches to function with multiple pastors such as a lead pastor, assistant pastor and youth pastor.

Aims & Methods . The aim of this investigation is to describe and promote the holistic health self-care beliefs and practices of UK Christian Church leaders in the Baptist and Nazarene churches.

Study one comprises an online quantitative survey to examine current clergy self-care beliefs and behaviours. Study two is a qualitative interview-based study that will examine perceived facilitators and barriers to self-care. The findings of study two will inform the design of a bespoke role-specific theologically- and theoretically-based intervention to promote self-care. The intervention's effectiveness will be examined in study three. This will involve a quantitative survey pre–intervention with 3- and 6-month post intervention assessments. This approach will enable the effectiveness of the intervention to be assessed through the lens of the transtheoretical model of behaviour change (Prochaska & DiClemente, 2005) in terms of progression through the stages of change from inaction to action and maintenance.

Contribution. This research will profile the current state of health and well-being self-care in the Baptist and Nazarene UK churches and in doing so highlight areas for development. It will create a foundation for future research in these denominations, with potential implications for other Christian denominations. The research will provide an evidence base concerning perceived barriers and facilitators to self-care in this occupational group, with these findings directly informing the design and targeting of an intervention. Finally, this research aims to demonstrate that through a modest tailored intervention, holistic health may be promoted via improved self-care methods for the benefit of clergy and the organisations they serve.

F-7

The health help-point for managing work-related stress risk in complex health facilities: a pilot study on the experience of an Italian pediatric hospital

Salvatore Zaffina (Bambino Gesù Children's Hospital)

Statement of the problem. In post-industrialized countries, traditional occupational diseases are decreasing while aspecific and multifactorial stress disorders increase. The Health and Safety Executive in 2016 found that in Great Britain the number of work-related diseases, depression and anxiety in 2015/16 was 488,000 with a prevalence of 1,510/100,000 workers (1).

Among the emerging psychologic risks, work-related stress (WRS) is the main one on which a growing interest is focused by international and national work institutions due to its relevant organizational and health implications. WRS is experienced when the demands of the work environment exceed the employees' ability to cope with or control them (2). Definitions can be more or less specific or operational, but whatever the measure of interest, the magnitude of this health problem remains relevant, at least in Western developed countries.

EU-OSHA has recently published a summary of the 2016 annual report describing the activities planned for the analysis and management of psychosocial risks and occupational health and safety (3).

In Italy, several universities and local health authorities have provided specific psychological listening points for employee stress. However, there is no scientific evidence proving the effectiveness of these activities and/or a synergy between different professional figures in the use of this tool (4).

Aim of our project is to prevent work discomfort and, through active listening, make workers capable of analysing the contexts objectively, express their own thoughts to colleagues or superiors, and face stressful situations.

Procedures. Since 2016, in our hospital we have been developing a path of psychological support for employees, the so-called health Help Point, to deal with individual discomfort. This tool is an integral part of the activity plan identified by the Working Group for well-being at work, and coordinated by Occupational Medicine. The intervention is part of the organic plan of the improvement actions resulting from the assessment of work-related stress risk pursuant to the Legislative Decree 81/08. The Help Point through the synergistic action between Occupational Doctor and Psychologist consists of six phases: demand analysis, assessment, pre-post evaluation, psychological interviews, feedback and monitoring.

Analysis. The demand analysis allows to ascertain the motivation that induces a subject to require the psychological intervention, and the assessment phase, performed by the multidisciplinary team, reconstructs the processes underlying the problems and complaints reported. The psychological support interviews include 15 individual meetings in which the subject acquires functional coping strategies and more appropriate intervention modalities to deal with problems efficaciously. The effectiveness of the psychological intervention is evaluated through the administration of GHQ-12 questionnaires on health in general and of SF-36 on quality of life, in the pre and post-intervention phase.

At the end of the path, a feedback interview will be carried out to analyze the data collected. If necessary, indications will be provided in order to set a psychiatric and/or pharmacological support on the territory and, according to the timing agreed between team and patient, a periodic monitoring. A pilot pre-post intervention study was performed in order to evaluate the path effectiveness.

Results. The analysis of the Help Point pilot experience demontrated a reduction of the work discomfort. The administration of GHQ-12 and SF-36 questionnaires showed a significant improvement in the scores after the intervention in the twenty-two individuals who completed the path in the period of observation. The mean post-intervention value reported in GHQ-12 is in fact in the score range indicating an "adequate functioning" compared to the average pre-intervention value which reported an "alteration of the psychological state of health". Furthermore, the values shown in the 8 scales of the post-intervention SF-36 indicate a marked QoL improvement.

Practical implications. The Help Point Program has demonstrated its validity in the first two year period of implementation. In addition to the impact on health of each individual involved, the program has had - and will have - important effects from a point of view of organizational well-being. It will constitute an important support for WRS conditions of individuals and whole teams, preventing possible limitations and disability of HCWs. The effectiveness of the Help Point represents the adequate attention of the hospital management to the occupational well-being.

Conclusion. The Help Point can be considered an individual protection device able to mitigate the risk of WRS, a risk that however cannot be completely eradicated.

F-8

Systematic review of publications in Spanish between 2010 and 2016 on the Burnout syndrome: topics few investigated

Viviola Gómez Ortiz (University of the Andes)

Introduction. According to the editors of the journal Burnout Research (Leiter & Maslach, 2015; Maslach & Leiter, 2015), many of the studies published in languages other than English are not known by a large part of the scientific community interested in the subject. Maslach and Leiter expressed in several editorials of the journal the need to publish articles that reflect the work that has been done in languages other than English, so that researchers from around the world can know and cite such research. Additionally, these authors have pointed out the importance of knowing what is done in the world on topics little investigated so far in relation to burnout, such as interventions to prevent or treat burnout and its evaluations of effectiveness, biomarkers associated with burnout, use of qualitative or non-conventional research methods and the development of new theoretical models (Maslach & Leiter, 2014). Therefore, the research question that guided this systematic review was: what has been published between 2010 and 2016, in Spanish, about the Burnout syndrome, which is different, complementary or not mentioned in the literature published in English?

Methods. The steps followed to carry out this systematic review were defined based on the consultation of different sources (Beltrán, 2005, Hemingway & Brereton, 2009, Perestelo-Perez, 2012).

1. Definition of criteria for inclusion of articles: articles published between 2010 and 2016 were included, which will focus on aspects of burnout syndrome that are different from those commonly published in English. Specifically, articles were included that present: New theoretical models to explain the burnout syndrome. Interventions evaluated to mitigate or prevent Burnout. Moderating variables that allow to understand the differences in the burnout syndrome among workers from different countries. The design of instruments to measure Burnout or validations of instruments originally in English. Qualitative, mixed or non-conventional methods to understand aspects related to the syndrome. The characteristics and conditions associated with the Burnout syndrome in people with occupations other than those that are usually investigated (such as health personnel and teachers), Relationships of the syndrome with bio-stress markers.

2. Identification of the relevant articles: In addition to Psycinfo, databases taken into account to identify documents published in Spanish or

on studies conducted in Latin America were Psicodoc, Lilacs, Redalyc and Scielo. Initially 903 articles were found; After eliminating duplicate items, the total was reduced to 510 items.

3. Selection of the articles that should be included in the review: The authors of this article independently reviewed the titles and abstracts of the articles. In total, 32 articles were included in the review.

4. Data registration and evaluation of the quality of the studies. Once the articles that would be part of the review were defined, 4 researchers read and summarized the articles independently.

Results and discussion. The following are the most relevant issues that are worth highlighting. The theoretical model and the instrument developed by Pedro Gil-Monte make a relevant contribution to the literature on burnout. In this model, the difference between burnout and other health problems (such as depression), not necessarily related to working conditions, is emphasized. In particular, the model differentiates two profiles: without guilt and guilt, stating that the consequences in the second case are more severe. The CESQT (Gil-Monte & Zuñiga-Caballero, 2010) includes items that evaluate the emotional aspects of exhaustion and cognitive and physical aspects. Likewise, this instrument, unlike other existing ones in the literature, allows us to calculate a single value that differentiates burnout levels and profiles with different health risks. On the other hand, several interventions were identified whose evaluations apparently provide evidence of good effectiveness. These interventions are multicomponent and were designed specifically for the population in which they were implemented. The results of this systematic review allow us to show that, as is reflected in publications in other languages, there are serious problems related to the evaluation of burnout syndrome, which impact on the definition of criteria to distinguish between cases and not cases. This problematic aspect of the measurement is related to an aspect of cultural and international order. These evaluation problems make it difficult to understand if the burnout syndrome occurs in a similar way in different cultures and countries of the world. Therefore, it is evident the need to evaluate well-defined cultural variables and theoretically sustain how they can explain cultural differences, if any.

F-9

Theory Use in OHP Interventions: Evaluation of the Theory Coding Scheme for Work-Related Sleep Interventions

Kristin Horan (University of Central Florida)

Interventions in occupational health psychology (OHP) are powerful tools that can transform basic and applied research into real-world improvements for the health, safety, and well-being of employees and organizations. However, interventions are also regarded as complex and complicated endeavors (Schaufeli, 2004). All too often, published intervention studies—including those in the occupational safety and health domain—fall victim to the intervention 'black box' (Nielsen & Randall, 2013), in which study processes are neither well-defined nor clearly understood. As a result, researchers and their readership may not understand exactly why a 'successful' intervention produced the desired outcome, or worse, why an unsuccessful intervention failed (Nielsen & Randall, 2013).

OHP researchers and practitioners can avoid ambiguity and maximize the likelihood of positive and sustained interventions by turning to multidisciplinary best practices. For example, public health researchers have established that general population interventions based in theory are more likely to produce intended effects (e.g., Albada et al., 2009; Fisher & Fisher, 2000; Glanz & Bishop, 2010; Kim et al., 1997; Swann et al., 2003). In an effort to systematize assessments of theory use in public health interventions, Michie and Prestwich (2010) developed the Theory Coding Scheme. While this tool has been tested among multiple samples of interventions for the general population, it remains unclear whether it is similarly applicable to workplace interventions. In response, the current project aims to evaluate the utility of the Theory Coding Scheme as a tool for assessing theory use in OHP interventions. The study is guided by the following research questions:

RQ 1: What is the current prevalence and role of theory in OHP interventions?

RQ 2: How does the use of theory impact OHP intervention effectiveness?

RQ 3: What value does the Theory Coding Scheme offer to the field of OHP?

Method. The current study's methods are guided by Michie and Prestwich's (2010) coding application approach. First, we conducted a comprehensive literature review of work-related sleep interventions published in the peer-reviewed literature from 2008 to 2018. We have elected to focus on sleep interventions because of their high potential for variability with respect to scientific disciplines, study designs, intervention elements and levels, and outcome variables.

In October 2018, the authors conducted a comprehensive search of the following databases: Academic Search Complete, CINAHL, ERIC, Nursing and Allied Health, PsycINFO, PubMed, Science Direct, Scopus, Social Sciences and Humanities (SAGE), and TRID. The search terms, listed in Table 1, were modified from an existing review on targeted workplace interventions (Yunas, Musiat, & Brown, 2017). Inclusion criteria can be found in Table 2.

After the initial search was performed and duplicates were removed, the search produced a set of 5,138 unique articles requiring further review. The authors are currently in the process of reviewing all article titles and abstracts for study relevance. Titles and abstracts will be iteratively discussed until 100% inter-rater agreement is achieved. The final article sample will include all those identified as meeting our inclusion criteria. At the time of abstract submission, approximately 80% of the article relevance reviews have been completed.

Two independent coders will review the full text for each article in the final sample. More specifically, each article will be coded against the Theory Coding Scheme's 19 criteria (see Table 3) in order to evaluate the use of theory in the published interventions. Codes will be discussed in an iterative fashion until 100% inter-rater agreement is achieved for all criteria for each article. We expect coding to be completed by May 1, 2019 and data analysis to be completed by August 1, 2019.

Anticipated Results & Discussion . The results will describe the current prevalence and role of theory use within contemporary work-related sleep interventions. We will characterize the extent to which OHP sleep intervention research is clearly based in theory, loosely based in theory, or atheoretical. We will also identify and describe the intervention stages in which theory is most often used (i.e. intervention development, implementation, evaluation, or translation). We will conclude the presentation with an assessment of the Theory Coding Scheme for OHP intervention science and discuss the practical implications of our findings.

Conclusions. This research project contributes to a growing body of literature on best practices in intervention science. It will provide researchers and practitioners with actionable strategies to increase

rigor and efficacy throughout the life cycle of future intervention studies (design, implementation, evaluation).

F-10

Utilization of Services by Law Enforcement Officers and the Potential Value of Matched Groups Designs in Law Enforcement Research

Robert Delprino (Buffalo State University)

This research had two goals. The first to identify the extent of officers' awareness and utilization of support services in two law enforcement agencies. The two agencies differed in size, population served and jurisdiction. The relationship of services to measures of job stress and work/family was also examined.

The second goal was to investigate how information gained from a smaller matched sample compared to the original data set. Much of the published research on law enforcement typically reports data collected from larger agencies with a goal to obtain larger sample sizes for statistical analysis. However, Reaves (2015) reported that based on the Law Enforcement Management and Administrative Statistics Survey of 12,326 departments, approximately 75% of local departments employed fewer than 25 officers. Half of departments employed fewer than 10 officers.

If data collected from smaller samples is comparable to information gained from larger agencies, the use of representative smaller samples can be a more efficient and economical way to collect data from organizations and populations where data collection can pose a number of challenges.

Method. The survey included scales to measure awareness and use of services (Delprino, 1995), occupational stress (McCreary & Thompson, 2006), and work and family conflict (Kopelman, Greenhaus, & Connolly, 1983). A scale was developed to identify officers' issues related to use of services and issues related to health and wellness. A total of 77 officers (Table 1) participated (62 from Department 1; 15 from Department 2).

For the secondary analysis a quasi-matched group approach was used to identify matched samples from the two departments. Matched demographics included gender, ethnicity, age, education level, marital status, number of children, and years on the job. SPSS Case Control Matching resulted in a matched sample of 22 subjects (11 from each agency). Table 1 presents demographic information of the original data sets and the match group samples.

Results. As indicated in Table 2, for the original data set, officers from the larger police agency (Department 1) reported significantly greater work family conflict, and health issues compared to officers serving in the smaller agency (Department 2). Officers from the larger agency had significantly greater concerns with the use of services, were less aware of services and less likely to use services.

For Department 1, officers who reported greater work family conflict reported higher levels of job stress and greater concerns associated with using services. Both correlations were statistically significant ($r=.31$ and $r=.25$ respectively). Correlations between the scale scores for Department 2 did not show this relationship. Related to health and wellness all officers identified concerns of maintaining a healthy body weight, a healthy diet, and keeping to a regimented exercise program.

As indicated in Table 2, comparing the scales scores for the original and matched data sets found that comparisons between the original data sets and matched data sets were exact in terms of significant differences for each dependent variable except for awareness of services. While the trend for mean scores and standard deviations for the awareness of services scale was similar, the between group differences for the matched samples was not significant.

The correlation patterns for the original and matched samples were the same. Work family conflict was significantly correlated with stress, willingness to use services, and health issues for both the original and matched data samples.

Conclusion. Brooks and Piquero (1998) concluded that the size of a police agency does not explain much of the variance in stress of police. In this current study, officers from the two agencies did not significantly differ in their reported job stress. It may be for law enforcement, regardless of agency size, there are similarities in the job that cut across where it is performed.

Agency size may be an organizational factor related to awareness and use of services. Officers from the smaller agency had significantly greater awareness and use of services, had fewer issues related to their use, were more likely to use them and recommend them to others. Limited concern with the use of services was significantly correlated with lower levels of work and family conflict. Officers were also more likely to use services if they felt supported by their organization. These findings are similar to research findings reported by Tucker (2015). The influence of the size of an agency on utilization of services would benefit from further research as well as its interaction with other organization characteristics such as supervisor support, culture and employee socialization.

The smaller matched group sample in this study provided similar results to the original data set. While the results of using smaller samples may not be as precise as larger samples, a carefully developed matched group design may be an efficient method to make comparisons between organizations where logistical issues can challenge the ability of a researcher to collect information from participants.

NIOSH Centers for Excellence in Total Worker Health

G-1

The Center for Promotion of Health in the New England Workplace: A Total Worker Health® Center for Excellence

Suzanne Nobrega (University of Massachusetts Lowell)

G-2

Advancing worker safety, health and well-being through improved working conditions: Research, policy and practice from the Harvard T.H. Chan School of Public Health Center for Work, Health and Well-being

Glorian Sorensen (Center for Community-based Research, Dana-Farber Cancer Institute)

G-3

Impacting the Health of Workers in Precarious Jobs - How the Center for Healthy Work Engages in Participatory Action Research

Elizabeth Fisher (The University of Illinois at Chicago)

G-4

Healthier Workforce Center of the Midwest: Advancing research and practice of Total Worker Health

Diane Rohlman (University of Iowa)

G-5

A NIOSH Center for Excellence for Total Worker Health®: Advancing Health, Safety and Well-being of Workers through Research, Education and Practice

Liliana Tenney (Center for Health, Work & Environment, University of Colorado)

G-6

Oregon Healthy Workforce Center

Anjali Rameshbabu (Oregon Health & Science University)

NIOSH Programs (see Thursday poster session details for program descriptions)

H-1

NIOSH - ADDRESSING CURRENT NEEDS IN THE HEALTHCARE AND SOCIAL ASSISTANCE INDUSTRY SECTOR

Megan Casey (NIOSH)

H-2

NIOSH PUBLIC SAFETY SECTOR PROGRAM

Maryann D'Alessandro (NIOSH)

H-3

THE NIOSH TRANSPORTATION, WAREHOUSING, AND UTILITIES PROGRAM

Dawn Castillo (NIOSH)

H-4

NIOSH WHOLESALE AND RETAIL TRADE PROGRAM

Deborah Hornback (NIOSH)

H-5

NIOSH - CHRONIC DISEASE CROSS SECTOR OF NORA COUNCIL: IDENTIFICATION AND PREVENTION OF OCCUPATIONAL DISEASE

Todd Stueckle (NIOSH)

H-6

NIOSH - DEVELOPMENT OF THE NATIONAL OCCUPATIONAL RESEARCH AGENDA (NORA) FOR THE IMMUNE, INFECTIOUS AND DERMAL DISEASE PREVENTION PROGRAM (IID)

Stacey Anderson (NIOSH)

H-7

NIOSH - TRAUMATIC INJURY PREVENTION (TIP) PROGRAM

Christine Schuler (NIOSH)

H-8

NIOSH - AN OVERVIEW OF THE NIOSH HEALTHY WORK DESIGN AND WELL-BEING CROSS SECTOR

Jeannie Nigam (NIOSH)

H-9

NIOSH Total Worker Health® Program: Exploring new research horizons for worker well-being

Sarah Mitchell (NIOSH)

H-10

THE NIOSH CENTER FOR MOTOR VEHICLE SAFETY: KEEPING WORKERS SAFE ON THE ROAD

Stephanie Pratt (NIOSH)

H-11

OCCUPATIONAL HEALTH EQUITY PROGRAM AT NIOSH

Michael Flynn (NIOSH)

H-12

NIOSH - CENTER FOR OCCUPATIONAL ROBOTICS RESEARCH: PROGRAM, GOALS, AND RESEARCH

Hongwei Hsiao (NIOSH)

H-13

NIOSH - NATIONAL CENTER FOR PRODUCTIVE AGING AND WORK

Bermang Ortiz (NIOSH)

H-14

NIOSH SAFE SKILLED READY WORKFORCE PROGRAM

Rebecca Guerin (NIOSH)

H-15

NIOSH SMALL BUSINESS ASSISTANCE PROGRAM

Brenda Jacklitsch (NIOSH)

H-16

NIOSH - OIL AND GAS EXTRACTION PROGRAM

Kyle Moller (NIOSH)

H-17

NIOSH SURVEILLANCE PROGRAM: HEALTHY WORK DESIGN PRIORITIES

Sara Luckhaupt (NIOSH)

9:15–10:30 a.m.

Concurrent Sessions 5

Independence Ballroom B

Physical Outcomes Of Stress

PAPER SESSION

Mental and Emotional Self-Management:An Examination of Psychological and Physiological Outcomes

Rhonda Rodgers (Claremont Graduate University)

Increasing stress levels and decreasing coping skills underlie a global epidemic, which is profoundly impacting the health of humans and organizations. Current organizational stress interventions are theorized to influence health outcomes, but meta-analyses suggest otherwise. To effectively address this challenge, interventions must begin to target the root cause of stress related illness: the excessive human stress-response. This study is the second to explicate mental and emotional self-management (MESM), a mind-body strategy to address both psychological and physiological processes in the excessive stress-response. A pilot study (N =147) resulted in significant changes in mindful attention and well-being after three weeks. The present study advanced this inquiry by testing a one-week MESM intervention to determine efficacy in reducing psychological stress and attenuating physiological stress. Participants (N = 76) were healthy adults (between 18-30) assigned to one of three training conditions: psychological self-management, physiological nervous system regulation, or an active control group. Pre and posttest autonomic indicators of physiological stress (i.e., heart rate variability [HRV] and electrodermal activity) and self-report measures of psychological stress were analyzed to determine effectiveness of the MESM intervention and to guide future design.

Results of the study found no significant main effect of training on psychological measures or physiological measures, suggesting the one-week intervention was not effective in changing the stress response over time. However post hoc analysis revealed that when participants in the psychological self-management (PSM) group were prompted to begin breath counting during three minutes of skills practice, significant changes in HRV were measured, but this change was not sustained during the subsequent segment of laboratory stressor (i.e., video stimuli). Higher HRV is associated with more adaptive patterns of emotional self-regulation and resiliency to stress, and therefore indicates an adaptive physiological stress response (i.e., parasympathetic activation). Participants in the PSM group reported sharing their skills more frequently with others and utilizing these skills more frequently in daily life than participants in the physiological nervous system regulation group, and 48% of the PSM group reported breath counting meditation as the easiest skill to learn, supporting the premise that physiological changes in HRV during skills practice were attributable to breath counting meditation.

These results suggest that in the current intervention, HRV is responsive to breath counting, and therefore should be emphasized in future MESM interventions. However a longer intervention will be necessary to achieve sustainable changes in psychological and physiological reactivity to stress.

Allostatic Load as a Mechanism Explaining the Links between Job Stress and Employee Attitudes and Behaviors

Nicholas Haynes (University of Georgia)

The Problem: There is ample evidence that job stress has a negative impact on employee attitudes and behaviors (Ganster & Rosen, 2013; Lee & Ashforth, 1996; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Nixon, Mazzola, Bauer, Krueger, & Spector, 2011; Podsakoff, LePine, & LePine, 2007). Allostatic load (AL) theory posits that chronic activation of psychological, physiological, and psychosomatic processes leads to set-point adjustments of the immune, cardiovascular, and metabolic systems. When these biological systems are consistently out of normal range, it leads to mental and physical diseases (Ganster & Rosen, 2013; McEwen & Stellar, 1993). While AL theory is a typical explanation used for the psycho-physiological mechanisms through which job stress affects employee attitudes and behaviors, very few studies test this theory (Ganster & Rosen, 2013). Moreover, even fewer empirical studies treat primary and secondary AL processes in a time-separated, sequential process as the theory posits (Ganster & Rosen, 2013; Juster, McEwen, & Lupien, 2010), which does not allow for a rigorous test of AL theory. The present study aims to integrate the job stress, employee attitudes and behaviors, and AL literatures by exploring the relationship between job stress and employee attitudes and behaviors via time-separated AL processes.

Procedures. The sample of 398 employees consists of primarily middle aged (M = 47, SD = 10), female (70%), full-time (96%) workers. Job stress and primary AL mediators were measured at Time 1 while secondary AL processes and employee attitudes and behaviors were collected at Time 2, six months later. Primary AL processes included self-reported psychological and psychosomatic indicators: mental SF-12, self-regulation depletion, burnout, fatigue, and sleep problems. Biometric secondary AL mediators included indicators of the cardiovascular and metabolic systems: systolic blood pressure, total cholesterol, triglycerides, and blood glucose. Self-reported employee attitudes and behaviors included affective organizational commitment, hostility, job satisfaction, turnover intention, absenteeism, health-related work ability, and work limitations.

Analyses. A partially latent structural equation model was analyzed using Mplus version 8.2 (Muthén & Muthén, 2017). Latent variables were created for job stress, primary and secondary AL mediators, affective organizational commitment, hostility, health-related work ability, and work limitations. The single-item outcome variables of job satisfaction, turnover intention, and absenteeism remained as observed variables. Significance of mediation effects were tested using a bias-corrected bootstrapping procedure (MacKinnon, Lockwood, & Williams 2004).

Results. The measurement and structural models showed adequate fit of the data (measurement: $\chi2$ (175) = 416.744, $p < .001$; RMSEA = .059, CFI = .918, SRMR = .065; structural: $\chi2$ (243) = 509.350, $p < .001$; RMSEA = .052, CFI = .915, SRMR = .061). As shown in Figure 1, Job stress was positively related to primary AL mediators ($\beta = 6.80$, $p < .001$). Primary AL mediators were negatively related to affective organizational commitment ($\beta = -.03$, $p < .01$) and job satisfaction ($\beta = -.04$, $p = .001$) while positively related to hostility ($\beta = .04$, $p < .001$),

work limitations (β = .05, p < .001), turnover intention (β = .01, p = .05), and absenteeism (β = .03, p < .001) six months later. Primary AL mediators were not significantly related to secondary AL mediators six months later and secondary AL mediators were not significantly related to employee attitudes and behaviors. While the sequential mediation effects from job stress through both primary and secondary AL mediators to employee attitudes and behaviors proposed by AL theory was not supported, primary AL processes were a significant mediator. Specifically, primary AL processes mediated the relationship between job stress and affective organizational commitment (95% bootstrapped CI: -.29, -.06), hostility (CI: .18, .38), work limitations (CI: .28, .45), turnover intention (CI: .01, .19), absenteeism (CI: .11, .34), and job satisfaction (CI: -.44, -.13).

Practical implications. The present study explored how AL processes work as mechanisms through which job stress affects employee attitudes and behaviors. By doing so, job stress, employee attitudes and behaviors, and AL literatures were integrated, tested, and expanded. As other researchers have found, the relationship and timing between primary and secondary AL processes is elusive (Ganster & Rosen, 2013). The current study did not find a significant relationship between the two AL processes within a six-month time interval. However, we did discover that primary AL processes serve as a mechanism through which job stress affects employee attitudes and behaviors—a relatively untested connection in the AL literature (Ganster & Rosen, 2013). This knowledge provides target areas for workplace interventions.

Conclusions. Primary AL processes serve as mechanisms through which job stress negatively impacts employee attitudes and behaviors six months later. The link and timing between primary and secondary AL processes warrants further research. Workplace interventions targeted at reducing primary AL mediators may have positive benefits for employee attitudes and behaviors.

Investigating the association of job strain, demands and control with BMI over time: Results from the PATH Through Life study

Brie Sage (Australian National university)

Statement of Problem: There is evidence that work stress and overweight and obesity (OaO) both share associations with many common health behaviours and diseases, including disrupted sleep, over-eating, reduced physical activity, diabetes, metabolic syndrome and cardiovascular risk factors (Nyberg et al., 2017; Patel & Hu, 2008; Chandola et al., 2008). However, research linking work stress with OaO is inconclusive, with some studies reporting positive, though weak, associations, others reporting negative associations, and still others reporting null associations. Overall, critical analysis of past studies indicates that the effect size is likely to be small/weak. This means it is difficult to detect, even in epidemiologic studies with large participant numbers. One possibility is that there has been an over-reliance of cross-sectional research, and that analyses of data from a single time-point may not be sufficient to detect the small association (Nyberg et al., 2017; Kouvonen et al., 2005). Several longitudinal investigations have examined weight gain/change in association with the experience of job strain and its components, however these too have mixed results. Several studies have focused on transitions between broad BMI categories, however transitioning between these categories can require a small or large weight gain depending upon individual's initial BMI, limiting sensitivity. Another possibility is to assess weight gain/levels as a continuous measure (i.e. BMI scores) to retain greater variation and thus greater power within analyses.

The current study adds to the literature examining the experience of job strain and weight gain/change using longitudinal data and methods. We firstly investigated whether chronic/accumulated job strain over a 16-year period was associated with higher end-point (wave 4) levels of BMI. Secondly, we conducted a series of longitudinal models to utilise the multiple time-points of data available and further explore the association between job strain and BMI scores over time.

Procedures. The current study used data collected from participants enrolled in the PATH Through Life survey; a planned 20-year longitudinal community survey based on three narrow-aged cohorts from the Canberra and Queanbeyan regions in Australia. Data is collected every 4 years and the current study analysed 4 time-points of data collected over a 12-year period from 2000/2001 – 2012/2013. The 40's aged cohort was selected for analysis exclusively due to the completeness of the job quality items measured. At wave one 2530 participants were enrolled in PATH, aged 40-44 years. Participants were excluded based on pregnancy or if they were not currently working full- or part-time. Primary measures included in the analyses were: job demands and control scales modelled on the Job Content Questionnaire (Bosma et al., 1997) (job strain (high vs low) was derived via a median split of job demands and control scales), and height and weight (from which BMI score was calculated). Additional covariates controlled for in the analyses included average work hours, physical and mental health, average weekly exercise, years of education, current smoking, financial difficulty and the presence of children in the household.

Analyses. Initially, an ANOVA was conducted to examine differences in end-point BMI scores amongst those who reported 0, 1, 2, or 3/4 (combined) counts of job strain over time. Four main longitudinal analyses were then carried out, separated by sex. 1. Baseline job strain was entered as a predictor into a random intercept model predicting BMI scores over the 12-year period. 2. A random intercept-model examined any relationship between job strain scores and BMI scores across the 4 waves of data. 3. Job strain was entered as a predictor (i.e. lagged variable) into a random-intercept model to predict BMI scores at the subsequent wave, 4. A fixed effects model examined change in job strain and change in BMI across the 12-year period.

Results. There was no significant difference in wave 4 BMI scores between those who reported 0, 1, 2, or 3/4 counts of job strain for Males (F(3,368)=1.33, p=.264) or Females (F(3,636)=1.12, p=.341). Similarly, results from the longitudinal analyses indicated no significant association between baseline job strain (model 1, Males: B=.1095, SE=.244, obs= 6604; Females: B=.0264, SE=.243, obs=6606), job strain scores over the 12-years (model 2, Males: B=-.0800, SE=.090, obs= 6406; Females: B=-.1043, SE=.090, obs=6604), nor the experience of job strain at a prior wave (model 3, Males: B=-.0800, SE=.090, obs= 6406; Females: B=-.1043, SE=.090, obs=4510), in association with BMI scores over the 12-year period. The fixed effects models examining change in job strain with change in BMI scores over the 12-year period were also not significant (model 4, Males: B=-.0970, SE=.093, obs= 6406; Females: B=-.1073, SE=.093, obs=6408).

Practical implications/ Conclusions. Despite analysing the potential relationship between job strain and BMI across differing longitudinal models, no significant association was detected in males or females. Future considerations could potentially benefit from a focus on conceptualising and operationalising consecutive strain and change in BMI over time, and importantly investigating bi-directional effects of job strain on change in BMI.

Psycho-physiological reactions to stress at work: an experimental study based on the Effort-Reward Imbalance (ERI) Model

Viviola Gómez Ortiz (University of the Andes)

Introduction. The objective of this study was to experimentally contrast the hypothesis of the Effort-Reward Imbalance (ERI) model (Siegrist, 2016). In comparison with the abundant evidence provided by correlational field studies, only two studies have experimentally contrasted the DER model hypotheses (Falk, Menrath, Verde and Siegrist, 2011; Landolt, O'Donnell, Hazi, Dragano, Bradley and Wright, 2017). It is known that prolonged work in conditions of high effort and low rewards is significantly associated with cardiovascular diseases and affective disorders. However, the evidence collected by cross-sectional studies does not allow to establish whether the association between the imbalance between reward and effort and health is correlational or causal. In addition, the exclusive use of self-report measures to operationalize the ERI model in the aforementioned investigations does not allow to determine to what extent work-related stress is associated with objective labor conditions or with subjective perceptions of workers. Longitudinal research may offer answers but is vulnerable to methodological biases such as selective attrition and inappropriate observation windows (shorter or longer than the duration of the causal effect). In this sense, the experimental evidence can complement the findings of the longitudinal studies, improving the understanding of the effect of the ERI model on workers' health.

To date, there are only two experimental studies based on the ERI model, but these have limitations. In particular, none of the two experiments on the ERI model manipulate extrinsic effort. Therefore, the available experimental evidence does not provide sufficient information about the interaction effect of effort and rewards on health outcomes. Intervention studies could also provide evidence on the causal relationship between the ERI model and health outcomes, however only one previous study used physiological markers as outcome variables.

Methods. Trying to solve the limitations of previous studies, this research proposed a factorial design that experimentally manipulates both the effort and the rewards of the participants. The extrinsic effort was operationalized as quantitative work load / time pressure (high vs. low) and the rewards as the difference between the fair remuneration and the remuneration received (negative difference = low rewards vs. positive difference = high rewards). In particular, the effect of the effort, the rewards and their interaction on the psychophysiological activation of the participants was examined. The variability of heart rate (HRV) and emotional arousal were selected as outcome variables.

This study contrasted the ERI model hypotheses using a design 2 (high and low rewards) x 2 (high and low effort) with repeated measures in the second factor of the model. We selected 80 university students who were randomly assigned to the groups of high (n = 40) and low rewards (n = 40). A simulated work task was designed. The objective of the task was to dispatch a number (n) of orders in a predefined time (t). The participants played the role of salespeople. His work consisted of assembling hardware packages according to the requirements of each client. The effort (intra-subject factor) was manipulated by increasing / decreasing the workload and time pressure and the rewards (factor between-subjects) were manipulated increasing / decreasing the payment agreed with the participants (high group and low rewards) for participating in the study.

Results. Little consistent evidence was found with the ERI model hypotheses. In particular, the manipulation of the effort did not show significant relationships with the psychophysiological reactivity of the participants. On the other hand, in 2 of the 11 outcome variables (anger and power HF) it was found that low rewards were significantly associated with psychophysiological stress reactions (negative emotions and low variability of heart rate). Significant interactions between effort and rewards were found in the HRV (3/6 HRV indicators). However, when decomposing interaction effects, it was found that, contrary to the ERI model hypothesis that associates work stress with high effort / low rewards imbalance, the psychophysiological stress reactions were greater in high effort / high reward conditions.

Discussion. The findings of this study suggest that working conditions that combine high effort and high rewards could be related to negative health outcomes, similar to the high effort-low rewards imbalance conditions. This result is consistent with some theoretical frameworks of the occupational health psychology, such as the challenge-hindrance stress, model and draws attention to the little empirical knowledge about the effect of rewards on health at different levels of effort. Although given the limitations mentioned above, it would be not prudent to propose lines of intervention based on the findings of this study, organizations could benefit from monitoring organizational and health outcomes in occupations characterized by high levels of effort combined with high rewards (e.g., high-status professions such as managers and brokers). Previous research has shown that proper management of recovery periods and training in emotional regulation are effective in mitigating the organizational and health problems associated with chronic exposure to challenge stressors (Totterdell, and Parkinson, 1999).

Salon 10

Safety Climate Assessment and Training in the Firefighting Industry

PAPER SESSION

The Work Environment, Stress, and Mental Health in EMS Responders: A Mixed Methods Study

Regan Murray (Drexel University)

Problem. A major challenge confronting the field of emergency medical services (EMS) is understanding the organizational, mental health, and safety burden that providers experience as they respond to increasing community demands for service. Due to the evolving nature of EMS work, responders are exposed to persistent and emerging occupational risk factors. Many of these exposures are physical risks, but there are also psychological risks that impact the ability of EMS responders to carry out their duties and provide quality patient care. Exposure to violence in the pre-hospital setting is one such example, as violence has been associated with increased levels of stress, fear, and anxiety in EMS responders (Gomez- Gutierrez, 2016). Some research has found violence to be the leading cause of stress in EMS (Pozzi, 1998), and stress found to be the most frequent injury reported (Schwartz, 1993). In addition to violence, stress is also associated with exposure to traumatic incidents in the field. Some research suggests that between 82 and 100% of EMS responders have experienced a traumatic event during their career (Donnelly, 2009). Traumatic exposures may increase the likelihood of EMS responders to develop mental health conditions. Several studies place prevalence rates of PTSD to

be greater than 20% in EMS responders (Bennett, 2004; Grevin, 1996; Clohessy 1999; Marmar 1996; Jonsson, 2003). Cumulative exposures to stress and traumatic incidents can lead to burnout, which may result in the deterioration of the quality of patient care (Boudreaux, 1996).

Procedures. A comprehensive literature review assessing violence against EMS responders returned 105 articles, 45 of which related to the psychosocial impacts of the occupation. To gain further insight into the work environment, stress, and mental health outcomes experienced by EMS responders, we designed a convergent parallel mixed methods study, triangulating both qualitative and quantitative research methods. Using a convenience sample and subsequent snowball sampling, we enrolled 16 study participants from across the country. Semi-structured individual interviews were conducted, accompanied by a survey assessment comprised of validated scales relating to stress, burnout, job satisfaction, and safety climate, and mental health. Our methods were innovative in that the interviews and survey assessments were conducted using Zoom, a HIPAA compliant video conferencing software.

Analyses. Audio and visual files from the interviews and focus groups were transcribed for data analysis, de-identified, and verified by a research team member for accuracy. A coding structure was developed to code the qualitative data using NVivo 12, a qualitative data analysis software. As the transcripts were coded and analyzed, the researchers looked for patterns in attitudes and beliefs across emerging themes, as well as contrasting viewpoints. Descriptive statistics were compiled from the survey assessments and cross-referenced to the individual interviews to establish convergence or divergence within the data.

Results. We will present the emergent themes that explain EMS responder experiences with the work environment, stress, and mental health. We will correlate these results from assessments using validated scales for burnout, job satisfaction, stress, and other mental health outcomes.

Practical implications. The findings in this study have practical implications as researchers and first responders' work together to address the EMS work environment, stress, and mental health. Our findings identify numerous dimensions of the EMS system that demand further assessment and evaluation. Such findings can inform the development of organizational interventions to prevent stress and trauma from contributing to mental health outcomes in EMS personnel and can buttress the work environment to improve employee retention and job satisfaction.

Conclusions. Understanding the situations where EMS personnel identify sources of stress and trauma is imperative in improving the EMS work environment. Future research should incorporate these considerations into intervention design, implementation, and evaluation plans of safety practices in EMS. This research illustrates the importance of utilizing qualitative and quantitative methods to understand the varied experiences that exist in EMS personnel. By filling in the gap that currently exists on this topic, our analysis provides a unique opportunity to develop innovative prevention strategies to protect EMS responder's health, safety, and well-being.

Serving the United States fire service with safety culture assessment: from research to practice

Andrea Davis (Drexel University)

Problem. Safety climate is a strong predictor of safety outcomes (i.e. injuries) and organizational outcomes (i.e. burnout, job satisfaction). Safety climate is the measurable aspect of organizational safety culture and is used by industries such as healthcare, construction, and manufacturing to gauge and improve safety performance. In 2017, The Fire Service Organizational Culture of Safety (FOCUS) survey was validated to assess safety climate in the fire service. Once validated, FOCUS was administered nationally in 500 fire departments (35,000+ firefighters). Each of these departments received a customized data report, in addition to the opportunity to partake in "Culture Camp," a training on safety climate and the utility of FOCUS. This presentation will describe the FOCUS dissemination process and reflect on the utility of FOCUS feedback sessions and "Culture Camp" trainings for the fire service. An examination of how FOCUS data is helping the fire service to lead, supervise, and organize their work environment around safety will also be explored.

Procedures. The Fire Service Organizational Culture of Safety (FOCUS) survey is a previously validated tool that is a negative predictor of injuries and burnout, and a positive predictor of work engagement and job satisfaction. After validation, the resultant FOCUS data was disseminated to participating fire departments through one-hour phone or video conferencing feedback sessions. The dissemination process that each participating fire department engaged in will be described, including strategies employed to return results to fire chiefs, challenges addressed during dissemination such as changes in leadership, and reflections on the utility of the feedback sessions from our fire service partners. Through a partnership with the Fire Departments Safety Officers Association (FDSOA), the FOCUS tool evolved from research to practice, administering the survey to 500 fire departments nationally. In addition, "Culture Camps," a one-day intensive training session, were introduced to better educate departments on safety climate and their department's results.

Analyses. We will describe the research-to-practice initiative that returned data to participating departments. We will specifically describe the dissemination and evaluation of FOCUS feedback sessions. "Culture Camps," our one-day intensive training sessions trained 100 fire service members over six national sessions. Fire service members were trained on the science behind safety climate, the utility of FOCUS, and received in-depth guidance on their FOCUS results. Each training concluded with a multiple-choice and short answer online evaluation which will be described both quantitatively and qualitatively to assess knowledge transfer and educational impact.

Results. The dissemination process that each participating fire department engaged in will be described, including reflections on the utility of the feedback sessions from our fire service partners. Our dissemination outreach effort will be quantified to describe the level of engagement in feedback sessions with our participating fire departments and qualitative data will be used to describe the utility of FOCUS feedback sessions for the fire service. "Culture Camp" trainings prepared and supported fire service members to feel competent in understanding the importance of safety climate, to better understand their FOCUS results, and return to their fire department equipped to present their FOCUS findings to peers. Qualitative data will be presented from the evaluations to demonstrate the utility and knowledge transfer.

Practical implications. The findings of this study have practical implications as researchers and fire service leaders work together to improve safety culture in the fire service. Best practices and lessons learned through dissemination efforts will be shared. The business analytics platform provided an efficient method to return results, creating scalability and impact while reducing data preparation person-hours.

It allowed us to rapidly expand content and create ad-hoc reports on demand. The consultations revealed an enthusiasm among the fire service because it had never seen data like these. Participants felt that the consultation facilitated their data comprehension and reported feeling confident about using these data to maintain or improve safety culture. FOCUS will advance fire service injury prevention through data visualization to understand, maintain, or change the culture that creates safety.

Conclusions. An examination of how FOCUS data is helping the fire service to lead, supervise, and organize their work environment around safety will be explored. FOCUS feedback and "Culture Camp" sessions seek to impart confidence and comfort using safety culture data within the fire service as they begin to use objective data to maintain or improve a positive safety culture in their departments. As such, FOCUS will advance fire service injury prevention efforts through use of a validated tool to understand, maintain, or change the culture that creates safety. The future research to practice dissemination plan for FOCUS will be discussed.

Development and Validation of the Fire Service Safety Climate Scale

Jin Lee (Kansas State University)

Statement of the Problem: The fire service is commonly known as a hazardous industry. There are approximately 1.2 million firefighters in the United States, of whom 345,000 are career and 815,000 are volunteer employees (Haynes & Stein, 2017). The National Fire Protection Association (NFPA) estimated 62,085 line-of-duty injuries in 2016 (Haynes & Molis, 2017). Over the past five years, an average of 70 firefighters died annually in the line-of-duty, with approximately 62% resulting from injuries and 38% from sudden cardiac events (Fahy et al., 2017). Understanding the climate of safety is a core initiative of the US fire service in its quest to reduce injuries, fatalities, and toxic exposures linked to occupational disease. The purpose of this study was to develop a Fire service Organizational Culture of Safety survey (FOCUS) to support this goal.

The framework guiding this research draws on Christian et al.'s (2009) and Nahrgang et al.'s (2011) meta-analytical findings that safety climate is a critical resource that has downstream consequences for both safety-related performance and outcomes as well as member well-being and morale. Given the evidence regarding the linkages between safety climate and employee motivation, compliance, and accidents, improvements in safety climate are expected to result in subsequent improvements in safety compliance behaviors along with a reduction in near-misses, injuries, and workplace fatalities. Our framework was also informed by Huang et al.'s (2016) expanded theory of the impact of safety climate on organizational outcomes, in that enhancements result in improvements to a broader set of workplace attitudes and behaviors such as well-being, morale, engagement, and turnover (Huang et al., 2016; Taylor et al., 2012; Griffin & Curcuruto, 2016, Nahrgang et al., 2011).

Method and Analyses. Survey development followed an exploratory sequential mixed methods design combining qualitative methods (interviews and focus groups with 123 firefighters) to generate items, and quantitative methods (exploratory and confirmatory factor analyses; multi-level models) to examine the survey's psychometric properties in a geographically-stratified random sample of 130 fire departments including 615 stations and 8,575 firefighters. Measurement structure was identified by exploratory factor analysis (EFA) and confirmed by confirmatory factor analysis (CFA). Subsequently, multi-level modeling approach was used to examine the criterion-related validity of the fire service safety climate.

Results. Based on the EFA results, a 14-item measure of fire service safety climate containing two factors—management commitment and supervisor support —was developed. CFA results indicated satisfactory fit of the measurement model and provided evidence of its convergent and discriminant validity, supporting construct validity. Multi-level modeling showed that station-level safety climate scores were significantly related to station-level outcomes such as injury rates and employee engagement levels. Station-level safety climate scores were significantly linked to individual firefighter safety compliance behaviors, job satisfaction, and burnout - supporting criterion-related validity.

Discussion and Conclusion. Our results provide evidence that FOCUS is a useful tool for assessing safety climate specifically within the fire service. Across a nationally-representative, geographically-stratified random sample of over 8,000 firefighters nested in 615 fire stations, from 130 departments, the FOCUS scale demonstrated sound psychometric properties, and convergent, discriminant, and criterion-related validity. Pertaining specifically to safety-related outcomes, stations with higher as opposed lower FOCUS scores experienced lower injury rates and firefighters within those stations reported engaging in higher levels of safety compliance behaviors. Further, stations with higher as opposed to lower FOCUS scores also experienced higher levels of engagement, and firefighters within stations those stations reported experiencing higher levels of job satisfaction and lower levels of emotional exhaustion.

Findings from this study not only provide evidence supporting the construct validity of a fire service specific measure of safety climate but also directly test several aspects Nahrgang et al.'s (2011) model of demands-resources and workplace safety within the high-hazard context of the fire service. Given the physical, mental, and emotional demands that firefighters face, our findings suggest that safety climate is a critical resource that helps to both mitigate the emotional strain of the job and promote compliance with safety behaviors. Consistent with Nahrgang et al.'s (2011) findings, we expect that fire stations with a positive safety climate are also likely to experience fewer adverse events. It is also encouraging to see that safety climate measured with our fire service specific safety climate scale is associated with both safety related variables and firefighter well-being variables. As suggested by Huang et al. (2016), promotion of safety climate would contribute to the well-being of workers and sustainability of the industry, and our study showed that it would be the case in the context of the fire service, underscoring the importance of appropriate management of fire service safety climate.

"Creating the next generation of first responder safety researchers"

Jennifer Taylor (Drexel University)

Problem. The Center for Firefighter Injury Research and Safety Trends (FIRST) is a research enterprise organized to support the United States fire and rescue service through objective data collection and analysis. FIRST set out to build capacity by developing the next generation of first responder safety researchers through the Fire Service Injury Research, Epidemiology, and Evaluation (FIRE) Fellowship. In the summer of 2016, FIRST developed the inaugural class of FIRE Fellows to give Masters of Public Health students the opportunity to work with real world data and serve our community partners through faster analytic turnaround.

Procedures. The FIRE Fellowship is a 10-week, full-time (400 hours), paid summer immersion experience—open to public health graduate students and alumni—that provides a deep introduction to the fire service through engagement with community partners, including in-person opportunities (e.g., fire service organizations, fire departments, dispatch, unions, etc.). The FIRE Fellows are introduced to the principles of injury prevention and control and collaborate on management and analysis of fire service data using both quantitative and qualitative methods. The competencies developed are tied to those created by Safe States and the Council on Linkages Between Academia and Public Health Practice. Each fellow focuses on a specific safety research topic and dataset within one of the three research areas of the FIRST Center.

Analyses. Process and outcomes evaluations are conducted throughout the fellowship including weekly team check-ins and an in-depth evaluation process at the conclusion of the fellowship. The fellowship ends with a reflection event, in which community partners and stakeholders are convened for a half-day event where fellows present their achievements from the 10-week period.

Results. The FIRE Fellowship was implemented in the summers of 2016 (n=7), 2017(n=6), and 2018 (n=4) and had a total of 17 participants, two of whom participated in both years. Seven out of 13 continuing students used the FIRE Fellowship data for their Master's thesis, 7 out of 13 continuing students became FIRST research assistants to continue their affiliation with the research, and 2 of 4 alumni fellows have become full-time staff of the FIRST center. The Fellowship was featured in multiple first responder and academic media channels, including Fire Engineering and the "The Nation's Health" by the American Public Health Association (APHA). The work of fellows has also contributed to multiple published manuscripts for FIRST. In addition, the fellowship assisted in the obtainment of the Association of Schools & Programs of Public Health (ASSPH) 2018 Harrison C. Spencer Award for the Dornsife School of Public Health. Fellows reported that the fellowship offered them "unique" and "real-world experience" in developing and improving their professional comportment, including communication, public speaking, remote work, and collaboration, as well as providing opportunities for stakeholder engagement and further developing public health competencies.

Practical implications. The FIRE Fellowship has been evaluated to be a successful program which provides mentorship and experience to future fire service researchers. In addition to practical data analytic skills, FIRE Fellows also obtain important professional development skills, such as public speaking, remote work experience, and competencies such as the 'hierarchy of help' and 'collaboration over competition.' The framework for the FIRE Fellowship, and the professional growth it provides could be applicable to other research centers working with various occupational groups.

Conclusion/Next steps: Through FEMA funding, the FIRE Fellowship has been funded through year 2020 and will continue to address the safety needs of first responders. Additional funding mechanisms will be explored to ensure that the FIRE Fellowship remains a viable pipeline for future fire service researchers beyond our current FEMA funding cycle.

Salon 3 & 4

Work Schedules and Health

PAPER SESSION

Shift work and mental health: A systematic review

Yixuan Zhao (Australian National University)

Background. The movement towards a '24hrs/7days' economy has brought about a growing demand for shift work (Presser 2003). Shift work, also known as nonstandard work schedules, points to a range of working time arrangements. To date, there appears to be no single, agreed upon, definition of the specific employment conditions that constitute as 'shift work'. Generally the term 'shift work' implies that a considerable proportion of work hours fall outside the typical 8/9am to 4/5pm, Monday to Friday schedule (Presser 2003). Examples of types of shift work include regular morning, afternoon, evening or night shifts, weekend shifts, rotating shifts and irregular shifts, and split shifts. The high prevalence of shift work has led to concerns about its potential impacts on population health. To date, the link between shift work and physical health has been well established (Kecklund and Axelsson 2016). In contrast, shift work and mental health has been studied less comprehensively (Vogel et al. 2012). This systematic review sought to ascertain the nature of the association between different types of shift work and mental health, summarising the findings of large-scale, non-occupation specific, research.

Methods. Four electronic databases, PubMed, PsycINFO, Web of Science and SCOPUS, were searched to identify studies that reported on the statistical association between shift work and mental health and that used population based samples. Generally, the search used the "title and abstract" field and was limited to articles in English. Thirty-three studies were included in the final review. The final review included, twenty-two cross-sectional analyses, ten longitudinal analyses and one study that had both cross-sectional and longitudinal analyses. A standardised coding sheet was used to extract relevant data from the articles. The data to be extracted included the data source, author names, publication year, sample characteristics, study design, shift work measures, mental health measures, the variables/covariates adjusted for, and statistical estimates of the association between shift work and mental health. Data extraction was undertaken independently by two of the authors. Study quality was then rated based on representativeness of sample, outcome measure, adjustment, study design, and outcome at baseline.

Results. Of the 33 studies, at least 26 used randomly selected, population-based samples of workers. The sample sizes of the 33 studies ranged from 132 to more than 50000. Twenty-six studies were identified as having samples larger than 1000 participants. The measurement of shift work varied between studies, including broad binary indicators of shift work, night or evening shifts, weekend work, work schedule irregularity, rotating shifts, and couple's joint work schedules. With regards to the mental health measures, the majority of the studies focused on general mental health (psychological distress) and/or depression. Findings of the studies were grouped based on the measures of shift work adopted. Results showed that there was a reasonable level of evidence that overall, when a broad binary measure was adopted, shift work was associated with poorer mental health. There was also reasonable evidence that irregular/unpredictable work

was associated with poorer mental health. Relatively few studies found the association between night/evening work and mental health to be significant, however the studies did so received a higher quality than those that did not. There was minimal evidence for weekend work and other various types of shift work. In terms of gender differences, overall, there is stronger evidence for an association between shift work and mental health for females than males, but no conclusions can be drawn without further formal testing.

Conclusions. The current systematic review supports the hypothesis that shift work, especially irregular shift work, is associated with poorer mental health. Moving forward, there is a need for continued investigation of the impacts of shift work on mental health with more consistent measures/assessments adopted. This evidence is necessary to better understand the difficulties confronting shift workers and their families, and to identify where support is needed to protect workers' mental health.

Effect of Long Working Hours on Depression and Mental Well-Being among Employees in Shanghai: The Role of Having Leisure Hobbies

Junming Dai (Fudan University)

Background. Long working hours has been an increasingly serious health threat among occupational population. Evidence implied that long working hours can be harmful to this group's physical and psychological health. But few studies cared on this issue in China. Our aim is to examine the associations between long working hours and depression and mental well-being among working population in Shanghai, meanwhile to identify the impact of having hobbies on these relationships.

Methods. Altogether 2985 participants were available in our cross-sectional survey conducted in Shanghai. All variables of this survey were assessed by a self-administered questionnaire, job stress identified by the job demand-control model, depression by the Patient Health Questionnaire-9 (PHQ-9) scale and mental well-being by the World Health Organization Five-item Well-Being Index (WHO-5) scale, and job stress by job demand-control model. Pearson's $\chi 2$ test and multivariate logistic regression were used to clarify the associations between long working hours and both psychological outcomes, and general linear model to identify the role of having hobbies in this pathway.

Results. The phenomenon of long working hours (69.3%) was quite common among employees in Shanghai, and the rate of working over 60 h was 19.3%. Those who worked over 60 h had the highest prevalence of poorer mental health compared with individuals working ≤ 40 h per week. And there were 19% employees suffering from depression and 25.3% scale as poor mental well-being. there were 31.9% workers identified as high job stress. After adjustment in the logistic regression model, those who reported weekly working time over 60 h were 1.40 (95%CI: 1.03-1.90) and 1.66 (95%CI: 1.26-2.18) times more likely to have depression and poor mental well-being, respectively. And adjusted ORs for having hobbies were 0.78 (95%CI: 0.62-0.97) and 0.62 (95%CI: 0.51-0.75), respectively. Meanwhile, having hobbies could significantly lower mean score of PHQ-9 and elevate mean score of WHO-5 in each working time group, with an indication of no interaction effect. so developing a hobby at routine can buffer some negative effect of long work hours and job stress among employees.

Conclusions. Long working hours could be a risk factor linked to a significantly negative impact on workers' psychological health. And having hobbies in their daily lives, playing a role of buffer, might help to mitigate the adverse effects of long working hours on depression and mental well-being. Company managers and health policy makers should attach more importance to these two points in order to better improve workers' mental health and implement workplace health promotion campaigns.

An Exploration of Lunch Break Pressures and Perceptions as Predictors of Workplace Outcomes

Lisa Kath (San Diego State University)

Lunch breaks can provide employees an opportunity to recharge and maintain healthy well being; unfortunately, some workplace norms in North America have led to negative perceptions of taking lunch breaks. The glorification of busyness in the workplace has led to the growing belief that important people will forgo their lunch, which in turn may set up an assumption that those who do take a lunch break are not that important. However, there is not much literature on the glorification of busyness in general or on lunch break pressures and perceptions in specific.

The present study explored the relationship between pressure to skip lunch break (negative perceptions from one's boss and/or coworkers on taking a lunch break) and four workplace outcomes: job satisfaction, intention to quit, perceived organizational support, and employee engagement. Our model includes lunch break comfort (i.e., how comfortable an employee feels taking a lunch break) as a mediator of the relationship between pressure and outcomes, and also includes lunch break importance (i.e., how important an employee values a lunch break) as a moderator of the relationships between predictor-mediator and mediator-outcomes.

Preliminary analyses of an archival data set from a lunch break survey of American and Canadian salaried workers (N = 655) using bivariate correlations and moderated multiple regression have been conducted. Initial results from correlational analyses indicate that, as expected, pressure from one's boss or coworkers to skip lunch break is associated with lower job satisfaction, higher intent to quit, lower perceived organizational support, and lower employee engagement. However, we plan to test the full model using moderated mediation analysis. This will be conducted using the PROCESS macro created by Dr. Hayes (https://www.processmacro.org/index.html). Results of these analyses and corresponding implications will be discussed.

There are important limitations in this study design. This is a cross-sectional, self-report, single-source survey. As such, mediation analysis results should be interpreted with caution. For one thing, common method variance could be introducing bias that inflates the correlations of the variables. For another, the causal order of the predictor, mediator, and outcome(s) is not possible to ascertain clearly with this study design. Another limitation is that the measures used for the study are single items, so the reliability of the measures cannot be determined. Nonetheless, given the novelty of studying lunch breaks in the context of employee well-being, these results might provide an interesting preliminary look at whether this area warrants further study.

Although one's comfort in taking a lunch break may seem like a relatively insignificant construct to measure, we believe that it may be an indicator of a culture that either supports or ignores important stress recovery activities. There are many popular press articles that suggest that the pressure to appear busy is common in many workplaces. This type of pressure may discourage employees from taking the kinds of breaks they need to stay productive and strategically busy. This study

could be an interesting first step in understanding the importance of a culture that supports stress recovery for all its employees.

The effects of improved work schedules on worker health: A randomized workplace experiment at a national retail firm

Susan Lambert (The University of Chicago)

Unpredictable, unstable work hours can have deleterious consequences for workers and their families. This paper examines the health effects of a store-level treatment intended to change manager behavior and store-level scheduling practices. The multi-component intervention is based on social science research indicating that multiple dimensions of working time intersect to affect worker health and well-being (Clawson and Gerstel 2014; Henly and Lambert 2014; Hill, Grzywacz, Allen, et al. 2008; Lambert, Henly, Fugiel, and Choper 2017; McCrate 2018). In the current study, we targeted for improvement four dimensions of work schedules: schedule consistency, predictability, control, and adequacy. The experiment was conducted in 28 stores in the San Francisco and Chicago metropolitan areas, involving over 1,500 employees; it ran from November 2015 to August 2016.

We examine the effects of the intervention on several aspects of hourly sales associates' health and well-being, including perceived stress, sleep quality, financial well-being, and work-life conflict. We also estimate the extent to which effects of the intervention vary by race, age and responsibilities for caregiving, school, and working multiple jobs.

Research design and intervention. Stores were randomly assigned to control or treatment conditions. The treatment condition included: 1) Stable shift structure: providing standardized start and end times for shifts, with the goal of improving schedule stability; 2) Core schedule: assigning employees to consistent, recurring shifts from week to week, another component of stability; 3) Part time plus: designating a core staff cohort who are guaranteed a minimum of 20 hours per week, increasing both schedule adequacy and stability; 4) Employee-initiated shift adjustments: an app that allowed employees to freely post and pick up shifts, thereby increasing employee schedule control; 5) Additional investment in staff: managers received a few additional labor hours, with the goal of providing both managers with room to risk making changes to their scheduling practices and sales associates with more hours (adequacy). Analyses indicate that the intervention improved schedule consistency, predictability and control, but not adequacy.

Data and analyses. Data come from firm systems (e.g., the payroll system of when employees clock in and out of work; personnel systems with employee demographics) and pre and post employee surveys (response rates are about 50% in each wave). Measures of worker well-being come from scales that have been used with similar populations, e.g., Henly and Lambert 2014. Wave-specific calibration weights are used to weight descriptive statistics on baseline health and well-being. To estimate intervention effects we employ maximum likelihood estimation to fit a series of multilevel models with random worker intercepts and fixed store effects. Models range from a simple model that includes indicators for treatment condition, wave, and the interaction of treatment by wave to a model that includes a Heckman correction for non-response hazard. We examine subgroup differences with interaction terms, as well as by estimating models separately for groups of interest.

Descriptive findings. Descriptive analyses highlight the many challenges facing today's retail sales associates. For example, at baseline, 51% of respondents reported at least moderate food insecurity in the prior month, and in the past three months, 12% had been late on rent or mortgage payments and 19% had delayed going to the doctor or getting prescriptions filled because of financial concerns. About half of respondents reported that their work schedule interfered with their sleep and 60% reported physical symptoms indicative of stress. Work-life conflict was rampant, with 55% of fathers and 39% of mothers reporting that they had to cancel an event that was important to their child because of their schedule at the company; 28% of students found it difficult to coordinate their classes with their work schedules.

Effect of intervention: Sleep. The intervention significantly improved quality of sleep (by an estimated 7 percent). The effect is larger for employees with second jobs and for employees younger than 26. Stress. The intervention significantly reduced stress by about 5 percent. The effect was particularly strong among parents (15% reduction) and second-job holders (9% reduction). We are currently conducting analyses examining potential effects on work-life conflict and financial hardship. To date, analyses suggest that the intervention did little to improve financial well-being or food security, and that work-life conflict was reduced among second-job holders only (by about 13%).

Conclusion and implications. Although research documents the negative repercussions of problematic scheduling practices for workers and families, this is one of the few empirical examples of the concrete steps employers can take to improve them. Combined with prior results from this experiment, the findings suggest that improving work schedules can be good for employees and good for business. The findings also suggest that increasing the stability and predictability of work hours is not enough to protect retail workers from financial hardship. Interventions that effectively increase work hours are needed too.

Independence Ballroom CD

The Healthy Work Campaign: A Public Health Campaign to Advance Work Stress Prevention and Healthy Work in the United States

SYMPOSIUM

Chair: Peter Schnall (University of California Irvine)

Millions of Americans experience "unhealthy work," with 3 out of 5 saying that work is a significant source of stress (APA Work Stress Survey, 2017). As we discuss the future of work and the changing nature of work, including the rise of the "gig economy" and varying levels of precarity, work intensification, and the growth in the low-wage service sector, we must also consider the considerable evidence that the quality of jobs, especially the psychosocial work environment, impacts the mental and physical health, safety and well-being of workers. The "conditions" of work, our employment arrangements and the quality of our jobs influence our health, safety and well-being. As well, the "sources of stress", from the way work is organized—which objectively exist in the conditions of a job —- such as excessive demands/workload, a lack of job control (e.g. job strain), high effort and low reward (effort-reward imbalance), work-family conflict, supervisor support, job insecurity, low wage work, etc.) contribute to burnout, depression, high blood pressure and heart disease (Theorell et al BMC Pub Health 2015, Landsbergis et al AJPH 2013, Theorell et al Eu J Pub Health 2016).

The Healthy Work Campaign (HWC) is a public health campaign launched in December 2018 at healthywork.org by the Center for Social

Epidemiology (CSE) a California-based non-profit organization and a NIOSH Total Worker Health Affiliate. The HWC is a collaborative effort with researchers from the Center for Occupational and Environmental Health, University of California Irvine (TWH Affiliate) and the School of Public Health at SUNY Downstate as well as a growing list of partners. In 2017, NIOSH formed the NORA Healthy Work Design and Well-being Cross-Sector Council and Program "to protect and advance worker safety, health, and well-being by improving the design of work, management practices, and the physical and psychosocial work environment." The Healthy Work Campaign (HWC) goals align with the Healthy Work Design and Well-being program and include, education, outreach, development and use of workplace stress assessment tools and intervention toolkits.

This symposium will present the mission and goals of the HWC, describe what is meant by "healthy work" and provide an update on efforts to educate and encourage workers, labor organizations, employers and public health professionals to reduce and prevent work stressors and promote healthy work. At the forefront of these goals is the implementation of an online, automated work stress assessment tool, the Healthy Work Survey (HWS) - for organizations and individuals, and a series of intervention toolkits aimed at specific groups, that link HWS results to the "best practices" and strategies to reduce work stressors.

The first presenter will describe the background and mission of the Healthy Work Campaign, including the material developed to educate individuals and organizations about research on the impact of work stress. Research shows that work stressors lead to illness and are costing organizations billions in direct and indirect costs due to increased use of health care and losses in productivity due to absenteeism, presenteeism, sick leave, disability and workers compensation. The Healthy Work Campaign recommends individuals and organizations measure their exposure to work stressors to determine their impact on health and to find "solutions" to implement work organization change and reduce work stressors.

The second presenter will provide an update on the development of the Healthy Work Survey (HWS), intended as an organizational "work stress assessment tool" that consists of the key, scientifically-validated, short-form psychosocial work stressor domains that are known to be the strongest risk factors for chronic disease. Items from the NIOSH QWL questionnaire were psychometrically tested to determine inclusion in the HWS which will allow comparisons to national scores.

The third presenter will discuss the development of a Healthy Work Intervention "toolkit" including a work organization intervention database which will include different "levels" of intervention including worksite-based programs/policies, collective bargaining, legislation and regulation etc. The database will inform a series of "toolkits" which have been developed through the healthywork.org website for individuals, for employers, and for unions/worker advocates. In addition, there are plans for creating automated reports based on "case studies" of work organization intervention programs and linking them to an organization's Healthy Work Survey scored results. In this way, employers and unions can be made aware of specific interventions that may be implemented to reduce work stressors particular to their industry or organization.

The Healthy Work Campaign: Advancing Healthy Work in the U.S.

Marnie Dobson (University of California Irvine)

In December 2018, the Center for Social Epidemiology, a California-based non-profit and Total Worker Health Affiliate, launched the Healthy Work Campaign (HWC). The HWC is a national public health campaign with the mission to reduce harmful sources of stress at work and improve job quality and health. The campaign is a collaboration with researchers Dr. Peter Schnall, Dr. Marnie Dobson and Dr. BongKyoo Choi at the UC Irvine Center for Occupational and Environmental Health and Dr. Paul Landsbergis at the SUNY Downstate School of Public Health, as well as a growing list of partners. Healthy work is a place where we have physical safety, economic and job security, are treated with respect and dignity, can apply our skills as well as be rewarded fairly for our skills and time, both financially and in terms of advancement and growth. However, still relatively unacknowledged, over 40 years of research documents that "work-related psychosocial stressors" are hazardous to health. These "unhealthy" work stressors result from the way work is organized, such as excessive job demands, low job control (e.g. job strain), low rewards (e.g., wages, promotion prospects), low supervisor support, job insecurity, work-family conflict, workplace bullying and long work hours. Cumulative exposure to these stressors takes its toll on the body and can result in burnout, depression (Theorell et al BMC Public Health 2015), workplace injuries (Dembe et al OEM 2005, Benavides et al OEM 2006), high blood pressure (Landsbergis et al AJPH 2013), heart disease and mortality (Theorell et al Eu J Pub Health 2016). Research also shows that work stressors are costing organizations and societies billions in direct and indirect costs due to increased health care costs, and losses in "productivity" due to increased presenteeism, absenteeism, sick leave, disability and workers compensation (Jauregui and Schnall 2009). Educating working people, employers, labor representatives, occupational health and safety professionals, policy makers and others, about how work stressors impact psychological and physical health, as well as the social and financial costs to workers, organizations, communities, and society is a primary goal of the HWC. Building on the mission of the Center for Social Epidemiology, founded in 1988, the HWC has developed a variety of innovative educational materials including a website www.healthywork.org, a short documentary film, "Working on Empty," and a social media outreach campaign including brand messages such as "Healthy Work, Healthy People." The HWC also encourages individuals and organizations to measure their exposure to work stressors and subsequent impact on health using tools provided at healthywork.org. Currently, the public is being directed to the online, user-friendly, StressAssess survey, developed by the Canadian OSH and labor community, while a similar instrument the "Healthy Work Survey" is being developed as part of the HWC. The HWS will provide individuals and organizations with an automated report identifying the exposure to specific work stressors and comparing their scores to US national averages from the NIOSH Quality of Work Life survey. The impetus is not just to collect surveillance data but to provide both individuals and organizations with the means to assess exposure to work stressors in an autonomous, user-friendly online platform, with the benefit of validated scientific tools, and to identify their own needs for organizational improvements. The HWC campaign also promotes healthy work by recommending work organization intervention programs, which also involve the participation of workers, workers' representatives, and managers (all levels of an organization), and is currently developing a "Healthy Work Intervention Toolkit." Outreach to working people, labor representatives and worker health and safety advocates, and employers is an essential component of the HWC. Partnerships and collaborations with organizations that value the idea of health work design, "sustainable work" or work stress

prevention, are ongoing. We will discuss the methods by which the HWC is evaluating the impact and utilization of its materials, as well as the barriers and successes experienced in this first year.

Construct validity of the NIOSH Quality of Work-Life Questionnaire: The Healthy Work Survey (HWS) Pr

BongKyoo Choi (University of California Irvine)

Background and Objectives. Unlike other developed countries (European countries, United Kingdom, and Canada), there are no national guidelines or regulations for the prevention of work stress in the United States (US). Also, there is no standard work organization risk assessment tool in the US. Although the NIOSH Quality of Work-Life (QWL) questionnaire has been used as part of the General Social Survey (GSS) since 2002, it is not recognized as a national standard tool, nor used widely for work stress prevention. As part of the on-going Healthy Work Campaign (https://healthywork.org/), the goal of this project ("Healthy Work Survey" Project) is to develop a short standard questionnaire for work organization risk assessment in the US, based on the NIOSH QWL questionnaire and also a literature review on new important work stressors. However, little is known about the psychometric validity of the NIOSH QWL questionnaire items and scales (1). This study as a first stage of the HWS project is to test the constructive validity of the QWL items and scales about psychosocial working conditions for selecting best items to be included in the Healthy Work Survey. Methods. The four-wave data of the GSS-QWL in 2002, 2006, 2010, and 2014 (N= 5,914 workers) were pooled for analysis of this study. The pooled QWL data included multi-item scales about the following important work stressors, largely based on several contemporary influential work stress models such as the Demand-Control model, Effort-Reward Imbalance model, and the Demand-Resource models: job control (7 items), psychological job demands (4 items; 3 items for workload and 1 item for conflict demands), resource adequacy (3 items), supervisor and coworker support (4 items), physical job demands (3 items), safety climate (4 items), job insecurity (4 items), pay/fairness (2 items), rewards (5 items; 1 item for job insecurity, 2 items for promotion, and 2 items for recognition/respect), discrimination (3 items), harassment (2 items), and work and family conflict (3 items). Exploratory factor analyses were conducted in the whole data to test the construct validity of the aforementioned multi-item QWL scales. In addition, we replicated the factor analysis in the following subgroups (age, sex, occupation, race/ethnicity, and time period) to test any differential construct validity of the QWL scales by the sociodemographic variables. Two time periods were created for testing: 2002-2006 vs. 2010-2014. Five occupational groups were tested: Management, Business, Science, and Arts Occupations; Service Occupations; Sales and Office Occupations; Natural Resources, Construction, and Maintenance Occupations; and Production, Transportation, and Material Moving Occupations. Results. Overall, factor analyses confirmed the underlying constructs of the following QWL scales: job control, supervisor and coworker support, physical job demands, safety climates, pay/fairness, discrimination, and harassment. However, one item of work and family conflict ("How hard is it to take time off during your work to take care of personal or family matters?"), one item of psychological job demands ("My job requires that I work very fast"), and one item of job insecurity ("How easy would it be for you to find a job with another employer with approximately the same income and fringe benefits as you have now?) were not loaded on the supposed underlying constructs in the factor analysis with the whole QWL data. In addition, the items of work and family conflict and psychological job demands scales also appeared to be problematic in the subgroup factor analyses, particularly, in the five occupational groups. Conclusion. This is the first study that tested and demonstrated the construct validity of more than 10 important work stressor scales in the NIOSH QWL questionnaire. This study supports that the NIOSH QWL questionnaire can be a good basis for creating a short standard questionnaire for work organization risk assessment for US workers. At the same time, this study indicates that some QWL items can and should be removed for developing the HWS due to their weak construct validity. Further psychometric analyses, differential item functioning analysis and predictive validity with health outcomes and productivity (sickness absence) in the QWL data, will be conducted for the final best items to be included in the HWS. The to-be-developed HWS will significantly increase the awareness of work organization hazards and facilitate societal and worksite-based interventions for healthy work organizations by identifying important work stressors and enabling a comparison to national statistics.

Development of an OnLine Toolkit for the Public on Organizational Interventions to Reduce Job Stress

Paul Landsbergis (SUNY Downstate)

Much research has been conducted on evaluating the impact of organizational interventions on changes in stressful job characteristics or employee health (e.g., LaMontagne et al., 2007). However, there have been few efforts to translate this literature into information with utility and relevance for the public and for workplace practitioners, including workers, labor unions and employers. In addition, organizational intervention evaluation research has important methodological limitations (Nielsen & Miraglia, 2017), and has rarely assessed the impact of important types of interventions, such as legislation, regulation, collective bargaining, cooperatives, and worker advocacy campaigns. Therefore, as part of our Healthy Work Campaign (https://healthywork.org/), we are providing guidance to the public and to workplace practitioners on a "toolkit" of strategies for reducing work stressors. We describe below the rationale for the toolkit and the procedures by which it is being developed. Producing a meta-analytic "summary estimate" of the impact of interventions to reduce specific job stressors, for example, interventions to increase job control, increase social support, or decrease harassment/bullying is not feasible. Organizational (social science) interventions are complex, and impacts likely vary depending upon the organizational context, and intervention processes and mechanisms. There is often difficulty finding appropriate control groups (Nielsen & Miraglia, 2017). Many published studies lack details of the process and context of the intervention, or an assessment of the fidelity of the intervention (Nielsen & Miraglia, 2017; Aust, 2018). Combining studies of differing fidelity, and different contexts and processes, contributes to reviewers' conclusions that organizational intervention studies have limited or "mixed" results (Nielsen & Miraglia, 2017; Kompier & Aust, 2016). For these methodological reasons, and to provide concrete guidance for practitioners, our toolkit will contain detailed case studies of job stressor reduction efforts, as well as links to: 1) The Healthy Workplace Participatory Program (developed by the NIOSH TWH Center, CPH-NEW): https://www.uml.edu/Research/CPH-NEW/Healthy-Work-Participatory-Program/, the most detailed example of the process of conducting worksite-based interventions. 2) Research studies, programs, policies, laws, regulations, guidelines, contracts, cooperatives and worker advocacy efforts designed to reduce job stressors. 3) Efforts by NIOSH TWH Centers of Excellence

to address job stressors. Eligibility criteria for our case studies are worksite-based research studies which: 1) Are designed to improve psychosocial work conditions, job characteristics or the organization of work, or to reduce stressors, and improve employee health. 2) Include measurement of psychosocial working conditions or worker health (physical or mental) 3) Provide evidence of positive effects (improvements to working conditions or worker health). 4) Have at least a quasi-experimental design with pre and post measures and a control group. 5) Provide details about the context, process and mechanisms of the intervention. In addition, we will develop case studies of representative examples of primarily non-worksite-based interventions—legislation, regulation, contract language, cooperatives and worker advocacy efforts. With a few exceptions (e.g., Dollard & Neser, 2013; Landsbergis et al., 2011; Landsbergis et al., 2017; Leigh et al., 2015: Weissbrodt & Giauque, 2017), such interventions have not been evaluated for their impact on job characteristics or on worker health. Thus, in addition to describing research on voluntary worksite-based interventions, our toolkit is designed to reach large numbers of people with practical guidance and information on legally binding interventions, such as legislation, regulation, and contract language. The following types of research studies are outside of the scope of our current toolkit: 1) Studies solely of productivity, organizational climate, or job satisfaction outcomes that do not include either measures of job characteristics or health outcomes 2) Individual-level stress management programs 3) Studies solely of occupational safety and health programs that do not address work organization or job stressors Our case studies will be written in lay language, and will have 3 main sections: 1) Demographics of workplace(s), occupations, industries, and the nature of the problem being addressed. 2) Context, content and process of the intervention—what changed? Is there evidence of the fidelity of the intervention? 3) Indicators of the intervention's success—what was improved, what was not. All case studies will be tagged (labeled) with key words, and a search/sort function will allow users to focus on case studies relevant to their work context. Key words will be: 1) Job stressor(s) addressed (individuals or groups with "poor" scores on specific job stressors from our Healthy Work Survey (https://healthywork.org/individuals/healthy-work-survey-individuals/) will be provided links to case studies of those specific stressors). 2) Health outcome(s) examined 3) Occupation(s) 4) Industries 5) Contextual factors: a) Regional: Country, or U.S. region/state b) Worksite-based: unionization, downsizing The healthywork.org website and "toolkit" are "works in progress" and more details will be added over the next 1-2 years. This presentation will update the audience on the status of the "toolkit" portions of the web site, lessons learned in its development, and will request feedback on improving the toolkit.

Discussants: David Le Grande (Communications Workers of America (retired)), Pouran Faghri (University of Connecticut)

Philadelphia Ballroom South

Associations of Work Design, Management Practices, and the Physical and Psychosocial Work Environment with Worker and Family Member Well-being

SYMPOSIUM

Chair: Margaret Kitt (NIOSH)

Problem statement: Through the Healthy Work Design and Well-being (HWD) program, the National Institute for Occupational Safety and Health (NIOSH) and its partners aim to protect and advance worker safety, health, and well-being by improving the design of work, management practices, and the physical and psychosocial work environment. HWD's holistic perspective focuses on how work affects overall health and well-being, including physical, psychological, social, and economic aspects for workers and their families, employers, and society overall.

The papers in this session include:

- An exploration of objective Ohio workers' compensation data on violence-related injuries for classroom personnel that provides insight to the how and why violence is occurring in schools (Streit)
- An assessment of the association between work flexibility and work-related well-being (Ray)
- An assessment of the association between parental workplace injury and emotional and behavioral problems of children (Asfaw)

Together, these papers aim to improve our understanding of how the design of work, management practices, and the physical and psychosocial work environment affect worker well-being (violence-Streit; work flexibility-Ray) and family member well-being (parental workplace injury effects on children-Asfaw). In addition, these papers point to opportunities for prevention to improve worker and family member well-being.

Analyses. Both descriptive and regression analyses were conducted. Data sources are described and preliminary results are presented in the abstracts below. Additional results will be presented during the conference.

Results. Violence-related injuries for classroom personnel. Injuries sustained by teachers and aides accounted for 46.4% of the total claims filed by employees in the urban public school districts examined from 2001 to 2012. Nearly 40% of these injuries were the result of violent events with perpetrators exhibiting clear intent to cause harm in 96.7% of cases. Teachers and aides were most often injured as the result of direct victimization by a student (40.9%). An additional 34.6% were indirectly injured as the result of intervening on violence occurring between two or more parties (students, coworkers, parents). Victims most frequently suffered contusions (36.3%), followed by sprains to the upper extremities (15.0%) and back (11.0%). Approximately 22% of their injuries were severe enough to result in lost time, with an average loss of 46.3 work days.

Work flexibility. Overall work flexibility changed minimally during 2002-2014, although some individual flexibility variables followed cyclical trends. Work arrangement was an important determinant of work flexibility. After controlling for demographics and overall health status, work flexibility was positively associated with well-being.

Parental workplace injury effects on children. Descriptive analyses showed that reported emotional and behavioral problems were proportionately more prevalent for all four target outcomes among children with an injured parent. These children were more likely than children of non-injured parents to: have many worries or seem worried; be often unhappy, depressed, or tearful; and have more emotional, concentration, behavioral, and relationship difficulties. Reports of good attention

span/seeing homework or chores through to the end were less common when parents were injured.

Multivariable analysis confirmed the descriptive findings. After controlling for covariates, the odds that children of injured parents were reported as having many worries or seemed worried were 51% greater than for children of non-injured parents. The odds that children of an injured parent were reported as unhappy, depressed or tearful increased by about the same amount (49%), and a greater increase (70%) was evident for reports that the child of an injured parent had emotional, concentration, behavioral, and relationship difficulties. The odds of reports of good attention span and seeing homework or chores through to the end were reduced by 40% among children of injured parents.

Implications and Conclusion. The studies described make significant contributions to the focus areas of HWD:

The violence-related injuries for classroom personnel study adds to the school violence literature by characterizing the incident, severity, and nature of violence-related injuries for Ohio's K-12 urban public school teachers and teacher aides. The findings can help guide the design, implementation, and evaluation of school-based interventions that seek to prevent violence directed at teachers. The study also highlights the utility of workers' compensation claims as a rich source of objective data for investigations of workplace injuries.

The work flexibility study demonstrated the importance of work flexibility for well-being and provided valuable information about flexibility by work arrangement type. As far as the authors know, this is the first study on this topic in the US context. The findings can be used by various stakeholders, including policy makers.

The parental workplace injury effects on children study opens a new research dimension in occupational safety and health by providing empirical evidence of an association between parental workplace injury and the psychological well-being of children. The authors will suggest further research to confirm and build upon these findings, investigate likely mechanisms of effect, and establish downstream socioeconomic impacts of the outcomes seen here.

Violent victimization of teachers and aides in K-12 urban public schools

Jessica Streit (NIOSH)

BACKGROUND In 2016, the American Psychological Association (APA) declared violence against K-12 teachers a "silent national crisis". Approximately 80% of U.S. teachers who responded to a national online self-report survey indicated they had experienced one or more incidents of victimization in the last year (McMahon et al., 2014). This is staggeringly higher than the annual victimization rates reported for U.S. students, which hover around 3% (National Center for Education Statistics, 2017). Teachers described victimization by violent offenses ranging in severity from damage/theft of personal property (54%) to verbal harassment and intimidation (73%) to physical attacks by colleagues, parents, and students (44%); and teachers in urban schools had significantly higher likelihood of victimization than teachers in either rural or suburban schools (McMahon et al.). Despite its potential to adversely impact multiple levels within the education ecosystem (e.g., worker, student, classroom, school, and district), teacher-directed violence remains an understudied public health problem. Among the limited studies that have been published, most (e.g., McMahon et al.; Robers, Zhang, Truman, & Snyder, 2011) are based on self-report survey data. Studies utilizing objective data sources, which are more robust against the selection, response, and measurement biases that can contaminate survey results—especially for sensitive topics like workplace violence—are lacking in the teacher victimization literature. In addition, there remains a pressing need for studies that provide insight on how and why violence against teachers is occurring in U.S. schools. A recent study of Minnesota school personnel demonstrated the utility of workers' compensation claims as a rich source of objective school violence data (Schofield, Ryan, & Stroinski, 2017). The scope of that study, however, was limited to student-perpetrated injuries. The current study builds upon Schofield et al. (2017) and uses Ohio workers' compensation data to more broadly investigate the extent, severity, nature, and determinants of violence-related injuries sustained by K-12 urban public school teachers and teacher aides. In this study, we defined physical violence as "the use of physical force with the potential for causing death, disability, injury, or harm." METHOD Data The Ohio Bureau of Workers' Compensation (OHBWC) provided access to data for workers' compensation claims for injuries occurring between 2001 and 2012. Each claim includes claimant demographics, injury type, injury severity, a narrative description of the event(s) leading to the injury, and the costs incurred (as both money and time). This research effort focuses on claims filed by or on behalf of teachers and classroom aides from nine major urban public school districts in Ohio. Procedures Secondary data analysis was used to explore workers' compensation claims data. A team of four independent raters manually coded open-field occupation (teacher, aide, other) and accident descriptions (violence-related or not) for all claims. For each violence-related case, the raters also used the claim's accident description to systematically classify the perpetrator-victim relationship and further categorize the circumstances that resulted in a workplace injury (e.g., source, injuring party's intent to cause harm, nature of interactions). PRELIMINARY RESULTS Injuries sustained by teachers and aides accounted for 46.4% (n = 9,064) of the total claims (n = 19,508) filed by employees in the urban public school districts from 2001 to 2012. Nearly 40% (n = 3,426) of injuries to teachers and aides were the result of violent events. Perpetrators exhibited clear intent to cause harm in 96.7% of cases. Teachers and aides were most often injured as the result of direct victimization by a student who was exhibiting aggressive or escalated behavior (40.9%). However, an additional 34.6% were indirectly injured as the result of intervening on violence occurring between two or more parties (students, coworkers, parents). Victimized teachers and aides most frequently suffered contusions (36.3%), followed by sprains to the upper extremities (15.0%) and back (11.0%). Approximately 22% of their reported violence-related injuries were severe enough to result in lost time, with an average loss of 46.3 work days. Additional descriptive analyses and between-group comparisons are currently underway. These results will be available for presentation at the conference and will provide more detail about the extent, severity, and nature of violent victimization of teachers and aides in Ohio's urban public schools. CONCLUSIONS This study adds to the school violence literature by characterizing the incident, severity, and nature of violence-related injuries for Ohio's K-12 urban public school teachers and teacher aides. The findings can help guide the design, implementation, and evaluation of school-based interventions that seek to prevent violence directed at teachers. The study also highlights the utility of workers' compensation claims as a rich source of objective data for investigations of workplace injuries.

Work flexibility and work-related well-being across work arrangements

Tapas Ray (NIOSH)

Objective We assessed the prevalence of work flexibility by work arrangement type among U.S. workers during 2002-2014. We further investigated whether work flexibility was associated with work-related well-being, expressed as job satisfaction, job stress, and health-related quality of life (HRQL). Analyses We used data from the Quality of Work life (QWL) module of the General Social Survey (GSS). Funded by the National Science Foundation, GSS is a biannual nationally representative cross-sectional survey of U.S. households conducted through face-to-face personal interviews by the National Opinion Research Center. GSS utilizes a multi-stage probability design yielding a representative sample of the civilian, non-institutionalized, English-speaking, U.S. adult population (Grosch et al., 2006). In 2002, 2006, 2010, and 2014, GSS was supplemented with a QWL module (www.cdc.gov/niosh/topics/stress/qwlquest.html). Developed by the National Institute for Occupational Safety and Health (NIOSH) with contributions by its partners, QWL assessed an array of psychosocial working conditions and quality of work life topics among GSS respondents who were either employed or looking for work. We analyzed pooled cross sectional data from 2002, 2006, 2010, and 2014 (weighted sample of 5911 observations). To assess work arrangements, we distributed the study sample into five mutually exclusive groups based on responses to the question, How would you describe your employment arrangement in your main job? Response categories were: (1) independent contractor/independent consultant/freelance worker, (2) on call worker/works only when called, (3) paid by temporary agency, (4) working for a contractor who provides workers and services to others under contract, and (5) regular permanent employee (standard). To assess work flexibility, we used the following variables: 1) Work schedule; 2) Telework; 3) Ability to take time off work for non-work matters; 4) Work demands; 5) Productivity-conducive work conditions; 6) Opportunity to develop special abilities; 7) Availability of help and equipment at work; and 8) Freedom to decide. We assessed job satisfaction using responses to the question, All in all, how satisfied would you say you are with your job? (yes = very satisfied, somewhat satisfied; no = not too satisfied, not at all satisfied.) We assessed job stress through the survey question, How stressful is your work? We collapsed responses from a 5-point Likert scale into the following two categories: (1) those who reported being stressed at work (stressed; response options 5 = always, and 4 = often), and (2) those who reported not being stressed at work (non-stressed; response options 3 = sometimes, 2 = rarely, and 1 = never). We used these two categories as a binary response variable, with 1 = stressed and 0 = non-stressed. This is in line and allows for comparison with earlier studies that used QWL data (see Grosch et al., 2006). To assess HRQL, we used four items from the Centers for Disease Control and Prevention (CDC) HRQOL-4 index. Developed in the 1980 s, the HRQOL-4 has been used to derive metrics for government-wide initiatives such as Healthy People 2010 and 2020, and assess the health status of the U.S. population both at the national and state levels (ODPHP DHHS, 2014). Variables from the HRQOL-4 have been used in national level surveys such as CDC's Behavioral Risk Factor Surveillance System and the National Health and Nutrition Examination Survey. The four core questions from the HRQOL-4 were: (1) Would you say that in general your health is excellent, very good, good, fair, or poor? (Likert scale ranging from 1 = poor to 5 = excellent); (2) Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?; (3) Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?; and, (4) During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation? We conducted descriptive and regression analyses and assessed the effect of work arrangement on work flexibility and the association between work flexibility and work related well-being. Preliminary results Overall work flexibility changed minimally during 2002-2014, although some individual flexibility variables followed cyclical trends. Work arrangement was an important determinant of work flexibility. After controlling for demographics and overall health status, work flexibility was positively associated with well-being. Additional results will be presented at the conference. Practical Implications The study demonstrated the importance of work flexibility for well-being and provided valuable information about flexibility by work arrangement type. As far as we know, this is the first study on this topic in the US context. Our findings are relevant for various stakeholders, including policy makers.

Association of Parental Workplace Injury with Emotional and Behavioral Problems of Children

Abay Asfaw (NIOSH)

Problem statement Most studies on the burden of occupational injuries and illnesses focus on worker and workplace-specific economic impacts such as cost of healthcare, loss of productivity, workers' compensation costs, and presenteeism. This study asks whether occupational injuries can reach beyond the worker and the workplace to affect family members of injured workers. We investigated whether children of parents with workplace injury were more likely to manifest emotional and behavioral problems than children of non-injured parents. To our knowledge, these associations have not been previously described. Methods We used data from the National Health Interview Survey (NHIS), a household interview survey. Each year of the survey, a sample child is randomly selected from each sampled household and an extensive array of detailed health, school, behavioral and other information is collected via a proxy/key informant (usually a parent). The questions we used to assess emotional or behavioral health were from the short version of the strengths and difficulties questionnaire and were only asked of respondents of sample children aged 4-17. Injury episode data were collected from the family respondent during the family core interview and establish whether one of the parents experienced an occupational injury. We linked the sample child file with the injury episode file. Five years of data (2012-2016) were combined, yielding 433 children with an injured parent, and a comparison group of 41,574 children. Our independent variable was parental workplace injury, defined as all medically-consulted injury and poisoning episodes that occurred during the past 3 months while working at a paid job. Four target indicators were investigated: 1) child had many worries or often seemed worried; 2) child is often unhappy, depressed, or tearful; 3) a combination indicator reflecting emotional, concentration, behavioral, and relationship difficulties; and 4) child has good attention span/sees homework or chores through to end. The recall period was six months prior to the survey except for the combination measure (no specific recall period). For each question parents answered as 'not true,' 'somewhat true,' or 'certainly true'. We combined certainly true and somewhat true to define cases of emotional or behavioral problems. To examine our results robustness we evaluated responses to two questions on child emotional and behavioral outcomes that we believed would be less influenced by parent injury (control outcomes):

1) child gets along with adults better than children/youth and 2) child was well behaved and does what adults request (last six months for both question). Lastly, child age, sex, health insurance coverage, and doctor diagnosed attention deficit hyperactivity disorder (ADHD) were included as covariates along with parent marital and poverty status and education. Results Descriptive analyses Children with injured parents were more likely to be reported a) to have many worries or to seem worried than were children of non-injured parents (33.1% vs. 25.3%; $\chi2=12.56$, $p<.01$); b) to be often unhappy, depressed or tearful (16.5% vs. 11.7%; $\chi2=8.85$, $p<.05$), and c) to have more emotional, concentration, behavioral, and relationship difficulties (30.2% vs. 20.9%; $\chi2=20.84$, $p<.01$). Reports of good attention span/seeing homework or chores through to the end were less common when parents were injured (82.1% vs. 88.8%; $\chi2=17.18$, $p<.01$). In contrast, reports that children got along better with adults than children/youth in the last six months were roughly equivalent between the injured and non-injured parent groups. Similarly, reports that children were well behaved and did what adults request were nearly equivalent. Multivariable analyses After controlling for covariates, the odds that children of injured parents were reported as having many worries or seemed worried was about 51% greater than for children of non-injured parents ($p<.01$). The odds that children of an injured parent were reported as unhappy, depressed or tearful increased by 49% ($p<.01$), and an increase by 70% ($p<.05$) was evident for reports that the child of an injured parent had emotional, concentration, behavioral, and relationship difficulties. The odds of reports of good attention span and seeing homework or chores through to the end were reduced by 40% (<.05) among children of injured parents. Odds of reporting that children get along with adults better than children/youth or that they are well behaved and do what adults request were not significantly different between the injured to non-parent groups. Implications This study opens a new research dimension by providing empirical evidence of an association between parental workplace injury and the psychological well-being of children. These findings are consistent with an emergent body of research showing that workplace psychological demands can crossover to adversely influence health-related outcomes in the families of workers, including their children (Bakker, Westman, and van Emmerik, 2009; Ohu et al., 2018; Stuart and Barling, 1996; Westman, 2015). Our injury-related effects would benefit from confirmatory study, and underlying mechanisms need to be investigated. Further, research is needed to better understand the magnitude of parental injury effects on children and their socioeconomic impact.

Discussant: John Piacentino (NIOSH)

Independence Ballroom A

CEP

Workplace Telepressure, Work-Family Conflict, and Associated Outcomes

PAPER SESSION

Did you get that Thing I Sent You?: Mediating effects of Work-family Conflict and Stress on the Telepressure and Burnout relationship

Kyle Page (South Dakota State University)

As modern workplaces continue to incorporate telecommuting and information and communications technologies (ICTs), it is possible for employees to work virtually anywhere (Kossek & Lautsch, 2012; Major & Germano, 2006). This flexibility may help employees switch between work and nonwork roles (Allen & Shockley, 2009) but it may also make it increasingly difficult for workers to maintain a separation between work and family boundaries (Kossek, Lautsch, & Eaton, 2006). For some, blurring of work and home lines may create problems when trying to mentally detach from work and therefore make it harder to recover from job stress (Major & Germano, 2006). This may be because recovery processes that occur during non-work time are important for reducing the negative effects of stressful work situations (Eden, 2001; Geurts & Sonnentag, 2006) and the lack of separation may inhibit the perception of truly being away from work. Boundary theory (Ashforth, Kreiner, & Fugate, 2000) states that some employees benefit from separating work and private life with boundaries. As it has been found that work and family conflict are bidirectional in nature and influence one another, (Frone, Russell, & Cooper, 1992) understanding which variables may increase the level of spillover between work and family.

One such construct that may act as a boundary spanning mechanism is workplace telepressure (WPT). WPT is a maladaptative behavior that can result from employee's need to be continuously connected to the workplace through ICTs to meet perceived needs and demands of supervisors, colleagues, and clients (Barber & Santuzzi, 2014). As technology-mediated workplace interactions increase and as employees gain more control and flexibility over when and where work is handled, employees may become less able to disconnect from work (Mazmanian, Orlikowski, & Yates, 2013). This is supported by the finding that 44% of Americans report checking their email during vacation and 54% check email when home sick (American Psychological Association, 2013). WPT has been found to negatively relate to sleep quality and psychological detachment, two types of employee recovery processes (Thommes, 2015) which are vital to employee well-being.

Increased integration of work and family roles occurs through activities such as working from home, making job contacts at home, and work-family multitasking, which are demands that are likely related to WPT. This increased integration of work and family demands has been found to be positively related to perceived stress and work-interfering-with-family (WIF; Voydanoff, 2005). We propose that WPT will be related to an individual's level of perceived stress, WIF, family-interfering-with-work (FIW), and burnout.

In Study 1, a sample of 217 working students from a small private Midwestern and a small Northeastern University were used to test the relationship between WPT, WIF, FIW, and stress. A significant positive correlation was found between WPT and stress. Using hierarchical linear regression, after controlling for individual preference for segmentation, supervisor preference of segmentation, and family-supportive supervisor behaviors, WPT was found to have a significant positive relationship with WIF and FIW. Using model 4 of the PROCESS MACRO (Hayes, 2017), stress was found to mediate the relationship between WPT and FIW but not WIF.

In Study 2, a sample of 269 working individuals from Amazon Mechanical Turk were used to test the relationship between WPT, WIF, FIW, stress, and burnout. A significant positive correlation was found between WPT and stress as well as burnout. After controlling for preference for segmentation, supervisor preference of segmentation, family-supportive supervisor behaviors, and work-life balance culture, WPT was found to have a significant positive relationship with

WIF and FIW. Using model 6 of the PROCESS MACRO (Hayes, 2017), stress and WIF and stress and FIW displayed sequential mediation of the stress and burnout relationship. Specifically, whether stress or WIF was entered first, sequential mediation was supported; however, WIF alone did not mediate the relationship. Additionally, stress or FIW alone did not mediate the relationship between WPT and burnout, but once both variables were added, sequential mediation was found whether stress or FIW was entered first.

In conclusion, following boundary theory, the relationship between WPT, stress, WIF, FIW, and burnout was explored. This is the only study that has specifically addressed the relationship between WPT and WIF/FIW. In general, WPT was found to relate to greater levels of stress, FIW, and burnout while mixed support was found for WIF. Additionally, stress mediated the relationship between WPT and FIW. When testing sequential mediation, stress and WIF, as well as stress and FIW, were found to have indirect effects on the WPT and burnout relationship. Thus, our findings highlight the consequences of WPT and support future research and practice that may create interventions for reducing WPT. Future research must be used to dissect the relationships found and address whether stress or WIF/FIW occur first.

Is after-work message-checking really coping? Organizational support perceptions moderate relations between workplace FoMO and employee health and motivation

Christopher Budnick (Southern Connecticut State University)

Problem Statement. Connecting to work via technology has spurred considerable "technostress" research on health and motivation (e.g., Day et al., 2010; Tarafdar et al., 2017). Additionally, similar topics and constructs have been introduced in popular media outlets. For example, the Harvard Business Review discusses how to avoid and cope with "fear of missing out" (FoMO) at work (e.g., Brubaker & Mobley, 2017; Lieberman, 2016). However, empirical work on this construct lags behind and studies on FoMO remain limited to college student samples outside of work (e.g., Pryzbylski et al., 2013). Alternatively, workplace FoMO is a recently developed and validated construct distinct from general FoMO that describes the persistent apprehension one is missing work-related opportunities relative to others (Budnick et al., 2018).

General FoMO associates with many detrimental nonwork outcomes (e.g., Pryzbylski et al., 2013; Wolniewicz et al., 2018), but no study has examined work-specific FoMO's influence on employee health and motivation. Therefore, relying on occupational health theories (Demerouti et al., 2001; Deci & Ryan, 1985, 2000; Hobfoll, 2002), we tested whether workplace FoMO predicts employees' health (i.e., burnout and well-being) and motivation (i.e., message checking and work engagement).

As organizational support can offset detrimental effects of work stress (Allen, 2001), we also considered that organizational support might alter relations between workplace FoMO and health and motivation outcomes. For high workplace FoMO employees, checking work messages after work might be a coping method. However, after-hours work message checking interrupts recovery required for optimal health and well-being (Demerouti et al., 2004; Demerouti et al., 2009; Derks & Bakker, 2014); repeatedly disrupting recovery facilitates burnout (Sonnentag & Fritz, 2015). However, when organizations encourage effective work-life balance behaviors, employees might reduce their after-hours work message checking allowing more recovery time, higher well-being, and lower burnout levels (see Figure 1 for hypotheses).

Procedures. We recruited participants (N = 300; 50% Male; 62% White; Mage = 57.58, SDage = 10.89) through Qualtrics' research panel recruitment service. Qualified individuals were 18 years or older, employed full-time (Mweekly work hours = 44.74, SDweekly work hours = 11.04; Mjob tenure = 6.98 years, SDjob tenure = 6.85 years), and used technology (e.g., smartphone, laptop, computers, pagers) with internet connectivity for work. Participants responded to a survey assessing workplace FoMO (Budnick et al., 2018), telepressure (Barber & Santuzzi, 2015), message checking behavior (Barber & Santuzzi, 2015), work burnout (Shirom & Melamed, 2006), personality (Donnellan et al., 2006), need to belong (Leary et al., 2013), family supportive organizational perceptions (FSOP; Allen, 2001), work engagement (Schaufeli et al., 2006), work well-being (Zheng et al., 2015) and demographics. Bivariate correlations, means, standard deviations, and reliability estimates are in Table 1.

Results. Direct Effects. Simple linear regressions confirmed expectations that workplace FoMO would significantly predict higher work burnout ($b = .46$, $t[304] = 7.08$, $p < .001$, CI95%[.33, .59]) and more message checking behaviors ($b = .51$; $t[304] = 6.90$, $p < .001$, CI95%[.36, .65]), but contrary to expectations workplace FoMO did not predict work-well-being ($b = .01$, $t[304] = 0.15$, $p = .88$, CI95%[-.14, .16]) or general work engagement ($b = .08$, $t[304] = 1.26$, $p = .21$, CI95%[-.05, .21]).

Moderation Tests. We expected high FSOP levels to weaken workplace FoMO, health and motivation relationships. However, hierarchical linear regression interaction terms failed to contribute unique variance for burnout ($\Delta F[1, 302] = 1.95$, $p = .16$; see Table 2) or work engagement ($b = .01$, $\Delta F[1, 302] = 3.63$, $p = .06$). Yet FSOP significantly moderated the workplace FoMO and work well-being relationship ($b = -.27$, $p = .02$; see Table 2). No relationship was observed at mean ($b = .04$, $p = .51$) or high FSOP levels ($b = -.12$, $p = .32$; see Figure 2), however at low FSOP levels workplace FoMO predicted increased work well-being ($b = .21$, $t[302] = 2.00$, $p = .05$, CI95%[.002, .410]). At low FSOP levels, FoMO also predicted more message checking behaviors ($b = .50$, $p < .001$) relative to mean ($b = .36$, $p < .001$) or high FSOP levels ($b = .22$, $p = .05$; see Table 2 and Figure 3).

Implications and Conclusions. Emerging empiricism links general FoMO to numerous negative individual outcomes (e.g., binge drinking; Riordan et al., 2015), and general FoMO is a frequent popular and business press discussion topic. Yet organizational researchers have not empirically examined these claims' veracity. Therefore, this research confirmed that workplace FoMO influences employees' health (i.e., work burnout) and motivation (i.e., message checking behaviors). Particularly interestingly is that low FSOP led high FoMO employees to check messages more during non-work hours and to report higher work well-being. These findings raise an interesting possibility; checking work messages during non-work hours might represent an effective short-term coping strategy for some individuals. As workplace FoMO is a new construct in the organizational literature, these findings warrant further research.

Daily relationships between post-work email characteristics and recovery-relevant outcomes

Tanya Mitropoulos (Virginia Tech University)

With the ubiquity of the internet, communication is possible almost anywhere, anytime (Chen & Karahanna, 2014; Perlow, 2012). Consequently, work-related emailing has become common during post-work time, with more than three-quarters of US workers reportedly

checking email after-hours (Kelleher, 2013). This increased use of work email during post-work time is associated with myriad negative outcomes (see Chen & Karahanna, 2018 for a review), and evidence suggests that these relationships arise in part from post-work emailing habits hindering off-job recovery (i.e., the replenishment of cognitive and energetic resources during post-work time; Zijlstra & Sonnentag, 2006). Park et al. (2011) have shown that increased use of work email during post-work time is associated with decreases in employee attainment of recovery experiences that are key to attainment of sufficient post-work recovery (Sonnentag & Fritz, 2007). Our study expands upon this work to explicitly connect the underlying properties of after-hours work emails with four key off-job recovery experiences.

More specifically, we focus on how post-work e-mailing influences affective rumination (negative, intrusive dwelling on work), problem-solving pondering (unemotional, constructive thinking about work), psychological detachment (not thinking about work), and control over leisure time (the ability to decide how to spend non-work time) (Hamesch, Cropley, & Lang, 2014; Querstret & Cropley, 2012; Sonnentag & Fritz, 2007). We explore how the frequency and duration of after-hours email usage relates to employees' appraisals of these recovery experiences. Drawing upon the work of Butts et al. (2015), we also explore whether off-job recovery experiences may vary as a function of the tone (positive, negative, neutral) of post-work emails received. We expected that increased after-hours work email use (frequency, duration) and decreased positivity in perceived email tone would be predictive of increased affective rumination (Hypothesis 1), increased problem-solving pondering (Hypothesis 2), decreased off-job psychological detachment (Hypothesis 3), and reduced perceived control over leisure time (Hypothesis 4) during the post-work period.

To investigate these hypotheses, participants recruited via a variety of recruitment modalities completed a morning and a bedtime survey for five consecutive work days (Monday-Friday). Participants were required to be working full-time and to at least sometimes read and respond to work-related emails during off-job time. Fifty-three participants (N=53) provided 192 daily observations (n=192) across the study period. These participants received an average of 5.22 emails each evening after work and spent an average of 13.49 minutes on after-hours emails each night. Of these emails, 4.30% were perceived to be negative in tone, 68.30% neutral in tone, and 27.38% positive in tone.

Multilevel path analyses were conducted in Mplus to test our hypotheses, with the reported frequency, duration, and tone of email usage during a given night entered as predictors of affective rumination, problem-solving pondering, psychological detachment, and control during leisure time. The overall tone of the post-work emails was negatively associated with post-work affective rumination ($\beta = -.26$, $SE = .12$, $z = -2.20$, $p < .05$), such that a negative tone in emails was associated with more ruminating, supporting Hypothesis 1. The time spent on after-hours emailing was positively associated with problem-solving pondering ($\beta = .02$, $SE = .01$, $z = 3.31$, $p < .01$), as expected in Hypothesis 2. However, receiving more emails during a given post-work period was predictive of lower problem-solving pondering ($\beta = -.01$, $SE = .00$, $z = -3.66$, $p < .01$), in contrast to Hypothesis 2. The amount of time an employee spent on emails was negatively associated with psychological detachment ($\beta = -.04$, $SE = .01$, $z = -5.98$), supporting Hypothesis 3. A greater number of emails received at night and more time spent on these e-mails were both negatively associated with perceptions of control over leisure time ($\beta = -.02$, $SE = .01$, $z = -6.53$, $p < .01$ and $\beta = -.01$, $SE = .00$, $z = -2.38$, $p < .01$, respectively), supporting Hypothesis 4.

Looking at after-hours work email use as a whole, increased use of email generally appears detrimental to off-job experiences surrounding recovery. However, our results indicate that the underlying properties of these emails may make their impact on recovery more complex. Fewer emails but more time spent on these e-mails was associated with increased problem-solving pondering, which may indicate that a more complicated selection of emails coaxes an employee to ponder them more. Furthermore, despite spending an average of only 13.49 minutes per night on post-work e-mailing, we attained evidence that after-hours emailing duration was predictive of three experiences relevant to post-work recovery—problem-solving pondering, psychological detachment, and control. This suggests that even a small amount of post-work time spent on work emails can impede recovery and influence rumination. Similarly, despite that just 4.3% of the received emails were perceived as being negative in tone, overall email tone was related to affective rumination, suggesting that spending post-work time on even a small percentage of negative emails may increase intrusive and negative thoughts about work.

When work never ends: Examining the relationship between ICT Demands, Workplace Telepressure, Work-Family Conflict and Job Satisfaction

Lauryn Girgenti (Griffith University)

The prolific growth of Information Communication Technologies (ICTs) has meant substantial changes to the way individuals interact within the workplace, and how they perform their work (Dabbish & Kraut, 2006; Ragu-Nathan, Tarafdar, & Ragu-Nathan, 2008). Contemporary research suggests that ICT is both a resource for managing demands and is itself a new source of demands (Day, Scott & Kelloway, 2010). The enhanced functionality and portability of ICT has generated more flexible work design, allowing employees to manage their workload at times best suited to their needs, for instance, from globally distributed locations (Glucksman & Nolan, 2007; Townsend, DeMarie, & Hendrickson, 1998). Nowadays more employees are completing their work in part or full using ICT (Cascio, 2000). Both virtual and onsite employees' are reporting a preference for ICT over face-to-face communication, to facilitate their workplace interactions (Barley, Meyerson, & Grodal, 2011; Finn, 2006; Markus, 1994). This has led to a growing focus on the 'dark side' of technology, and how it impacts employee outcomes by allowing constant connection to work, anywhere at any time.

Workplace telepressure is an emerging concept within the literature, describing an individual's preoccupation with and their urge to respond promptly to work-related ICT messages (Barber & Santuzzi, 2015, 2017). The experience of workplace telepressure has been linked to detrimental impacts on employee outcomes. The present study is the first to the researcher's knowledge that examines a mediated model of ICT demands on outcomes of work- family conflict (WFC), family-work conflict (FWC) and job satisfaction, through workplace telepressure. These outcomes are well established as being indicators of employee performance and well-being. However, to date there has been no empirical investigation of WFC, FWC and job satisfaction in relation to workplace telepressure.

It was hypothesised that overall ICT demands will be significantly positively associated with workplace telepressure, WFC and FWC. Similarly, that workplace telepressure will be significantly positively associated with WFC and FWC. It was further hypothesised that ICT demands and workplace telepressure to be significantly negatively

associated with job satisfaction. Additionally, the study also tested a mediated model of ICT demands on outcomes of work-family conflict and job satisfaction through workplace telepressure. It was hypothesized that workplace telepressure would mediate the relationship between ICT demands and each of the outcomes of WFC, FWC and job satisfaction.

Employees from an Australian multinational company within the mining and resources sector (N = 653) self-selected to participate in the online survey. The results of the study revealed ICT demands has both a direct and indirect effect on both directionality of work-family conflict. The indirect effect of ICT demands elicits experiences of workplace telepressure and propagates greater work-family conflict. Only a direct effect between ICT demands and job satisfaction was reported. Workplace telepressure was not observed to have a mediating effect or to be a significant predictor of workplace telepressure.

Initially, ICT was viewed as a mechanism whereby organisations could gain a competitive advantage (Poter & Millar, 1985; Powell & Dent-Micallef, 1997) through enhanced performance (Baily, 2004; Stiroh & Botsch, 2007) and productivity (Gajendran & Harrison, 2007; Hill et al., 1998; Rice & Blair, 1984). This study has shown that such benefits may be inhibited as ICT simultaneous increases employees demands and depletes their resources - physical, emotional and psychological. The general pattern of findings in the current study can be used to inform the design of targeted interventions, for example providing training on managing ICT use to reduce demands and prevent workplace telepressure.

Results from this research have implications for organisational policy development. The findings support ICT demands are not isolated the workplace or standard work hours. The omnipresence of ICT combined with its increased functionality and portability allows individuals to be exposed to workplace ICT demands anywhere anytime. Such norms are learned through organisational culture including through explicit policies and procedures (Cialdini, Bator, & Guadagna, 1999). Therefore, organisations can play an active role in preventing and limiting the negative impacts of ICT demands by implementing policies and procedures which reinforce norms around ICT use and behaviours.

The findings should also motivate unions to intervene, advocating for organisations to adopt ICT policies and provide training to support employees in managing their ICT demands. Partnerships between organisations and unions to enforce boundaries around ICT use has been implemented successfully within Europe by German carmaker Volkswagen (Koch, 2014) and rival BMW (Goldman Sachs, 2013). There is also growing action by Government legislators, for example "right to disconnect" laws within France and Germany, as well as similar pending bills in New York City Haridy, 2018; Gomes, 2017; Morris, 2017; Wolfe, 2018).

In summary this research provides further evidence that ICT is transforming the work experience. It is implausible that technology will be absent from workplaces. Continued adoption and implementation should be made with consideration that ICT is neither good, nor bad, nor neutral.

Philadelphia Ballroom Nort

The U.S. Workplace Bullying Movement: Assessing Two Decades of Progress

SYMPOSIUM

Chair: David Yamada (Suffolk University College of Law)

The symposium gauges American progress regarding workplace bullying during the last 20 years across four domains—the academe, mental health counseling, the law and employers.

Bullying in the Academe. The symposium begins with an inward glance at the work world of the majority of WSH conference attendees—the academe. The presenter, as a life-long member of both faculty and administration in a university, cites research that characterizes the particular work environment as a hotbed of conflict, "cultures of cruelty," and "mean and nasty" workplaces. Because faculty fulfill a central role in academic institutions, the presenter focuses on research exploring faculty as both targets and perpetrators of bullying. Rank and organizational status do not clearly predict the likelihood of being a recipient of abusive behavior. Rather, research reveals complexity. It seems that there are also multiple sources of bullying, though there is a paucity of research on sources. More important to understanding faculty bullying is the confluence of factors—academic freedom, tenure, shared governance, and professorial rank—that distinguish the industry from others. The presenter explores ways to incorporate the multi-faceted contextualization into the direction for bullying research and interventions in the academe.

Implications for Mental Health Professionals Treating Bullied Clients. In the U.S. the prevalence of workplace bullying, 19% of adult Americans, coupled with coworker-witnesses translates to approximately 60.4 million workers. It is not known what proportion of those workers seek counseling help from mental health professionals. A safe assumption is that with greater recognition of the phenomenon, demand for counseling will increase. Research shows that as the result of mistreatment targets develop physical and psychological symptoms, including gastrointestinal problems, sleep disturbances, exacerbation of heart problems, depression, anxiety, and symptoms of post-traumatic stress. The presenter, a licensed clinical psychologist, researcher and author, believes that social workers, psychologists and psychiatrists who may be asked to treat bullied individuals are ill prepared. For those potentially traumatized clients, an understanding of group and organizational dynamics necessarily must be combined with assessment of familial and social support in addition to a focus on the idiosyncratic response of the client to workplace abuse as stressor. Victim-blaming and attributional errors are common. To avoid risk of re-traumatization by treating professionals, the presenter explains the principles of trauma-informed counseling.

Legal Responses to Workplace Bullying. Sweden enacted the first international legal ordinance against workplace bullying or mobbing in 1994. That predated America's awareness of the phenomenon that began in the late 1990's. The presenter, a law professor and the authoritative expert on American workplace bullying legislation, describes a mixed record. Nondiscrimination laws apply to bullying situations infrequently. Attempts by advocacy groups and unions to supplement employee legal protections in state legislatures, in 30 states since 2003, have yet to result in enactment of comprehensive laws to prevent and

correct workplace bullying. However, the definition of abusive conduct codified in the Healthy Workplace Bill introduced in all of the states, has been appropriated for limited legislation which mandates training for both private and public sector supervisors (California, 2014) and government employees and managers (Utah, 2015). In addition, several county governments across the country have adopted anti-bullying codes of conduct. The presenter notes that the spirit, and sometimes the exact provisions, of the HWB have been adopted in employers' policies and collective bargaining agreements with unions. The presenter will discuss the prospects of future public policy making and employee relations given the opposition to fuller protections against abusive conduct.

Employer Responses to Workplace Bullying. Twenty years ago American employers' approaches to bullying were characterized as indifference, denial of its existence or explicit resistance to pleas for relief by bullied individuals. The legality of the phenomenon precluded legal liability for employers and they took no action. The term workplace bullying has become familiar. Corporate counsel took note. They began to encourage their executive and government administrator-clients to take proactive steps to prevent and correct bullying, even in the absence of laws. That led to the adoption of policies by pioneering organizations. The major accelerating factor was the MeToo movement against sexual harassment. It made public the plight of victims silenced by powerful abusers, supported within their organizations by enabling executives and boards of directors. Three positive consequences materialized. Internal policies prohibiting bullying/abusive conduct are being adopted voluntarily by organizations with increasing frequency. Workers in those organizations will have grounds to demand resolution of toxic work environment issues when none existed before. Second, approval and reinforcement for high-profile abusers is evaporating thanks to MeToo. No organization wants a public relations nightmare akin to the Weinstein fiasco. Proof of the new intolerance of abuse and desire to act, the presenter describes calls for interventions for abusers that promote accountability rather than rationalizations. Finally, courtroom successes for aggrieved plaintiffs and for employers who dared to terminate their bullies are discussed.

Studying bullying in our own academic backyards: Lessons gleaned for workplace bullying research

Loraleigh Keashly (Wayne State University)

There is a pervasive belief that academe generally and universities, in particular, are hotbeds of conflict and, by extension, bullying (Barsky, 2002; Berryman-Fink, 1998; Twale, 2017). Academe has been characterized as a "culture of cruelty" (Farley & Sprigg, 2014) and academics, in particular, have been labelled as "mean and nasty" (Hiatt, 2008). The implication is that bullying is inevitable (and by implication unmanageable) given the nature (structure, processes, values, norms) of academe, its occupants, and the (neo-liberal) university administration and (corporate) management (e.g., Canaan & Shumar, 2008; Chandler, Berry & Clark, 2002; Twale & DeLuca, 2008; Young, 2017; Zabrodska, Linnell, Laws & Davies, 2011). To assess the basis and hence, the validity of this belief, I reviewed relevant scholarly and relevant institutional and organizational literature from around the globe. I focus on the experiences of faculty because of their central role in the manifestation of the research and education missions of institutions, their partnership with administration through shared governance and more broadly, their positioning as public intellectuals commenting on the dynamics of power and social inequity (Keashly & Wajgnurt, 2016). The "health" of faculty reflects and has profound implications for the well-being and success of the institution and its members (including students), the state of higher education more broadly, and society writ large (Scholars At Risk (SAR), 2018). A central influence on faculty experience is their relationships with administration students, staff, their faculty colleagues and increasingly the public and the state (e.g., Ferber, 2018; Shin & Jung, 2014; Trower, 2012). In this presentation, I will focus on what is distinctive about academe as a "workplace" and academics as "workers" vis a vis other sectors and other workers and what this distinctiveness offers our examination of workplace bullying more broadly. The targets. Despite the usual qualifications of sample and measure, it is clear that faculty are sadly familiar with bullying in their institutions. Approximately one quarter of faculty will identify as having been bullied in a 12-month period with another 40-50% indicating they have witnessed others being bullied. These rates are higher than the general working population but lower than other work sectors. An examination of who does what to whom reveals that academic bullying is inherently positional, solidly grounded in and reflective of socio-structural inequities, i.e., bullying is not status-blind. Faculty with marginalized social identities and lower organizational rank are the most vulnerable. Examination of the intersectionality of these identities reveals that not even tenure or high organizational status can protect some faculty from being bullied, i.e., bullying is also counter-positional (Misawa, 2015). Thus, in order to fully reveal the dynamics and nuances of power and vulnerability, research on bullying in academe and other work contexts must focus on organizational and social group identities and their intersectionality, i.e., a critical cultural perspective is vital (Samnani, 2013) The actors. Bullying occurs most often at the hands of faculty colleagues, many of who occupy senior rank. These bullying relationships are very longstanding and hard to exit without leaving academe altogether, e.g., lateral transfer a frequent option in other sectors is not viable for faculty. In addition, faculty "get it from all sides". They are bullied by internal actors including colleagues, students, and administrators but also by external actors such as the state and increasing the public through online harassment (Ferber, 2018). The identification of the state and the public as actors suggests that bullying from these actors may be useful to consider in other work contexts. Further, much current measurement on workplace bullying does not incorporate the source of behaviors. This is problematic because source of aggression influences the experience and impact of bullying. Contextual nature of bullying. The fundamental insight from the examination of bullying in academe is the inherently contextual nature of the behaviours and the experience. That is, behaviour does not speak for itself. Behavior is interpreted, enacted, and experienced in a particular normative and discursive context. The unique nature of academic culture (self-regulating profession managed through peer review) and the unique foundational features of academic freedom, professorial rank, shared governance, and tenure (long term contract) shape expectations for faculty conduct. These expectations and norms are different than those for other university employee groups as well as other work contexts and industry. These norms are critical in what gets identified (i.e., measured, assessed) and experienced as bullying as well as responses to and management of the bullying. These contextual logics are relevant to workplace bullying in other work contexts. Thus, research and practice in workplace bullying must reflect this contextualization. I will explore the specific implications for research and for addressing workplace bullying in this presentation.

Help for the Helpers: Avoid Retraumatizing Workplace Abuse Clients and Intervene More Confidently

Maureen Duffy (Nova Southeastern University/Miami Shores Therapist and Consultant)

Reactions to recognition of bullying and mobbing in the workplace have ranged from denials and minimizations of the abuse to aggressive condemnation of the target who has dared to name it to milder admonishments to let it go because calling attention to it will cause more problems to suggestions that the target is overreacting and ought to grow up, and, in a smaller number of cases, to acknowledgment and intervention. The experience of being bullied or mobbed in the workplace has resulted in targets developing physical and psychological symptoms, including gastrointestinal problems, sleep disturbances, exacerbation of heart problems, depression, anxiety, and symptoms of post-traumatic stress (Duffy & Brown, 2018; Duffy & Sperry 2012, 2014; Duffy & Yamada, 2018). To date, there has been little guidance in the literature for therapists and other health professionals who encounter targets of workplace abuse in their practices (Hillard, 2009) leading many to focus on the individual client while not attending to the other systemic dynamics involved. Providing effective care and treatment to targets requires understanding of several inter-related dynamics; namely, the target's unique response to the stressor of having been abused in the workplace, the effect of the workplace abuse on family relationships and social support, and an understanding of the particular group and organizational dynamics involved. Case conceptualization and treatment planning that does not include consideration of all of these dynamics and that focuses predominantly on the individual's response to workplace abuse risks jeopardizing the target's recovery and causing iatrogenic injury (Duffy & Sperry, 2012). Once workplace abuse has progressed, the experience for targets is characterized by bewilderment about what is happening to them and why and a corresponding sense of powerlessness to stop it. This experience of powerlessness in the face of a threat to one's sense of safety and security in the world is at the heart of trauma. Scaer (2005) stated that "the most obvious and pervasive source of this insidious societal trauma is in the workplace" (p. 132). Because workplace abuse is interpersonal abuse it is associated with the most severe health consequences of all types of trauma (Van der Kolk et al, 2005). Workplace abuse is a life-altering negative experience and targets often seek help from mental health professionals. Practice experience suggests that if therapists do not understand the power dynamics involved in workplace abuse, outcomes are likely to be poor. Blaming targets for their workplace problems or focusing on their vulnerabilities instead of the larger contextual issues are all too common negative experiences with therapy that targets report. To do effective work with targets requires (1) an understanding of interpersonal trauma, and (2) recognition of the interplay of contextual and organizational factors in the etiology and manifestation of workplace abuse. The clinical approach that best fulfills these criteria is trauma-informed care (Blanch, 2003; Jennings, 2004). Trauma-informed care is a clinical framework that provides clients with sensitive treatment informed by a deep understanding of the nature of trauma. The organizing principles of trauma-informed care are that the experience of trauma is common rather than rare and that it affects multiple domains of a person's life and overall functioning. This presentation will offer guidelines for mental health practitioners who are likely to find themselves working with increasing numbers of clients who have been impacted by workplace abuse. These guidelines will utilize the principles of trauma-informed care adapted for targets of workplace abuse and their family members who are likely to also have been negatively impacted. Strategies for fashioning a systemic rather than individually-based response to the needs of workplace abuse clients will also be discussed in order to reduce the risk of iatrogenic injury to them by well-meaning therapists and other providers. To further assist both mental health practitioners and their workplace abuse clients, a review of the current and best self-help books, blogs, and websites will be presented.

Assessing American Legal Responses to Workplace Bullying and Mobbing

David Yamada (Suffolk University College of Law)

"Workplace bullying" began to enter the vocabulary of American employment relations in the late 1990s. Since then, awareness of bullying, mobbing, and related behaviors has grown significantly, especially in academic and professional fields such as industrial/occupational psychology, human resources, and labor relations. By contrast, the American legal system has been slow to respond to workplace bullying, except for when such mistreatment is motivated by protected class membership covered by discrimination statutes. However, advocacy groups and unions have been advancing proposed legal reforms, and in recent years these efforts have demonstrated some success. In particular, several states and municipalities have enacted statutes and ordinances pertaining to workplace bullying. This presentation will summarize and assess some 20 years of developments in this realm and relate them to broader themes of employee relations and psychological well being. This assessment will be grounded in the main public policy objectives that should be advanced by legal intervention (Yamada, 2018). The interrelated objectives of prevention and response are chief among them. The law should encourage employers to use preventive measures to reduce the likelihood of workplace bullying. When reports of bullying do arise, fair and effective procedures for handling them should be implemented. In addition, the law should compensate targets who experience severe work abuse. This liability exposure may, in turn, further encourage employer prevention and response. Finally, the law should embrace a broader policy goal of public messaging that bullying and related behaviors are unacceptable in the workplaces of a civilized society. After all, laws establish societal norms, and here the law should proclaim that all workers are entitled to be treated with a baseline of dignity. The first comprehensive survey of potential legal protections for bullied employees examined tort (personal injury) causes of action and employment discrimination, labor relations, and occupational safety and health statutes (Yamada, 2000). It concluded that many instances of severe work abuse escape accountability under the law. This significant legal void led to the drafting of proposed model legislation, eventually dubbed the Healthy Workplace Bill (HWB), which provides severely bullied workers with a civil claim for damages and creates liability-reducing incentives for employers to prevent and responsive to bullying behaviors (Yamada, 2004). Since the early 2000s, the HWB has become the primary template for workplace anti-bullying legislation in the U.S., while undergoing periodic revisions (Yamada, 2013). In 2003, a California Assembly member introduced the original version of the HWB, marking the first time that comprehensive workplace anti-bullying legislation had been filed in an American legislature. Versions of the bill have been introduced in some 30 state legislatures, with most of this activity occurring during the past decade. Although no jurisdiction has enacted the full version of the HWB, in recent years several states

and municipalities have enacted workplace bullying laws and ordinances that draw heavily upon the template language (Yamada, 2018). For example, in 2014 California amended its employment discrimination statute to require employers with 50 or more employees to provide supervisors with training about prevention of abusive conduct, using the HWB's definitional language to define covered behaviors. In 2015, Utah enacted a statute requiring state executive agencies to train their supervisors and employees about preventing abusive conduct, also drawing upon the HWB's definitional language. In 2012, Fulton County, Georgia adopted a workplace bullying and violence policy that covers county employees, adopting the HWB's definitional language and allowing for suspension and termination of offending employees. In addition to these examples, workplace bullying and related behaviors have been incorporated into various employer policies and collective bargaining agreements. Claims for workplace bullying have been raised with varying degrees of success in workers' compensation proceedings and applications for unemployment insurance benefits. Nevertheless, American workers still do not enjoy comprehensive legal protections against workplace bullying, mobbing, and abuse. None of the foregoing provisions or measures provides direct legal claims for damages or imposes liability upon employers. The corporate sector and employer trade organizations have opposed efforts to enact fuller protections. Accordingly, this presentation will examine the public policy making context in assessing the potential future for workplace anti-bullying legislation and the implications for employee relations stakeholders.

Evolution of American Employer Responses to Workplace Bullying

Gary Namie (Workplace Bullying Institute)

Two decades ago American employers were free to ignore complaints about harassment that did not meet the criteria for violations of nondiscrimination policies without legal liability. Some complainants reported cruelty which was then, and still is, not legally actionable. Based on one of the presentations in this symposium, current employment law still does not extend protections against abusive conduct to all employees. The legality of bullying enables employers to continue to ignore bullying-related complaints with little risk, except in the 20% of cases with a concurrent discriminatory cause (WBI, 2007). American employers who have addressed bullying in the 20+ years since the start of the movement have done so only voluntarily. Thanks to widespread media coverage of the topic, and explicitly calling it "workplace bullying," the public has accepted the new name for the ever-present phenomenon. Legal counsel to organizations communicated a twofold message to their corporate and government executive-clients. The message: (1) several states were introducing anti-bullying legislation, and (2) bullying is a serious and preventable problem that should be addressed by policies, even in the absence of laws. Voluntary progress remained infrequent. Then came the MeToo movement against sexual harassment. It shares at least three principles with the U.S. workplace bullying movement: (1) victims rarely report their victimization, self-suppressed by personal shame and fear of character assassination, (2) victims are not believed using he said/she said equivocation, and (3) organizations defend high-ranking abusers and take extraordinary actions to silence and discredit complainants. The MeToo effect was a publicity explosion revealing executive teams and boards of directors as immoral agents who enable abusers. The risk that employers would be branded publicly with MeToo complicity, coupled with previous legal advice, has compelled more conscientious, and PR-savvy, employers to address bullying. The positive changes are manifested in two ways. First, resistance to creating anti-bullying policies is weakening despite risk-averse employers loathing an extension of new protections to employees. Second, executives and administrators are demonstrating a new intolerance of the destructive interpersonal antics of high-profile bad actors who enjoyed impunity for years. The presenter showcases a sample of policies. It is noteworthy that only school districts, as employers, use "workplace bullying" in their policy name. Most employers adopt the title of "respectful workplace," preferring a positive valence and making no reference to bullying. Still employers consider bullying and abusive conduct pejorative terms. The problem with policies with euphemistic titles and terms is that the adopting employer potentially downplays the seriousness of offenses that truly occur in organizations. We posit that the personal shame felt by bullied individuals is similarly felt by employers afraid to admit bullying happens within their organizations. Policies without accountability for confirmed violators accomplish nothing, actually sustaining impunity. Advanced policies mimic European and Canadian laws that force employers to make victims whole again. The U.S. has a low unionization rate compared to other nations. In those rare circumstances, some government worker unions have bargained for anti-bullying protections in contracts. However, the provisions are weakened by the prohibition of arbitration when violations occur. A second positive employer response to MeToo pressure is the withdrawal of the unconditional support abusive individuals enjoyed, often for decades. Previously there were no limits to tolerance of "shenanigans" of high-profile managers or executives. It was rationalized as inevitable given the personality and acceptable. In the academe, offenders were Nobel-level scientists and grant-funded researchers who contribute mightily to university budgets. Tenure was the excuse to not discipline. In law offices, it is the miscreant senior partner responsible for attracting high-revenue clients. In recent years, this consultant-presenter has been engaged to "deal" with such bullying individuals. Whereas, employers would have referred to their problem employees as troublemakers or simply abrasive, all other workers were told to accommodate themselves to avoid harm. Now, organizations want to avoid having a Harvey Weinstein in their ranks. Evidence of progress is the request to deal with bullies, calling them "bullies" and dealing with cruel behaviors unrelated to sexual harassment. The bravest and most effective organizations make retention of the bully conditional on sustained compliance with a new anti-bullying policy or related code of conduct. We emphasize that this is not "anger management," the historical alternative to accountability adopted by most organizations. Rather it is a confrontational intervention based on existing evidence of mistreatment. We also engage subordinates, coworkers and executive managers to monitor and report post-intervention conduct. The presentation ends with examples of courtroom successes for bullied individuals and organizations brave enough to terminate high-profile bullies. Though there is no legal standard for bullying in U.S. legal lexicon, this presenter provides expert witness testimony to support both employers and plaintiffs in bullying-related cases.

Salon 5 & 6

Emerging Issues and Opioids in the Workplace

PAPER SESSION

The Opioid Epidemic in the US Labor Force : Extent of Pain Reliever Misuse in Context with other Substance Use Disorders

Erin Peterson (Integrated Benefits Institute)

Introduction and Background. The opioid epidemic has garnered public and policy attention for its scale, lethality, and impact on the lives of users and their loved ones.(1-3) While some attention has been paid to the workforce implications of the epidemic,(4-6) the focus is often on the risk of on-the-job accidents or difficulties in filling job vacancies in areas heavily impacted by addiction and dependence.(7) Less attention has been paid to the routine productivity impact in the employed workforce.(5) This can result in an under count of the economic burden borne by employers, and complicate efforts to engage them as stakeholders in addressing the epidemic. Viewing the epidemic in isolation from the underlying prevalence of chronic pain and abuse of other substances also obscures its larger social context. This study examines lost work time associated with prescription pain relievers within the context of other substance use disorders in the United States labor force.

Methods. The National Survey on Drug Use and Health (NSDUH) is a cross-sectional survey of U.S. households that provides national estimates for the use of drugs, alcohol and tobacco for the civilian population at least 12 years of age. We use data from years 2015, 2016, and 2017, which include information on appropriate (i.e., prescription) use of pain relievers as well as information on problematic use (i.e., abuse and dependence). We include those in the labor force over the age of 18 in our analysis (n=84,579).

Our analysis focuses on abuse, dependence, and non-problematic use of legal, medical, and illicit substance. Non-problematic use includes appropriate use of prescribed medications or use of other legal substances that did not result in abuse or dependence. Our principal outcome is work absence, assessed by the question, "During the past 30 days, how many whole days of work did you miss because you were sick or injured?"

We estimate patterns of use with contingency tables and chi-square tests. Missed work days are estimated using multivariate logistic regression. Models are estimated for each substance separately, and include as covariates sex, age, employment status, educational attainment, insured status, poverty status, and self-reported health. Reported estimates are weighted to account for the complex survey design.

Results. One in three labor force participants reported using pain relievers, the majority of which was non-problematic prescription use (Table 1). Less than 5% reported abuse of pain relievers or dependence. Heroin use was much less common (< 1%).

By contrast, 77% used alcohol; 7% of users indicated patterns of abuse or dependence. Marijuana was the most commonly used illicit substance (17%) and exceeded use of prescription tranquilizers, stimulants and sedatives, respectively. Prescription misuse and dependence was highest among tranquilizers and stimulants (<3% of the total in each case).

On average, non-problematic users of pain relievers missed 1.4 days of work per month, compared to 0.6 days for non-users ($p < .05$). Problematic use of pain relievers was associated with 1.3 more missed work days ($p < .05$), compared to non-use (Table 2). The pattern of higher absence among non-problematic and problematic users was observed for all substances, with the exception of alcohol (in which non-problematic use was associated with fewer lost workdays on average).

When the prevalence of substance use and marginal lost work days are combined, we find that non-problematic pain reliever use accounts for the largest amount of lost productivity—261 days per month for every 1,000 employed persons (Table 2). By comparison, problematic pain reliever use accounts for only 9 days per month, less than the amount for problematic use of tobacco (37 days), alcohol (16 days), and similar to losses for problematic use of marijuana (9 days) and all use of cocaine (9 days).

Discussion and Implications. The use of pain relievers is associated with excess lost work time, both relative to non-use and when related to population. The relatively large volume of time associated with non-problematic use underscores that the opioid epidemic reflects a larger epidemic of chronic pain, which by itself impacts workers' ability to attend work regularly. Thus, effective pain management approaches that minimize the risk of opioid abuse may improve productivity as they help curb the epidemic. Abuse and dependence of opioids—though certainly a public health concern—presents a smaller productivity burden for employers, at least when it comes to incidental sick day absences as shown in our findings. Moreover, other substances for which there are no (or uncertain) therapeutic uses have a productivity impact comparable to the problematic use of pain relievers. This suggests the value of comprehensive workplace substance abuse strategies in concert with larger public health initiatives.(8-10)

Conclusions. Chronic pain in the workforce contributes to the opioid epidemic and lost work time. Effective pain management approaches and comprehensive workplace substance abuse strategies may improve productivity as they help curb the opioid epidemic.

Opioids and Work: An Overview of the NIOSH Approach to the Opioid Crisis

Paula Grubb (NIOSH)

Problem. Opioids (including prescription opioids, heroin, and fentanyl) killed 47,600 people in 2017, more than any year on record. Thirty-seven percent of all opioid overdose deaths involve a prescription opioid (Hedegaard, et al., 2017). In 2017, 95% of the 70,076 US drug overdose deaths occurred among the working age population, persons aged 15-64 years (Hedegaard, et al., 2017). It is unknown how many were employed at the time of their death. According to the National Survey of Drug Use and Health (NSDUSH), an estimated 4.3% of respondents age 18 years or older reported illicit opioid use in the past year. An estimated 66.7% of these self-reported illicit opioid users were employed full- or part-time (NSDUSH, 2017). The Bureau of Labor Statistics (BLS) reported that overdose deaths at work from non-medical use of drugs or alcohol increased by at least 25% annually between 2013 and 2017 (BLS, 2018). The 272 workplace overdose deaths reported in 2017 accounted for 5.3% of occupational injury deaths that year, as compared to 1.8% in 2013. It is unknown how many of these deaths were caused by opioids specifically (BLS, 2018).

Framework. Opioid use and misuse are not issues that can be confined to either the home environment or the workplace. The potential for opioid addiction may be preceded by injuries that happened at work, and the consequences affect both a person's work life as well as their home life. NIOSH uses Total Worker Health principles to provide workers and employers recommendations for addressing the opioid crisis.

NIOSH has proposed a framework encompassing the lifecycle of opioid use from workplace antecedents to decontamination of workplaces. There are four key components of this framework: 1) Identify workplace conditions, 2) Determine risk factors, 3) Protect workers and responders, and 4) Develop methods for detection and decontamination. Research questions that are critical to this strategy include: What guidance is needed for employers and medical providers serving

workers to prevent prescription opioid use from becoming an opioid use disorder? What work-related or employment-related factors may be leading to the use, misuse, or abuse of opioids (for example, injuries, pain, job loss, job stress, and job insecurity)? How can we protect workers exposed to opioids and overdose scenarios as part of their job? How can we safely and accurately detect the presence of opioids in the workplace and safeguard workers who must decontaminate these spaces?

How to Put Into Practice. NIOSH proposes to implement this framework by 1) obtaining relevant data to characterize and address opioid crisis in worker, 2) conducting field investigations, exposure surveys, and research studies to determine the extent of opioid exposures and best approaches to prevention, 3) developing information and knowledge to address the problem, and 4) transferring knowledge to all stakeholders and agencies to promote effective interventions.

Ongoing Work to Address the Crisis. NIOSH is engaged in several ongoing activities to address the opioid crisis. These broad-ranging efforts include examining work-related factors and exposures as risk factors for opioid use, coordinating with intramural and extramural partners, creating topic pages and education materials relevant for workers and employers facing this epidemic, conducting health hazard evaluations, and developing recommendations for exposure prevention for first responders, healthcare workers, and other frontline groups. NIOSH is also advancing research to identify research gaps, examine risk factors (e.g., work-related exposures, overutilization of opioids in prescribing), and opioid use conditions that affect workers (e.g. contribution to workplace injuries, workforce education, medical assisted treatment, and integrating workers affected by opioids back into the workplace).

NIOSH Highlights and Communication Products. NIOSH has also developed recommendations and resources about the synthetic opioid fentanyl and has conducted Health Hazard Evaluations of emergency responders and other groups of workers. NIOSH has developed fact sheets about Naloxone, which is a drug that can reverse the effects of an opioid overdose, and has suggested recommendations for employers to use in making decisions about establishing and implementing naloxone administration programs in their workplace. NIOSH has also launched new webpages on opioids that feature information on the NIOSH framework, data collection, field investigations, research, and resources related to the opioid epidemic including general resources, research on workplaces, and tools for workplaces.

Subjective economic stressors as predictors of opioid use: A prospective study

Paige Watson (Clemson University)

Problem. Four times as many Americans died from opioid use in 2015 as compared with 1999 (Heavey et al., 2018). This increase has been driven by abuse of synthetic opioids (i.e. fentanyl), semi-synthetic opioids (i.e. oxycodone), and heroin (Sarpatwari, Sinha, & Kesselhei, 2017). The overuse and misuse of opioid substances costs the United States 80 billion dollars each year in healthcare, criminal justice, and productivity costs (Florence, Zhou, Luo, & Xu, 2016).

Although heavily studied in other domains, opioid use has received relatively little attention from occupational health scholars. Current research shows that opioid use is related to increased absenteeism and reduced work productivity (van Hasselt, Keyes, Bray, & Miller, 2015). Opioid use may also increase organizations' healthcare costs and impose safety concerns for employees. Our study extends the literature on the role economic stressors play in opioid use.

Economic stress consists of both subjective and objective evaluations of one's financial and employment-related stress (Voydanoff, 1990). Subjective economic stressors, which are the main focus of this study, can be further divided into two broad categories. Subjective employment-related stressors, exemplified by job insecurity, refer to employees' concerns about losing their job and/or specific features associated with their job (e.g., Shoss, 2017). Subjective financial stressors refer to employees' concerns specifically about their financial situation (Voydanoff, 1990). We focus on two forms of subjective financial stress– perceived income adequacy, which refers to the perception of one's personal financial situation to be insufficient to afford their needs and wants and financial fragility, which refers to the inability to cope with unexpected expenses.

Recent research shows that subjective financial stressors are related to opioid use (Hendy, Black, Can, Fleischut, & Aksen, 2018) and that depression is correlated with both economic stress (Viseu et al., 2018) and opioid use (Goesling et al., 2015); in this study, we advance the literature by examining the mediating role of depression in the relationship between economic stress and opioid use. Additionally, we extend the economic stress and opioid use research to include subjective employment-related stressors like job insecurity.

Method. Our data were collected in two waves, three months apart, from a larger survey administered through Amazon's Mechanical Turk (MTurk). The first wave consisted of 965 participants, 613 of whom who also completed the second survey. We had a diverse sample of employees from a wide range of career fields allowing for increased generalizability (Buhrmester, Kwang & Gosling, 2011).

Subjective economic stress was measured by scales for perceived income adequacy (α = .92; Sears, 2008), job insecurity (α = .93, Oldham, Kulik, Stepina, & Ambrose, 1986), and financial fragility (Lusardi, Schneider, & Tufano, 2011). We measured depression (α = .88) with the Center for Epidemiologic Studies Shortened Depression Scale (CES-D-R 10; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). In the second wave only, opioid use was reported using the NIDA-Modified ASSIST adapted from the World Health Organization's Alcohol, Smoking, and Substance Involvement Screening Test (WHO, 2002). While the full-length version of the measure includes ten substance categories, we only included two groups to focus on opioid use: street opioids (α = .90) and prescription opioids (α = .78).

Results. Correlations (Table 1) showed that depression was positively related to opioid use (r = .21) and negatively related with all three measures of economic stress (scored such that higher scores indicate less stress): perceived income adequacy (r = -.42), financial fragility (r = -.21), and job insecurity (r = -.37). To assess the mediating effect of depression on the relationship between economic stress and opioid use, we conducted mediational analyses using a bootstrap estimation approach with 5,000 samples using the PROCESS macro as described by Hayes (2012). Mediation results, as seen in Table 2, showed support for the fully mediated relationship between job insecurity, financial fragility, and perceived income adequacy and opioid use as the indirect pathways were significant as indicated by the confidence interval not including zero for any of the three economic stress measures. Specifically, the indirect effect (standard error) for job insecurity was -.02(.00), for financial fragility was -.01(.00), and for perceived income adequacy was -.03(.01).

Practical Implications and Conclusions. Our findings indicate that economic stress increases depression which consequently raises the likelihood of employee opioid use. This research suggests the importance of proactive strategies to manage the effects of economic

KEYNOTE ADDRESS

stressors and provide employees with support for mental health issues. Additionally, most Occupational Health Psychology research has focused solely on job insecurity as an economic stressor; however, the current study includes income-related perceptions (perceived income adequacy and financial fragility) as additional subjective economic stressors. As noted by Leana and Meuris (2015), researchers need to continue investigating workplace outcomes in relation to income and broader financial issues.

MANAL AZZI, PhD

International Labour Organization

10:45–11:45 A.M.
Liberty Ballroom A

Safety and Health at the Heart of the Future of Work

Changes in working practices, demographics, technology and the environment are creating new occupational safety and health (OSH) concerns. Growing challenges include psychosocial risks, work-related stress, and noncommunicable diseases, notably circulatory and respiratory diseases and cancers. As well as more effective prevention for established risks, we are seeing profound changes in our places and ways of working. We need safety and health structures that reflect this, alongside a general culture of prevention that creates shared responsibility.

Looking to the future, this keynote address will explore four major transformative forces that are driving change and offer opportunities for improvement. First, technology, such as digitization, robotics, and nanotechnology, can also affect psychosocial health and introduce new materials with unmeasured health hazards. Correctly applied it can also help reduce hazardous exposures, facilitate training and labor inspections. Second, demographic shifts are important because young workers have significantly high occupational injury rates, while older workers need adaptive practices and equipment to work safely. Women, who are entering the workforce in increasing numbers, are more likely to have nonstandard work arrangements and have a higher risk of musculoskeletal disorders. Third, sustainable development and climate change give rise to risks such as air pollution, heat stress, emerging diseases, shifting weather and temperature patterns that can bring job losses. Equally, new jobs will be created through the green economy. Finally, changes in the organization of work can bring flexibility that allows more people to enter the labor force, but may also lead to psychosocial issues (for example, insecurity, compromised privacy and rest time, or inadequate OSH and social protections) and excessive work hours. Approximately 36 per cent of the world's workforce currently works excessive hours (more than 48 hours per week).

In the light of these challenges, the ILO proposes six areas on which policy makers and other stakeholders should focus. These include more work on anticipating new and emerging OSH risks, adopting a more multidisciplinary approach and building stronger links to public health. Better public understanding of OSH issues is also needed by mainstreaming OSH in early education and offering lifelong learning opportunities. Finally, international labor standards and national legislation need to be strengthened, something which will require not only stronger collaboration between governments, workers and employers but the need to expand partnerships. Serious consideration should also be given to the recommendation of the ILO's Global Commission on the Future of Work, that occupational safety and health be recognised as a fundamental principle and right at work.

12:00–12:45 p.m.
Philadelphia Ballroom North

Luncheon Session

Publishing Research in Occupational Health Psychology

Chair: Michael T. Ford (University of Alabama)

Terry Beehr (Central Michigan University), Robert Sinclair (Clemson University), M. Gloria Gonzalez-Morales (University of Guelph), Larissa Barber (San Diego State University)

1:00–2:15 p.m.

Concurrent Sessions 6

Salon 5 & 6

Stress in Higher Education

PAPER SESSION

Exploring the Effects of Job Stress on Job Performance in Higher Education Sector: A Study of the National Capital Region of India

Divya Sethi (College of Vocational Studies Delhi University)

The problem of job stress has received increasing recognition over the recent years. Increasing stress at work leads to inefficiency, increased absenteeism, high turnover, decreasing job satisfaction and job performance (Fogarty, 1996; Brown & Peterson, 1993; Crawford, Lepine, & Rich, 2010; Hoboubi, Choobineh, Ghanavati, Keshavarzi, & Hosseini, 2017). Although some amount of stress is desirable and acts as a driving force if kept at a certain level but beyond this level, it starts producing ill effects both in the internal sphere as well as the external sphere of the employee (Beehr & Newman, 1978). Also, growing literature suggests that the relationship between stress and its consequent effects on performance, quality, satisfaction, motivation and similar constructs are moderated by a number of variables such as organizational support (Jain, Giga, & Cooper, 2013), organizational culture (Newton & Jammieson, 2009), self-efficacy (Jammieson, 2000), social support (D.Allen, E.McManus, & E.A.Russell, 1999), emotional intelligence (Ioannis Nikolaou, 2002), etc. Moreover, the phenomenon of job stress has been widely researched but there exists no standardized scale to measure stress of teachers in the field of higher education.

Objective: The present study develops and presents a model to study the relationships among job stress, emotional intelligence, social support and job performance.

The objective of the research is two-fold: 1) to investigate the effect of job stress on job performance among higher education faculties 2) to determine the moderating effects of emotional intelligence and social support on the relationship between job stress and job performance.

Methodology: The universe for the study was Delhi-NCR region and the population comprised of higher education faculties teaching undergraduate courses at different universities in the national capital region of the country. Being a preliminary investigation, the data was collected from a total of 200 respondents through a self-administered questionnaire which was then analyzed using sophisticated statistical tools.

Instruments: Job stress is measured through a number of stressors including role expectation conflict (Rizzo et al. 1970), role ambiguity (Rizzo et al. 1970), role overload (Gmelch et al., 1986), professional distress (Fimian, 1984), and rewards & recognition (Gmelch et al., 1984), the scales for which have been adapted from previous researches. Emotional Intelligence is measured by the widely used "The Self-Report Emotional Intelligence Test" (SREIT) developed by Schutte et al. (1998) consisting of 19 items. The social support scale is adopted from the study of Beehr et al. (1990) consisting of 8 items. Lastly, job performance is measured by the scale developed and validated by Dubinsky and Mattson (1979) and modified by Singh et al. (1996).

Analysis: Data was analyzed using descriptive statistics, correlation and multiple hierarchical regressions. The dimensionality of job stress was identified through principal component analysis. Factor loadings of less than 0.6 were ignored (Cronbach α=0.892). Multiple regression analysis was used to identify the relationships between job stress-job performance, emotional intelligence-job performance and social support-job performance. Further, the moderating effects of emotional intelligence and social support on the relationship between job stress and job performance were measured.

Results. Factor analysis confirmed the multidimensionality of stress. Role conflict, role ambiguity, work overload and rewards & recognition were identified as the major factors contributing to stress. Regression analysis showed that the relationship between job stress and job performance was significant (β=0.611, p-value<0.01). The moderating effect of emotional intelligence (β=0.859, p-value<0.001) and social support (β=0.338, p-value<0.01) on the relationship between job stress and job performance was also established.

Conclusion/Practical implications. While job stress is highly researched, its effects are largely overlooked. The results of the study suggest that job stress significantly impacts job performance in the field of academia as well. However, the deleterious impact of job stress can be buffered through emotional intelligence and adequate social support system at work. The paper also discusses stress coping strategies and interventions to effectively manage stress at work. It therefore follows that job stress needs to be managed effectively in order to enhance satisfaction and commitment for teachers, thus, stemming the tide of low motivation in the teaching profession.

Prevalence and sources for stress among employees at a major academic institution

Jin Jun (University of Michigan)

Research objective: The Centers for Disease Control reports that 110 million people die every year as a direct result of stress. For employed adults, work is one of the top stressors in daily life, followed by children. Researchers interested in stress traditionally distinguished between work and non-work. However, the relationship between work and non-work have been explored by some in notions of spillover and compensation. In order to further understand the sources of stress experienced among working adults, this study examined the level of stress and stressors among the employees who participated in a wellness program at a large teaching institution and its affiliated health centers.

Study design: A cross sectional, correlational design was done using a large data set from an employer wellness program in 2013. General stress level and various stressors were measured in a 5-point Likert scale. Descriptive statistic was done for the analysis.

Population studied: Since 2005, the University of Michigan (UM) initiated a program aimed to promote employee health and well-being. All faculty and staff from the university and health care centers were invited to participate. Health data were obtained annually via self-report and biometric screening. The participants were categorized into ten "job families" based on the Human Resources Career Path: 1) Nurses, 2) House officers, 3) Healthcare Administrators & Supports, 4) Patient care services, 5) Office, 6) Engineering/Information Technology, 7) Lecturer/faculty, 8) Service/Maintenance, 9) Research, and 10) Others.

Principal findings: In this study, 9,256 individuals answered the stress-related questions in the self-report wellness screening program. About 46% of House Officers, who were residents and fellows, reported 'extremely or quite stressed". The members of 'Lecturers/Faculty' were the second highest in their stress level (32.2% reported "extremely or Quite stressed "). Healthcare Administrators and Supports ($p = .01$), Office ($p = .02$), Engineering/Information Technology ($p = .01$) and Service/Maintenance ($p \leq .00$) were statistically significantly less stressed than House Officers. The top three stressors were consistent across all jobs: 1) lack of time (36.6%), 2) finance (32.4%), and 3) job (32.2%).

Conclusions. House officers reported the highest stress level, however, the sources of stress were the same regardless of their jobs.

Implications for policy and practice: The findings of this study demonstrate that work and non-work stress are interconnected regardless of jobs. This is encouraging for employers who are developing a work-based stress reduction and/or wellness program. These programs may have global effects on the overall well-being of their employees.

College student perceptions of anticipated burnout and engagement in their future careers

Kristen Black (The University of Tennessee at Chattanooga)

Employee burnout has received increased attention, both in research and practice, over the past few decades. Early conceptualizations associated burnout with professions that require intensive involvement with people (Maslach & Jackson, 1981), but burnout can be more generally described as occurring when employees experience high job demands with low resources (Bakker & Demerouti, 2007). Some of the most common features used to characterize burnout are a state of exhaustion and negative attitudes toward one's work (Bakker & Demerouti, 2007; Bakker, Demerouti, & Sanz-Vergel, 2014). Much research has been devoted to understanding the antecedents of burnout. Consistent findings include a positive association between job demands and burnout, with job and personal resources alternatively acting as a buffer against burnout (Crawford, Lepine, & Rich, 2010). Beyond job demands and resources, individual differences such as hardy personality traits have been associated with lower burnout risk (Garrosa, Moreno-Jimenez, Liang, & Gonzalez, 2008).

Preventing burnout has gained attention, not only because of the effects on employee well-being, but also for the costs to organizations, as many employees in occupations susceptible to burnout consider leaving the profession (e.g., Numminen, Leino-Kilpi, Isoaho, & Meretoja, 2017). In efforts to intervene early in an employee's career, Dwyer, Hunter, and Revell (2015) called for increased attention on how to incorporate additional teaching on the emotional challenges in the nursing profession into the educational training of nurses. While studies like this have begun to identify burnout among students in these occupations prone to burnout (e.g., commonly nursing and other healthcare fields; Watson, Deary, Thompson, & Li, 2008), less is known about what students think about the potential for experiencing burnout.

In order to better understand early prevention techniques that could be used for students considering professions susceptible to burnout, we surveyed a sample of undergraduate students regarding their perceptions of the potential to burnout in their future career. Our overarching research questions were: 1) Do students anticipate burning out of their future jobs? 2) Are there student characteristics that differentiate those who believe they may burn out?

Undergraduate students (N = 354) were recruited from an online participant pool at a southeastern university. Participants took part in an online survey that contained questions on their desired career for their future, their awareness of certain healthcare fields, and a variety of items asking students to reflect on their future careers. Students were asked to imagine they had been working in their intended career for two to three years and consider how they would feel at that point in time. They then responded to the Oldenburg Burnout Inventory (OBLI; Demerouti, Bakker, Vardakou, & Kantas, 2003), which was re-worded to future tense. The same measure was repeated, having the students imagine themselves ten years into their future career. In addition we included measures of orientation toward ones work, person job fit (adapted to future tense thinking about one's future job), and future work-self salience. Beyond these quantitative measures, we included a number of open-ended questions, which asked the students to provide: examples of things about their future job that they expect will be a source of stress; examples of how they imagine their future job will impact their health and happiness; experiences that they've had or personal characteristics they possess that they believe have prepared them for any potential stressful aspects of their job that they may encounter. Finally, we directly asked students if they have any fear that they may "burn out" of their future job.

Data analysis for this project is ongoing, but will be complete by the time of the Work, Stress, and Health Conference. We hypothesize that students will generally report higher levels of anticipated burnout symptoms at 10 years compared to two or three years into their future job. We expect that the difference between the prospective ratings will be larger for those who indicate that they are going into a healthcare field (compared to other students who do not provide a healthcare field as their anticipated career). We also expect that those who have a calling orientation toward work and perceive high fit with their

intended career will have a smaller difference in anticipated burnout from 10 years compared to two or three years. We will also present themes encountered in the open-ended questions described above to better understand whether students anticipate health and well-being aspects of their future careers. Our hope is that the results of this study can be used to develop proactive interventions to help students receive realistic information about their future careers early in their college career, as well as to better understand what intervention efforts could help early career employees to cope with the stressors they may encounter on the job.

"I'm a little too macho for that": Mental health, gender, and leaves of absence in academia

Janet Mantler (Carleton University)

Background. According to a RAND Europe (2017) report, 37% of academic staff have mental health disorders such as depression (Deaville, 2009), anxiety (Berg, et al., 2016), and bipolar disorder (England, 2016; Skogen, 2012). Stress resulting from performance management (Jung & Jisun, 2014), heavy workloads, and a culture that compels long work hours (Higher Education Network, 2015) is frequently attributed as a contributing factor to poor mental health. Academic staff who are experiencing mental health issues tend to keep working and suffer in silence (i.e., presenteeism).

There has been considerable research on accommodations for physical injury (e.g., Baril, Clarke, Friesen, Stock, & Cole, 2003), but much less on accommodations required for mental health issues (Briand, Durand, St.-Arnaud, & Corbiére, 2007; Noordik, Nieuwenhuijen, Varekamp, van der Klink, & van Dijk, 2011. Negotiating a leave of absence and return to work can be particularly difficult when potentially stigmatizing mental health issues are involved. For academics, work culture and structures often seem to be insurmountable barriers to taking a leave of absence.

Purpose. The purpose of our research was to explore whether academics with mental health issues take leaves of absence and the effects of not taking a leave. Our intention is to develop interventions related to policies and procedures to reduce stigma associated with leaves, and at a high level, consider workplace actions that contribute to poor mental health. This research is part of a larger mixed-methods pilot study funded by a SSHRC-CIHR Partnership Development Grant that examined the mental health, leaves of absences, and return-to-work experiences of health care and professional workers including academics, reflecting a gender perspective.

Procedures. We conducted seven semi-structured telephone interviews with 5 women, 1 man, and 1 transgender academics (1 contract, 1 pre-tenure, 5 tenured) at Canadian universities in Fall 2017. Interviews (22 to 44 minutes, mean length 33 minutes) were audio recorded and transcribed and analyzed using thematic analysis. In the larger study, we collected descriptive survey data and nationally-representative data to contextualize these data.

Results. Our participants reported anxiety, depression, and bipolar disorder, as well as many helping family members to cope with mental health issues. None of our participants had taken a mental health leave and all said they worked far in excess of 40 hours a week, indicating that they were not taking restorative breaks (Fritz & Sonnentag, 2005). Some said that, in hindsight, they should have taken a leave because they felt they were completely unproductive during this period. However, if they wanted time off work, it was simpler to indicate there was a physical health problem than to lose one's privacy over a mental health issue. Our participants generally managed their mental health issues privately through modifying their work schedules, "working" from home, using sabbatical leaves, and maintaining just enough visible work. Participants typically indicated more than one reason for not taking a leave. Some could not afford to take a leave financially (sole breadwinner, child support payments) or for their career (pre-tenure, fear of falling behind colleagues, tenure/promotion clock does not stop). There were also concerns about downloading work onto their already-overburdened colleagues and causing disruption to graduate students and undergraduate classes.

Underlying everything, however, is the stigma related to mental health. In many places, there remains "an attitude of suspicion and mistrust." Our participants were afraid that discussing their mental health would have repercussions, particularly for tenure and promotion decisions or resource allocations including grant decisions. Given that success is often measured by the number of publications, people with mental health issues may focus whatever attention they can muster on keeping research in the pipeline and do the minimum in terms of teaching. Very few told colleagues, department heads, or Deans about their situation because revealing mental health issues could be seen as weak and feminine in a masculine culture. One participant noted that her Dean told her that she was "a woman being hysterical right now" and another noted not asking for a leave because "I'm a little too macho that way."

Implications. Universities in North America tend to have poor policies and procedures for mental health leaves. It is difficult to arrange accommodations for academics with mental health issues, who may be afraid of what their colleagues will say and do if they request an accommodation. This can open the door to repeated cycles poor health, greatly reduced productivity, and to leaving academia altogether. We need to consider systemic interventions aimed at addressing the mental health of academic staff to focus not only on individual workers and their needs for accommodations, but also the expectations and conditions related to academic work that lead to mental health issues.

Philadelphia Ballroom North

Unique Factors Related to Stress and its Outcomes in Healthcare Workers

SYMPOSIUM

Chair: Stephanie Andel (University of South Florida)

Healthcare workers, including nurses and emergency medical technicians, face many stressors that impact their health and well-being. These stressors include those that are typical across many jobs, such as role overload, role ambiguity, and organizational constraints (Kath et al., 2013), as well as additional stressors that are unique to patient care, such as the suffering of patients (Gray-Toft & Anderson, 1981). Such stressors have been linked to a number of detrimental outcomes, among them injuries (Nixon et al., 2015), burnout (Lloyd et al., 2002), and turnover (Brewer et al., 2012; Letvak & Buck, 2008).

Promoting the well-being of healthcare workers is challenging, because these employees are often expected to put their patients' needs above their own (WHO, 2016). However, the well-being of healthcare workers (e.g., low burnout and fatigue) is also associated with fewer medical errors (Lockley et al., 2007; Shanafelt et al., 2010),

better caring behaviors (Sarafis et al., 2016) and ultimately, lower patient mortality rates (Aiken et al., 2002). Therefore, it is especially critical to also prioritize the well-being of healthcare workers themselves.

In order to ultimately develop successful interventions that improve the health and well-being of these employees, it is necessary to understand the factors that either exacerbate or mitigate the negative effects of stressor exposure at work. To address this issue, the proposed symposium focuses on work stress and some of its common outcomes (e.g., turnover intentions, safety performance) as well as less studied outcomes (e.g., work family conflict) in healthcare occupations. It examines stressors that are present in many types of jobs (e.g., organizational constraints) as well as those that are unique to healthcare workers (e.g., patient suffering). And finally, each presentation in this symposium examines a unique factor within the context of patient care stress that can be used to improve the well-being of nurses, emergency medical technicians (EMTs), and other healthcare workers. Those factors include occupational callings, physical fitness, and the empowerment of healthcare workers.

The first paper is a cross-sectional study examining the buffering effects of occupational callings on the stressor-rumination relationship in 199 nurses. There are many advantages to experiencing a high sense of calling to one's chosen occupations, but in this study one disadvantage is highlighted: Patient suffering was associated with increased rumination only for those nurses who are low on occupational callings, whereas nurses high on calling ruminated regardless of the level of patient suffering they encountered. Results suggest the possibility of a "dark" side of occupational callings.

The second paper uses latent growth modeling to assess the longitudinal impact of physical fitness on turnover intentions in a sample of 1,537 Emergency Medical Technicians (EMTs). Results suggest that high levels of physical fitness may serve as a resource that allows EMTs to successfully meet the physical demands of the job, and ultimately decreases intentions to turnover over time.

In the third paper, the authors illustrate the impact that stress has on empowerment in the workplace. Specifically, this cross-sectional study of 153 nurses examines the conditional indirect effect of structural empowerment, through psychological empowerment, on two important nurse-related outcomes: affective organizational commitment and safety performance. Findings revealed that the indirect effect of structural empowerment on each outcome was weakened under high levels of stress.

Finally, our discussant is an experienced researcher in the occupational health domain, and specifically in the study of nurses' occupational stress. She will provide insight and synthesis of the three papers and facilitate a discussion about individual and workplace factors that influence the stress process for healthcare workers, as well as the importance of considering the health and well-being of these employees.

After attending the symposium, attendees will be able to (1) identify stressors and strains that are prevalent for employees in healthcare occupations, (2) describe how individual differences and contextual factors influence the stress process of healthcare employees, and (3) design future research studies that consider the work experience, heath, and well-being of healthcare employees.

Being Called to Nursing: Buffering the Stress-Rumination Effects

Michele Gazica (Embry-Riddle Aeronautical University)

Occupational stress of patient-care nurses is an important area of research and has been linked to a myriad of negative consequences, including burnout, dissatisfaction, and ill-health as well as higher patient mortality rates (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Greenglass, Burke, & Fiksenbaum, 2001; Kath, Stichler, Ehrhart, & Schultze, 2013; Kirkcaldy & Martin, 2000). However, there may be more immediate outcomes to stressors, such as rumination, defined as a repetitive thoughts and preoccupation with negative work events extending beyond working hours (Frone, 2015). Rumination has been shown to be a part of the psychological process that leads nurses with a high passion for work to be more emotionally exhausted (Donahue et al., 2012). The relationship between stressors and rumination in nurses may differ depending on the level of occupational calling. Occupational calling is defined as a fairly stable set of core beliefs that form an occupational orientation of meaning, engagement, and passion, and is often viewed as a primary source of work motivation (Dik & Duffy, 2009). A person living their calling finds their job intrinsically enjoyable and central to their identity and these, in turn, act as a personal resource. Indeed, studies show that living one's calling is related to various forms of work related well-being, commitment and engagement (e.g., Duffy, Allan, Autin, & Bott, 2013; Duffy, Allan, Autin, & Douglass, 2014; Duffy, Bott, Allan, Torrey, & Dik, 2012; Duffy, Dik, & Steger, 2011). However, there is a potential downside for calling. Clinton, Conway, and Sturges (2017) found that individuals with a high sense of occupational calling had somewhat lower detachment levels. This means that after work-hours, it was harder for those employees to stop ruminating about work related issues. Surprisingly, very little research has been done on the occupational calling of nurses, and even less on its association with nursing stressors. One early study (Raatikainen, 1997), for example, found that nurses with a greater sense of occupational calling had a deeper understanding of the patient care process, and greater awareness to the needs of patients. The current study aimed to examine the associations between several stressors (organizational constraints, patient suffering and inadequate preparation), rumination, and occupational calling. The second aim was to test whether nurses living their calling are less likely to experience stressors and more likely to ruminate as a result. We recruited 199 full-time patient care nurses currently licensed in the state of Florida. These nurses completed a cross-sectional survey, which included the three stressors, rumination and occupational calling scales. The stressors were measured using the Organizational Constraints Scale (OCS; Spector & Jex, 1998), and the patient suffering (3 items from the "Death and Dying" subscale) and inadequate preparation subscales from the Gray-Toft and Anderson (1981) Nursing Stress Scale. Rumination was measured using three items (Genet & Siemer, 2012; Nolen-Hoeksema & Morrow, 1991). Occupational Calling was measured using the 12-item Dobrow and Tosti-Kharas (2011) scale, adapted to reflect calling for patient care. Descriptive statistics, bivariate correlations and reliabilities are available in Table 1. Two of the stressors were significantly correlated with rumination ($r = .19$, $p < .05$ for organizational constraints, $r = .24$, $p < .01$ for inadequate preparation). However, patient suffering and rumination were not significantly correlated ($r = .09$, $p = .23$). This pattern of results remained similar when entering all three stressors into a single regression ($\beta = .15$, $p < .05$ for organizational constraints, $\beta = .21$, $p < .01$ for inadequate preparation, and $\beta = -.02$, $p = .82$ for patient suffering). In order to test for moderator effects, we conducted three separate regression analyses, one for each stressor. As can be seen in Table 2, the only significant interaction was for patient suffering ($\beta = -.22$, $p < .01$). This interaction is presented in Figure 1. Probing the interaction

revealed that the association between patient suffering and rumination was not significant for nurses with a high occupational calling (effect = -.14, p = .21, CI = [-.36, .08]), but was positive and significant for nurses with a low occupational calling (effect = .33, p < .01, CI = [.11, .54]). This finding is in line with studies outside of nursing which found that it is harder for those living their calling to detach from work in general (Clinton et al., 2017). Those lower on calling were more likely to ruminate as a response to high levels of patient suffering. This study is one of very few to examine occupational calling in nurses. The results point to a downside of calling, whereby nurses with a high sense of calling are more likely to ruminate regardless of the circumstances, whereas those lower on calling ruminate as a response to their exposure to patient suffering.

Physical Fitness and Turnover Intentions Among Emergency Medical Technicians

Stephanie Andel (University of South Florida)

Turnover is a prevalent and costly issue for emergency medical technicians (EMTs; Freeman et al., 2009). Indeed, recent statistics estimate annual turnover rates to be as high as 10.7%, representing an annual cost of approximately $72,000 to each EMT organization (Patterson et al., 2010). Moreover, high turnover rates negatively impact the quality of crucial services provided to the public (Soo et al., 1999). Therefore, given the critical role of EMTs, researchers and practitioners have long been interested in understanding and preventing high turnover within this field. In the current study, we take a longitudinal approach and use latent growth modeling to analyze the impact of physical fitness levels on turnover intentions over the course of four years. Drawing on person-environment (P-E) fit theory (Kristof, 1996) and Conservation of Resources theory (COR; Hobfoll, 1989, 2001), we argue that physical fitness represents an important predictor of turnover intentions among EMTs. First, according to person-environment (P-E) fit theory, an incongruence between an employee's abilities and job demands yields negative job outcomes including turnover (Hoffman & Woehr, 2006; Muchinsky & Monahan, 1987; Kristof-Brown et al., 2005). Germane to the study and based upon the O*NET job description which lists several physical abilities including static strength and reaction time as required for core task completion (National Center for O*Net Development, 2018), we argue that the EMT job is physically demanding. As a result, high physical fitness levels likely provide EMTs with the physical strength needed to complete physically-oriented job tasks and low physical fitness levels likely leave EMTs without the physical strength necessary to complete these tasks. The latter situation creates an incongruence between the EMT's abilities and job demand, thereby making him/her more likely to turnover. Second, being physically fit might also act as a coping mechanism since EMTs are tasked with emotionally demanding work that requires quick thinking under stressful work conditions (Regehr & Bober, 2005). This point is supported by COR theory (Hobfoll, 1989, 2001) which argues that individuals strive to gain and retain resources. While organizational research typically focuses on more traditional resources such as supervisor and coworker support, we argue that engaging in physical fitness activities is another type of resource not frequently discussed. Indeed, Hobfoll (2001) specifies personal health on his list of resources and engaging in physical fitness activities represents one way of maintaining one's health. Therefore, we argue that being physically fit is a resource that EMTs can draw upon to help handle the emotionally demanding aspects of the job. Based upon these arguments, we propose the following two hypotheses. H1: Initial physical fitness levels will be negatively related to initial turnover intentions. H2: Physical fitness will predict a linear decrease in turnover intentions over time. Method This study utilized data from the Longitudinal Emergency Medical Technician Attributes and Demographics Study (LEADS I) collected by the National Registry of Emergency Medical Technicians. Annual survey responses were used from the years 2005-2008. Participants indicated their physical fitness levels at Time 1 (i.e., "How would you rate your overall physical fitness?") and turnover intentions (i.e., "How likely is it that you will choose to leave the EMS profession in the next 12 months?") each year (i.e., Times 1-4). All measures were single items, and thus alpha reliabilities could not be calculated. Usable data were available from 1,537 EMTs at Time 1, although most participants did not complete surveys across all four years. These participants were mostly male (70%) and Caucasian (73%) with an average age of 34.7 years. Over two-thirds (68%) of participants reported at least five years of experience as an EMS provider. Results/Discussion Descriptive statistics and correlations are reported in Table 1. Latent growth modeling was used to assess the relationship between physical fitness levels and turnover intentions over time. Results are available in Table 2. As can be seen, fit indices indicated excellent fit for the study model. Therefore, we used the obtained parameter estimates to test study hypotheses. Both hypotheses were supported as high physical fitness levels was related to decreased turnover intentions at Time 1 (H1; $\gamma = -.12$, $p < .01$) and a slower rate of turnover intentions (H2; $\gamma = -.17$, $p < .01$). The latter relationship is depicted in Figure 1. Taken together, these results suggest that promoting physical fitness might help emergency medical organizations reduce turnover among EMTs. Therefore, organizational leaders could encourage physical fitness by providing free or discounted gym memberships, implementing physical fitness tests, and/or sponsoring physical fitness competitions. Overall, study findings provide stakeholders with important insight into a significant problem affecting EMT organizations, and as a result, the quality of services provides to society. Future research should build on these findings using physical tests to assess fitness levels, as well as investigate additional factors that might influence the trajectory of turnover intentions over time.

The Conditional Indirect Effect of Structural Empowerment on Nurse-Related Outcomes

Laura Heron (Florida International University)

The role of workplace empowerment has gained popularity in the past few decades, and is recognized as an important contributor to organizational success. Kanter's (1993) structural empowerment (SE) theory suggests that if environments are rich in terms of resources, opportunities, information, and support, employees will be able to accomplish their work successfully. Alternatively, Spreitzer's (1995) psychological empowerment (PE) theory involves four cognitions (meaning, competence, self-determination, and impact) that reflect how an individual is able to shape their work role. Using an expanded theory of empowerment, this study investigated the role of stress as a moderator on the indirect effect of SE through PE, on two important nurse-related outcomes: affective organizational commitment and safety performance. Affective Organizational Commitment The affective component of organizational commitment describes an employee's level of emotional attachment to and identification with the organization (Meyer & Allen, 1991). Research suggests that an individual's commitment is often dependent on the events and policies through which an organization creates positive connections with employees. Hence, if a

workplace environment has high SE, it's likely that employees will have greater levels of commitment (Ahmad & Oranye, 2010). Several studies have demonstrated a positive relationship between PE and organizational commitment (Ahmad & Oranye, 2010; Joo & Shim, 2010), likely due to a reciprocal process, whereby employees feel appreciative of organizational efforts to provide a favorable environment, and subsequently, reward the organization by being more committed (Joo & Shim, 2010). Safety Performance Some research suggests that the workplace environment plays a role in safety performance, but this literature mainly focuses on leadership type (Clarke & Ward, 2006) or safety climate (Christian et al., 2009), and not specifically on SE factors. The present study looks to fill a gap in the literature by proposing that SE will be positively related to safety performance. Few researchers have examined the role of PE on safety performance, however, there is evidence for the relationship between PE and safety participation (Ford & Tetrick, 2011). These authors suggest that individuals higher in PE tend to perform safety behaviors that aim to improve the safety within the work context, implying that these individuals may be more likely to engage in safety performance behaviors. The Mediating Role of PE Organizational literature suggests that SE influences both organizational and individual outcomes. However, Laschinger et al. (2001) argue that by simply describing the work environment, SE does not account for individual reactions towards working conditions. Therefore, Laschinger et al. (2001) expanded Kanter's (1993) model to include PE as an intervening variable between SE and outcomes. The present study aims to build upon previous research by examining the indirect effect of SE, through PE, on two novel outcomes. Stress as a Moderator Previous research has demonstrated that psychosocial work conditions can act as moderators of important relationships (e.g., Bond et al., 2010; Garrick et al., 2014). Stress is often defined as a psychological factor within the psychosocial work climate (Stansfield & Candy, 2006), and since these studies demonstrate that environmental conditions can act as moderating variables, it is likely that stress will have a moderating effect on empowerment and nursing outcomes. Specifically, the present study proposes that the experience of stress will reduce the benefits that individuals receive from having high PE, thus, weakening the relationships between PE and the two outcomes. Methods, Results, and Implications Data were collected from 153 nurses who were mostly female (94.1%) and Caucasian (68.6%), with ages ranging from 21 to 67. There was a positive correlation between SE and PE, providing further evidence for the expanded model of empowerment. Additionally, SE and PE demonstrated an ability to increase nurses' affective organizational commitment and safety performance, suggesting that by increasing empowerment, organizations can effectively increase employee commitment—a finding that is timely in the face of a nationwide nursing shortage crisis. Further, examining ways to increase employee engagement in safety practices is always necessary, and the present findings contribute to this body of knowledge by demonstrating that empowerment is significantly related to safety performance in nurses. In addition, the findings provide further evidence for the indirect effect of SE on outcomes, through PE, highlighting the importance of having a workplace environment with resources, support, etc., which, in turn, will increase feelings of PE, resulting in positive workplace outcomes. Finally, stress significantly moderated the indirect relationships between SE and affective organizational commitment and safety performance. As expected, as stress levels increase, the positive effects of empowerment are weakened, and nurses will experience decreases in affective organizational commitment and safety performance. Thus, not only can the results of this study be used to inform work process design (i.e., improve access to resources, information, support, and opportunities to grow), but they also highlight the importance of engaging in primary and secondary stress prevention to reduce the negative impact of stress on nurses.

Discussant: Lisa Kath

Salon 10

Organizational Resources

PAPER SESSION

Organizational Factors of Resilience among members of the Canadian Special Operations Forces Command

Christine Frank (The Department of National Defence and the Canadian Armed Forces)

Background. Employee well-being is linked to positive organizational outcomes such as: performance (e.g., Wright & Cropanzano, 2004); organizational commitment or retention (e.g., Harter, Schmidt, & Hayes, 2002); productivity (e.g., Donald, Taylor, Johnson, Cooper, Cartwright, & Robertson, 2005; Harter et al, 2002); and absenteeism (e.g., Harter et al., 2002). Employee well-being is particularly important in the military, where member well-being is additionally linked to operational effectiveness (Department of National Defence, 2005) and potentially, indirectly, national security. The Canadian Special Operations Forces Command (CANSOFCOM) is a high-readiness organization within the Canadian Armed Forces, able to deploy on very short notice to protect Canadians from threats at home and abroad. SOF operators and assaulters must be ready to complete demanding pre-selection, high-risk training and missions, and be able to deal with the stress related to the high operational tempo of frequent and lengthy deployments and exercises. They are also more likely to be exposed to potentially traumatic combat situations compared to non-SOF military personnel (Hanwella & de Silva, 2012). SOF supporters and specialists also operate in high stress, high demand environments and must maintain good overall well-being and high levels of physical fitness to perform their roles. Given the rigorous requirements of a SOF member career and the potential organizational implications of poor member well-being, identifying organizational factors that contribute to member well-being is of high value.

Method: A descriptive qualitative design was used to explore the process of resilience among CANSOFCOM members. A total of 70 participants (33 Operators and Assaulters, 31 Supporters, 3 Pilots and Aircrew, 3 Specialists) were selected using a purposeful sampling method. This non-probability sampling technique was used with a maximum variation sampling (i.e., small number of participants with diverse characteristics) to ensure the heterogeneity of participants and that different experiences are represented (Coyne, 1997). Participant characteristics included in the sampling process were: CANSOFCOM unit, role/position, language profile, and gender. Members were invited to participate in a study exploring the process of resilience and well-being, which examined individual, social, and organizational contributors of resilience. Face-to-face semi-structured interviews were conducted in the member's home unit and lasted approximately 60-90 minutes. Thematic analyses were conducted on the interview notes (Fereday & Muir-Cochrane, 2006).

Results. There were several key organizational factors that participants reported positively impacted their well-being. Most commonly, participants mentioned the programs and services that were specifically created, or modified, for CANSOFCOM employees. For example, participants often mentioned the Special Operations Mental Agility course (SOMA), which is a program that aims to increase mental health literacy and enhance mental performance. Participants reported SOMA provided valuable strategies to improve mental well-being and helped to reduce stigma surrounding mental health issues. Participants also reported on the benefits of having dedicated strength and conditioning coaches. Physical health is highly linked to member well-being in SOF forces; thus, having dedicated coaches to help work around injuries and create personalized workouts was seen as very beneficial. Some participants also mentioned the benefits of having a dedicated Military Family Services centre (MFS). MFS provides programs and services to support the families of CANSOFCOM personnel, and participants reported that knowing their families were well-supported improved their well-being. Another organizational factor participants felt improved member well-being was the opportunity for members to request a posting to a non-operational unit. Members are able to be posted to units where they will not deploy in order to take time to recover from physical or mental injuries or burnout. Lastly, participants often reported that a positive and supportive leadership within CANSOFCOM increased their well-being. Participants reported that their chain of command was supportive when members requested accommodations to reduce stress and improve well-being. They also reported that their superiors encouraged members to seek care. In addition, participants provided recommendations to help increase well-being among personnel. The most common recommendation was to increase attempts to decrease unit tempo. Participants also reported wanting more mental health education including: SOMA refreshers, supervisor training, and more information on accessing the mental health system. Finally, they indicated that having dedicated or embedded mental health professionals would increase well-being.

Implications. Broadly, understanding the organizational factors that help promote well-being and resilience amongst members of SOF is likely to strengthen the forces and increase operational effectiveness. At the organizational level, a better understanding of the organizational efforts that translate into increased well-being among members will allow CANSOFCOM, and potentially other SOF partners, to strengthen existing programs, as well as use the findings to create new programs and services.

The Impact of Work Organization and Work Environment on Health Behaviors of Construction Apprentices

Diane Rohlman (University of Iowa)

In addition to high injury rates, construction workers have higher rates of mortality and morbidity from chronic diseases compared to workers in other occupations (Ringen et al., 2014; Dong et al., 2011). Construction workers also report higher rates of alcohol use (Barnes et al., 2013), smoking (Lee et al., 2007), and low consumption of fruits and vegetables (Harley et al., 2010; Devine et al., 2007). The organization of work and the work environment in the construction industry (e.g., multiple job sites, long hours, irregular employment, harassment and discrimination on the job site, and long commute times) can impact health behaviors. For example, construction workers often travel long distances to worksites and work long days, which impact sleep, exercise, and the ability to prepare and eat healthy foods. The goal of the current study was to examine the impact of organizational and environmental factors in the workplace on health behaviors (i.e., diet, physical activity, sleep, alcohol consumption, and smoking).

Construction apprentices recruited from local trade unions (N=991) completed a paper survey. Because of the low number of female participants (1.9%) only males were included in the analysis. Workers who were not currently employed (4.6%) were also excluded. The average age was 28 years and apprentices reported working in the trades an average of 2.6 years. The apprentices were general healthy as 95% reported no conditions hindering their job performance and many engaged in physical activity outside of work. However, 23% reported pain impacted their normal activities. A large proportion of this young population engage in unhealthy habits: 38% currently smoke and 32% engage in heavy drinking, with many receiving inadequate sleep (mean of 6.7 hours a day). Apprentices reported coworker and supervisor support was high and most worksites had some health and safety policies (e.g., smoking, cell phone use, hearing protection). On average the apprentices commuted 42 miles one-way to work each day.

Univariate analyses were conducted to identify variables associated with health behavior outcomes to include in multivariable stepwise regression models. Age was associated with the most health outcomes in univariate models (e.g., increasing age was associated with better diet, less physical activity, less drinking and more smoking). Other variables with a p-value <0.1 were included in regression models. Linear regression models for diet, physical activity, and sleep outcomes and modified Poisson regression models for heavy drinking and current smoking outcomes were used to examine the relationship between work organizational factors and health behaviors.

Important predictors of current smokers were increasing age, perception of lower work ability from greater job demands, and no limit on maximum work hours. Heavy drinking, defined as binge drinking five or more days during a month, was associated with younger workers who have been with the same employer for over 14 months. These workers also perceive greater job demands, higher self-perceived workability, and fewer workplace health and safety policies. Less sleep was associated with higher workloads, younger apprentices, more commute miles, and lower mental health scores. Lower leisure time physical activity was associated with increased work load, lower perceived work ability from greater mental health demands, fewer health and safety policies, and lower physical health scores. Poorer eating habits were associated with younger apprentices and those with lower mental health scores.

The results show that high job demands, heavy workload, longer commute time, as well as poorer mental and physical health were associated with adverse health behaviors. In contrast, better mental health and workplace policies addressing safety and health were associated with better health behaviors. Young workers were more likely to have worse eating habits and to engage in heavy drinking more frequently. These behaviors can have a long-term impact on their health and safety.

Interventions addressing health behaviors (e.g., diet and smoking) that target individuals may have limited benefit unless coincidentally supported by the work environment. Policies implemented through the work environment may have more widespread benefit to all workers, even those with better health behaviors. There is a need to prospectively examine the relationship between environment, organization, and behavior in order to develop effective interventions to improve health and safety of this high-risk population.

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Psychological Strain in Higher Education Faculty: Examining the Role of Resources on Teaching, Research, and Service Stress

Marcus Fila (Hope College)

Relatively limited attention has been given to understanding and predicting work stress in higher education faculty; perhaps due to widely held assumptions that academic work is less stressful than most other professions (Hogan, Carlson, & Dua, 2002; Winefield & Jarrett, 2001). However, faculty work life, with its multiple demands of teaching, research, and service, is wrought with opportunities for conflicting roles, and therefore, stress (Hendel & Horn, 2008; Olsen, 1993). Teaching stressors include preparing and delivering public (e.g., class) presentations, having adequate time for preparation, resolving differences with students (e.g., student grade complaints), and having students evaluate teaching performance. Research stressors include having sufficient time to keep abreast of current developments in one's field, securing financial support for research, and preparing manuscripts for publication. Service stressors include the nature of the departmental or university committee work itself, clarity on how service activities will be evaluated, and receiving sufficient reward for institutional/departmental service (Gmelch et al., 1986).

Most studies of faculty stress focus on strains—the negative and harmful responses that employees experience as a result of chronic, or ongoing stressors—as outcomes of demographic differences (e.g., race, gender, tenured versus untenured, and academic discipline), other personal differences (e.g., educational preparation, personal characteristics), differences in professional environmental, overarching measures of stress (e.g., workload), or stressors from outside the workplace (e.g., family, and financial stressors). However, greater understanding is needed of how stress from teaching, research, and service relate to various strains in faculty; because they (i) are usually central to performance expectations and career progression, (ii) compete for an individual's time, and the relationship between them is practically zero (Hattie & Marsh, 1996, Hart & Cress, 2008). Thus, in accordance with the stressor-strain model (Jex, 2002), we examine teaching, research, and service stress relationships with three frequently examined psychological strains: anxiety, emotional exhaustion, and depressive symptoms. Anxiety is a cloudy, unpleasant emotional condition characterized by concerns, distress, and restlessness in response to potential physical and/or psychological danger (Hamama, Ronen, & Rahav, 2008). Emotional exhaustion refers to feelings of being overextended, of being "…drained or used up, unable to face a day's work, totally unenthusiastic" (Sulsky & Smith, 2005, p.45). Depressive symptoms are affective reactions of sadness that follows negative events (Baumeister & Leary, 1995).

Following this, we apply theory from the job demands-control (-support) (JDC(S)) model (Karasek and Theorell, 1990), and job demands-resources model (JD-R; Demerouti et al., 2001) to examine how resources might mitigate these relationships. Resources of control and support continue to be central to most investigations of, and interventions for stress (Griffin & Clarke, 2011). According to the buffer hypothesis (Karasek & Theorell, 1990), control over work and support from workplace constituents mitigates (i.e., buffers) effects of demand stressors on strain; such that strain can be minimized even if work is perceived to be demanding. However, this theory remains unexamined in higher education faculty with respect to relationships between teaching, research, and service stress, and psychological strains. Thus, building on our stressor-strain examinations, we examine whether control over work, support from supervisors (e.g., a faculty member's Chair or Department Head), and coworkers (e.g., fellow faculty) mitigate teaching stress, research stress, and service stress relationships with psychological strain.

Results from zero-order correlations and hierarchical linear regressions of a sample of 281 full-time faculty in North American and British higher education institutions show that teaching, research, and service stress are positively related to anxiety, emotional exhaustion, and depressive symptoms. Several two-way interactions were found, revealing two distinct patterns of moderation between the three activity groups, and the three psychological strains. First, for those reporting low levels of the resource (e.g., control, Chair/supervisor support, or coworker support), strain remained constant regardless of level of stress; but for those reporting high resource levels, strain was lower with low stress, but equaled that of those with low resources when stress levels were higher research stress. The second, opposing pattern of interactions showed that participants reported, on average, the same level of strain when stress was low regardless of their level of resource, but those reporting low resource levels experiences higher levels of strain when stress was high. In all, research stress and emotional exhaustion had the most interactive effects. Several triple-order interactions were also found.

Interactions reveal different benefits of control and support resources to teaching, research, and service functions. Understanding these distinctive patterns is important for higher education leaders to ascertain effectiveness of specific resources, and to plan interventions for teaching, research, and service stress accordingly. Primary stress interventions around job design differ from secondary interventions which focus on stress management skills, and tertiary interventions which are concerned with the treatment, rehabilitation, and recovery (Cooper & Cartwright, 1997; Grant, Fried, & Juillerat, 2011).

The work engagement of nurses: The impact of high involvement work practice opportunities, job crafting and supervisor support

Cathy Sheehan (Monash University)

From an organisational perspective, the work engagement of nurses has been identified as a priority issue because it is closely linked to nurses' job and professional turnover, an issue of increasing unease in the face of global nursing shortages (Moloney, Boxall, Parsons & Cheung, 2018). The current research not only builds on the existing work in the Human Resource Management (HRM) area related to work engagement, but addresses calls for the ongoing understanding of antecedents to work engagement in the nursing profession (Castanheira & Story, 2016; Moloney et al., 2018; Pahlevan Sharif et al., 2018).

Work engagement, defined by Schaufeli, Bakker and Salanova (2006, p. 701) as "a positive work-related state of fulfilment that is characterised by vigour, dedication, and absorption", has gained increasing attention from researchers since Kahn's (1990) seminal work. Within the HRM field a connection has been established (see, Zhang, Zhu, Dowling & Bartram, 2013; Ananthram, Xerri, Teo & Connell, 2018) between work engagement and high performance work systems (HPWS) "an internally consistent set of policies and practices that ensure that a firm's human capital (employees' collective knowledge, skills, and abilities) contributes to the achievement of business objectives" (Huselid, Jackson & Schuler, 1997, p. 171).

In view of these variable outcomes of HPWS Zhang et al., (2013), and later Ananthram et al. (2018), explain that the effects of HPWS on employee well-being, including work engagement, are neither direct nor unconditional and call for more research into the HPWS–well-being

linkage that explains the complex underlying mechanisms. In response, the current paper develops a mediation explanation that incorporates the mediating role of job crafting in the HPWS–work engagement relationship. The research considers a specific type of HPWS, high involvement work practices (HIWP), as these practices promote opportunities for employee self-management, personal development and problem solving (Boxall & Macky, 2009). We argue that HIWPs prompt job crafting behaviour by drawing from Boxall, Hutchison and Wassenaar's (2015) explanation that HIWPs activate skills via the cognitive pathway in Vandenberg, Richardson and Eastman's (1999) extension of Lawler's (1986) initial model. HIWPs encourage workers to complete their tasks in a way that they think works best (Boxall et al., 2015), a skill aligned with job crafting behaviour. Job crafting is defined by Wrzesniewski and Dutton (2001, p. 180) as "the actions employees take to shape, mould, and redefine their jobs". The connection between job crafting and work engagement is well established in the literature (Tims, Bakker & Derks, 2012; Petrou, Demerouti, Peeters, Schaufeli & Hetland, 2012; Van Wingerdan, Derks & Bakker, 2017), and is based on the premise that when workers are allowed to shape jobs to fit their needs, their intrinsic needs are satisfied and they are more engaged with their jobs (Bakker & Demerouti, 2007).

We make a further theoretical contribution by examining the boundary conditions of the relationship between HIWPs and work engagement mediated by job crafting. Following Wong, Škerlavaj and Černe (2017) and Bakker, Rodríguez-Muñoz and Sanz Vergel (2016), we argue that job crafting is not a private behaviour and, consistent with Wrzesniewski and Dutton's (2001) early writing, highlight the important role played by the supervisor in fostering the job crafting behaviours of subordinates. Theoretically, responding to the calls from Brunetto, Shacklock, Teo, and Farr-Wharton (2014) we draw on social exchange theory (SET) (Blau, 1964) to highlight the role played by the supervisor in accentuating the extent to which subordinates engage in job crafting when provided with HIWPs by the organisation.

The study makes a number of contributions. First, the focus on nurse work engagement addresses an area that is directly related to concerns about nurse professional turnover and global nursing shortages (Moloney et al., 2018; Pahlevan Sharif et al., 2018). Second, our study addresses the need for the development of mediation models that show how HPWS directly and indirectly influence employee engagement and therefore well-being (Ananthram, et al., 2018). Finally our study makes an important contribution to practice, by highlighting how supervisors can foster the work engagement of nursing employees, by reinforcing job crafting behaviours adopted by nurses.

The study was based on an anonymous online survey of 2,984 nurses employed in Australia. Analysis confirms the hypothesised relationships in that job crafting was found to mediate the positive relationship between HIWPs and work engagement. Further, supervisor support moderated the indirect relationship between HIWPs and work engagement through job crafting, such that the indirect effect is stronger under increasing levels of supervisor support. The results have implications for the importance of HIWPs on job crafting for nurses who carry out many professional roles simultaneously. The research highlights the role that supervisors play in encouraging and managing nurses who take advantage of HIWP opportunities to shape, mould and redefine their jobs.

Independence Ballroom A

Positive Approaches to Promoting Employee and Organizational Outcomes

PAPER SESSION

For whom? Examining the impact of psychological context in two randomized controlled trials investigating positive reflection and emotion reappraisal at work

M. Gloria Gonzalez-Morales (University of Guelph)

Psychological resource theories suggest that engaging in effortful activities depletes our store of available energy or resources (Barnes & Van Dyne, 2009; Baumeister, Muraven, & Tice, 2000). As a type of effortful action, daily work tasks deplete our resources. Daily psychological micro-interventions may help to buffer against depletion or boost resources across the working day and have been proposed as a method of developing employees' resources to manage the day-to-day stressors experienced on the job.

Using the model of energy at work (Quinn, Spreitzer, & Lam, 2012), we argue that micro-interventions can impact the energy we have to perform our work roles on a daily basis. Energetic activation at work is defined as "the subjective component of the bio-behavioural system of activation experienced as vitality, vigour, enthusiasm, zest, etc." (Quinn et al., 2012; p. 341), which accounts for the degree to which people feel energized, rather than an objective indicator of their physical energy (Quinn et al., 2012). We conceptualized vigour and fatigue as two independent but related indicators of energetic activation across the day. The inability to replenish energy resources that were lost in an attempt to cope with demands may lead to long-term fatigue and eventually burnout (Gorgievski & Hobfoll, 2008). We are interested in the extent to which daily micro-interventions at work operate to positively sustain end-of-day vigour or to combat against end-of-day fatigue. We expected that over the course of a workday, energetic activation is expended but the extent to which resources are depleted at the end of the day depends on a number of factors, including the amount of energetic activation the individual started with when they began their work.

We examine this in two randomized controlled trials investigating two daily micro-interventions (positive reflection and emotion reappraisal) on energetic activation (evening vigour/fatigue), compared to a control group. We investigated whether performing a daily micro-intervention buffered against resource depletion in terms of daily vigour (studies 1 and 2) and daily fatigue (study 2).

In addition, we investigated the psychological context of the intervention as a currently under-explored aspect of intervention effects (see Wellenzohn, Proyer, & Ruch, 2016 for a notable exception). In the context of micro-interventions, the subjective experience (Richardson, 1999) including preference, of the intervention represents a form of psychological context. Little research has investigated subjective appraisals, despite calls for more research on process effects at the micro-intervention level (Lyubomirsky & Layous, 2013; O'Shea et al., 2016).

The final sample of study 1 comprised 60 participants (sample size at level 2 or between level), 29 in the intervention group and 31 in the control group, who completed diaries over 10 days (a priori sample size at level 1 or within level was 600). In study 2, a total of 101 participants enrolled in the study, and were randomly assigned to one of three

groups, the positive reflection group (IGp), the reappraisal group (IGr), or the control group (CG). Participant flow is outlined in Figures 1 and 3. According to simulation studies on power of multilevel models (Maas & Hox, 2004, 2005), our level 2 sample sizes were above the recommended size of 30 level 2 units for estimating fixed effects. To test our hypotheses, data were analysed using hierarchical linear modelling in the R package lme4 (Bates, Maechlet, Bolker, & Walker, 2015).

Across the two studies, we did not find significant main effects of the interventions on daily energetic activation compared to a control condition (see tables with detailed results). However, we found that a selected group of participants benefitted from the positive work reflection micro-intervention: those with lower levels of vigour in the morning who appraised the micro-intervention positively. This provides initial support for our contention that psychological context is important to consider in explaining how positive savouring activities have their effect on daily energy. The results of study 2 replicate and extend those of study 1, demonstrating that regardless of the micro-intervention activity, subjective appraisal interacts with morning vigour in predicting evening vigour. The finding of a main effect of subjective appraisal on fatigue would suggest that the subjective appraisal of an intervention plays a role in both types of daily energetic activation.

Findings point out the need to consider psychological context in the evaluation of micro-interventions in the workplace. Ignoring such issues may result in spurious and/or null findings of intervention effectiveness and contribute to conflicting findings about the efficacy of such interventions. Further, our research points to the need to understand the boundary conditions (both environmental and psychological) of an intervention. Across two studies examining two micro-interventions, our results demonstrated that the nature of the intervention activity itself may be less important than the subjective appraisal of that micro-intervention by the individual. Regardless of the activity, experiencing the activity as pleasant and/or feeling better after completing it positively impacted energetic activation.

Effectiveness of a Mindfulness- and Skill-Based intervention for health oriented leadership: A controlled, multisite and multisource field trial

Ruben Vonderlin (Central Institute of Mental Health (CIMH), Germany)

Background. Leadership development and mental health of executives are a critical factor in the healthy design of the work environment (Barling & Cloutier, 2017; Kelloway & Barling, 2010). Leadership behaviour does not only affect the supervisor's own health, but is also assumed to affect the health of followers and organizational culture (Quick, Macik-Frey, & Cooper, 2007). To date many studies have investigated the link between leadership behaviour or style and the supervisor's own or their followers' health, both as single-source studies and as multi-source studies (e.g. Montano, Reeske, Franke, & Hüffmeier, 2017; Kranabetter & Niessen, 2016). However, to the best of our knowledge, there is no research that has evaluated an intervention for healthy leadership on both, supervisors' and employees' mental health in a naturalistic setting (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). For this reason, we have designed an intervention to train supervisors to lead both themselves and their employees in a healthy way. The aim of this study is to test the effectiveness of the intervention at the supervisor level and to examine the spill-over effect at the level of the employee. To answer the research question, a controlled, multisite and multisource field trial was conducted.

Intervention: The leadership program "Leadership in Balance" was developed in 2016 on behalf of a German health insurance company. The prevention program consists of three content-related seminar modules of 8 hours each (healthy self-management, healthy staff management, dealing with employees under stress) as well as two sustainability workshops of 1.5 hours each. The contents of the seminar were mainly mindfulness- and skillbased (Lyssenko et al., 2015), which are anchored in Acceptance Commitment Therapy (ACT, Hayes, Luoma, Bond, Masuda, & Lillis, 2006) and Dialectical Behavior Therapy (DBT, Linehan, 1993).

Procedure: Executives from eleven companies from different economic sectors in Southern Germany were invited to attend this course in the period 09/2017-12/2018. The participating executives and their direct employees were interviewed using questionnaires at three time-points (t0: before the start of the courses, t1: directly after the completion of the three content-related seminars (t0 + 3months) and at t2: after the sustainability workshops, three months later (t0 + 6months). As a control group insured persons of the health insurance company were contacted, who were matched for major potentially confounding variables. A study protocol is available at the German Clinical Trials Register (ww.drks.de).

Hypotheses: Hypothesis 1: For executives, participating in the prevention course, health-oriented leadership style and appreciation of employees relative to the control group increase at the time of post-testing. The mental burden of the executives compared to the control group decreases at the post-measurement time.

Hypothesis 2: The direct employees of the participating executives evaluate the health-oriented leadership style and appreciation of their executives higher than the post-measurement control group. The mental burden of the employees compared to the control group decreases at the time of the post-measurement.

Instruments: Health oriented leadership was assessed as self-assessment by executives and external-assessment by employees using the health-oriented leadership scale (HoL, Franke, Felfe & Pundt, 2014). Appreciation was assessed as self-assessment by executives and external-assessment by employees using the appreciation at work scale (WAA, Jacobshagen, Oehler, Stettler, Liechti, & Semmer., 2008). Mental Health was assessed as self-assessment by executives and employees using the Hospital Anxiety and Depression Scale (HADS-D, Herrmann-Lingen, Buss & Snaith, 2007)

Sample Description: A total of 131 supervisors and 803 employees signed informed consent and participated in the study (on average 6,5 employees per supervisor, SD=5.5, Range= 0-30).

Data Analysis & Results. Data assessment in the intervention and control groups will be completed in March respectively June 2019. A Mixed-Effects Model will be used to analyse data including time (t0,t1,t2) as within factor and group (experimental vs. control) as between factor. Characteristics on the level of supervisors (e.g. management span or change in leadership behaviour) will be analysed as moderator for treatment effectiveness. Data analysis will be completed in September 2019.

Practical implications. The results of the study have a high impact for research both in the area of healthy work and in the area of general prevention, as well as for decision-makers in politics and business, when considering to implement interventions for mental health promotion at the workplace.

Discussion: To our knowledge this is the first multi-source intervention study, designed to improve healthy leadership. Data analysis and interpretation will be presented at the conference.

Mindfulness interventions in the workplace: A meta-analysis of randomized-controlled trials

Ruben Vonderlin (Central Institute of Mental Health (CIMH), Germany)

Background. In light of the complex, intense and flexible demands of many workplaces, there is growing interest in occupational psychology for the potential beneficiary effects of mindfulness-based interventions (MBIs) for employees. Consequently the number of studies investigating MBIs at the workplace has rapidly increased over the last decade. Existing meta-analyses on MBIs in the work context refer to either a specific occupa-tional group (e.g., teachers: Iancu, Rusu, Măroiu, Păcurar, and Maricuțoiu [2018]; mental health professionals: Lomas [2018]; Burton, Burgess, Dean, Koutsopoulou, and Hugh-Jones [2017]) or to specific dependent variables (e.g., psychological distress: Virgili [2015] or burnout: Iancu et al. [2018]). Two systematic reviews have provided a narra-tive overview of MBIs in the workplace (Eby et al., 2017; Lomas et al., 2017). However, the quality of the included controlled and uncontrolled studies was inconsistent, re-stricting the interpretation of findings. Recently Lomas et al. (2018) published a meta analysis regarding mindfulness-based interventions at the workplace. However this meta-analysis has some limitations: 1.) The literature search was only conducted till January 2016, however, our literature search revealed that since 2016, 27 new random-ized-controlled studies were published, which were eligible for inclusion. 2.) Lomas et al. did only analyze pre-post effects, and no long-term effects. However, these long-term effects are quite important for decision makers in organizations. The aim of our meta-analysis was to synthesize results from methodologically sound randomized-controlled studies on MBIs in workplace settings across professions and outcome variables, as well as to update the earlier meta-analysis of Lomas et al. 2018 and to examine the long-term effectiveness of MBIs.

Method: To identify relevant literature, we conducted a systematic literature search within the following databases up to November 2018: PsychInfo, PubMed, Web of Sci-ence and Academic Search Premier. The literature search revealed 2,945 studies, of which k=56 studies were eligible for inclusion. The inclusion criteria were: (1) Popula-tion are healthy adults (age 18-65 years) with close to full-time employment (> 30 hrs/week), (2) any type of mindfulness/meditation based intervention with at least two hours of training and with mindfulness constituting at least 50% of the program, (3) interventions offered at the workplace or initiated by the employer, (4) randomized control trials, (5) report of the mean (M), standard deviation (SD) and sample size (N) for the outcome measures, or (6) sufficient information to calculate those values. Two raters independently grouped the different outcomes from the primary studies into dif-ferent outcome domains. The outcome domains, which consisted of at least 4 different studies, were included in data analysis (i.e. mindfulness, stress, subsyndromal symp-toms, burnout, well-being & life satisfaction, compassion, productivity, negative affect, positive affect, physical symptoms, work engagement, job satisfaction, resilience). In addition we extracted participant and intervention characteristics as moderators to an-alyze variation in effect sizes (i.e. age, gender, education, profession, work experience, type and duration of intervention, total time of contact). Publication bias was assessed using Egger's regression test and the risk of bias within studies was assessed using the Cochrane Risk of Bias Tool for Randomized Controlled Trials.

Results. Overall we synthesized data from k=56 studies including n=2,689 participants of mindfulness interventions compared to n=2,472 people in control groups. Random-effects models revealed significantly lower levels of perceived stress (k=42, d=-0.67, p<.001), lower subsyndromal symptoms (k=37, d=-0.36, p<.001), lower physical symp-toms (k=6, d=-0.32; p<.05), less burnout (k=22, d=-0.37, p<.01), as well as significantly higher levels of mindfulness (k=31, d=0.42, p<.001), well-being (k=16, d=0.51, p<.05), compassion (k=8, d=0.61, p<.001), positive affect (k=7, d=1.07, p<.05), work engagement (k=5, d=0.53, p<.05), job satisfaction (k=6, d=0.51, p<.05) and resilience (k=4, d=0.49, p<.001) in the MBI groups compared to the control groups at post intervention. Marginally significant changes were found for productivity measures (k=8, d=0.29, p=.084) and negative affect (k=6, d=-1.07, p=.066). The analysis of follow-up assess-ments revealed that effects maintained over a period up to three months (stress: k=10, d=-0.68, p<.001; subsyndromal symptoms: k=13, d=-0.61, p<.01; burnout: k=9, d=-0.38, p<.001; mindfulness: k=10, d=0.41, p<.001; well-being: k=8, d=0.36, p<.001; compassion: k=5, d=0.54, p<.01). There were not enough studies available for the analysis of longer time periods. In the moderator analyses neither the participant nor intervention charac-teristics consistently influenced the outcomes. Egger's regression test revealed signifi-cant funnel plot asymmetry for mindfulness indicating a risk of publication bias.

Practical implications. This meta-analysis might inform decision-makers within com-panies when considering to implement mindfulness interventions for their employees.

Conclusion. Overall, our meta-analysis provides evidence that MBIs can be implement-ed with positive effects on a variety of different outcomes, mainly on personal health indicators, across a wide range of professions and organizational structures with small to large effect sizes ranging from d = |0.29| to |1.07|. The limitations and future research topics primarily concern the long-term effects (longer than 3months) as well as a con-sideration of the contextual factors and effects on the performance of individuals and organizations.

The Effects of an Online-Based Positive Psychological Capital Micro Intervention on Work-Related Outcomes

Shu Da (Beijing Normal University)

Problem. Psychological capital with components of hope, self-efficacy, optimism, and resiliency has recently emerged as a core construct in taking positive psychology to the workplace(Luthans, Avey, & Patera, 2008). Moreover, psychological capital is state-like in nature and opens to development, which positions it somewhere along a continuum between transient states, which are momentary and very changeable, and "hard wired" traits, which are very stable and difficult to change(Luthans, Avolio, Avey, & Norman, 2007; Walumbwa, Luthans, Avey, & Oke, 2011).

A number of researches have already demonstrated the influence that PsyCap may have on work-related outcomes, such as performance(Luthans et al., 2007) , satisfaction or commitment(Luthans, Norman, Avolio, & Avey, 2008; Youssef & Luthans, 2007), and absenteeism (Avey, Patera, & West, 2006). However, research on positive psychology interventions in organizations is still in its infancy (Meyers, van Woerkom, & Bakker, 2013).

Therefore, the purpose of this study is to test the feasibility and effectiveness of an on-line intervention strategy to develop psychological capital and to explore whether the change of psychological capital will lead to the change of work-related outcomes such as turnover intention, job embeddedness, job satisfaction and job performance.

The greatly increased demand of web-based products, service, and treatment delivery carries over to human resource development. The online intervention method in this study is on the strength of psychological capital micro intervention model —— the Psychological Capital Intervention (PCI) (Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, et al., 2008) and road metaphor is involved in hope dimension development design.

Procedures. Participants are full-time employees from Mainland China. They are recruited online and randomly divided into three groups. The technique of random allocation and randomized control trial (RCT) are used in this study. Totally 104 valid samples are collected in this study containing 38 samples in experimental group, 31 samples in placebo group and 35 samples in blank group. The on-line micro intervention needs participants to spend 10 minutes a day and 5 workdays in a row learning and practicing the materials. Variables including employees' psychological capital and work-related outcomes were tested before (T1), after (T2) and a week after (T3) the intervention.

Analyses. The present study used SPSS 19.0 to analyze the data. Descriptive statistics, independent-sample t test, repeated measurement analysis of variance, simple effect analysis were mainly included in statistical methods.

Results. The analysis of variance of repeated measure on the employees' psychological capital of the three groups at three-time points has shown that the level of psychological capital at 3 time-points is significantly different ($F=3.419$, $df=1.722$, $p=0.042$, $\eta2=0.033$), which means the main effect of measurement time points is significant. Also, the interaction effect between repeated measured psychological capital and three intervened group is significant ($F=3.788$, $df=3.444$, $p=0.008$, $\eta2=0.070$). Further analysis indicates only in the experimental group the psychological capital levels is significantly different between T1 and T2 ($p<0.001$) and between T1 and T3 ($p<0.05$), which proves that compared with placebo group and blank group, psychological capital in experiment group is significantly increased and the effect last for a while.

As to work-related outcome variables, the interaction effect between the repetitive measured turnover intention and three groups of different experimental treatment reaches almost the significant level ($F=2.515$, $df=3.450$, $p=0.052$, $\eta2=0.048$). Further analysis shows that compared to placebo group and blank group, the turnover intention are significantly reduced between T1 and T2 in experiment group.

As for job embeddedness and job performance, the intervention has shown a positive influence but not reach a significant level, while the intervention does not have a positive influence on job satisfaction.

Practical implications. This study may attract human resource management and managers from corporations to pay attention to psychological capital, which will bring positive psychology into management and be useful to the development of organizations. For instance, psychological capital may be considered as an aspect in selection and recruitment, especially for key management positions. Moreover, psychological capital can be involved into training systems or EAP services to promote more development to individuals and make both organizations and individuals benefit more.

Conclusions. Compared to placebo and blank group, the online micro intervention strategy of psychological capital in this study has proven to effectively increase employees' psychological capital level and the effect can last for a week. Moreover, this intervention also effectively decrease employees' turnover intention at T2 despite the effect doesn't last to T3.

Philadelphia Ballroom South

Worker Well-Being: A Framework and Measurement Tool

SYMPOSIUM

Chairs: Chia-Chia Chang (NIOSH), Steven Sauter (NIOSH)

Increasingly, there is interest in an integrated, systemic approach to worker safety, health, and well-being. There is recognition of the importance of not only preventing disease and injury, but also enhancing overall well-being. However, there has been no consistent definition of the concept of well-being. To address this gap, NIOSH and the RAND Corporation initiated an effort to develop a conceptual framework and operationalize indicators for worker well-being.

During the past two Work, Stress, and Health conferences, we have reported on the progress of this effort. This symposium will present a summary of the project and discuss implications and next steps. The first phase of the project was a multidisciplinary literature review and identification of key conceptual issues that informed the framework development. The second phase of the project was the development and validation of a survey instrument based on this framework. We will discuss the analysis and findings from the validation process. Finally, we will highlight some conceptual and practical issues related to the framework and instrument and discuss ideas for sharing and using the measurement instrument. We will invite the audience for a discussion about implications and opportunities to further advance the well-being of workers.

The concept of well-being captures many facets of the human experience, and researchers are beginning to consider well-being as a major outcome used to evaluate the effectiveness and impacts of policies designed to enhance the public's health. With this in mind, the National Institute for Occupational Safety and Health (NIOSH) and the RAND Corporation embarked on an effort to develop a conceptual framework and operationalize indicators for worker well-being. During the past two Work, Stress, and Health conferences, we have reported on the progress of this effort. This symposium will present a summary of the project and discuss implications and next steps. The first phase of the project was a multidisciplinary literature review and identification of key conceptual issues that informed the framework development. We will present the resulting framework that defines worker well-being as a subjective and objective phenomenon inclusive of experiences both within and beyond work contexts. The framework consists of five domains: (1) Workplace physical environment and safety climate, (2) Workplace policies and culture, (3) Health status, (4) Work evaluation and experience, (5) Home, community, and society. The second phase of the project was the development and validation of a survey instrument based on the framework to measure worker well-being. We reviewed existing validated instruments and extracted items relevant to the five domains. Through an expert panel process, we prioritized and selected the items for inclusion in the instrument. We field tested the instrument in a nationally representative sample and conducted a series of psychometric analyses. We will share the results of the analyses, the reliability and validity of the various scales representing the dimensions included within each domain, survey scoring guidance, and changes proposed to the original worker well-being framework. Finally, we will stimulate discussion about the implication of this work and

opportunities for next steps. We will outline a few conceptual issues related to the framework's multi-disciplinary nature, strengths and weaknesses of the framework and scoring measures, and similarities and differences between the survey instrument and other well-being measurement tools. We will also discuss practical issues such as how the framework and survey instrument can be used in research, policy, and workplace contexts and how the findings can be interpreted and applied. We will invite the audience to discuss how the instrument can be adjusted for different applications and contexts, options for data management and sharing to advance research and increase applicability; and ideas to move research to practice and ensure that the instrument is put to use in work settings. We will also encourage discussion about next steps in research to better understand worker well-being and how employers, workers, researchers, policy makers, and other stakeholders can use the framework and instrument to advance worker well-being.

Defining worker well-being: Overview of a new framework

Elizabeth Petrun Sayers (RAND Corporation)

On average, Americans spend almost half of their waking lives working (Saad, 2014). However, only half of working Americans report being satisfied with their job (Cheng, Kan, Levanon, & Ray, 2015). Considering the central role of work in our lives, low satisfaction and engagement can signal trouble not only for a single organization but broader U.S. culture as well. Considering, a robust understanding of worker well-being serves an important step in developing programs aimed at enhancing the quality of working life and creating a culture of safety and health at work. An interdisciplinary topic, well-being is found in psychology, economics, philosophy, political science, biology, sociology, and public health literature. Each field approaches well-being differently, but broadly the term is conceived as a positive state of being. Further, the construct may be defined as not only an absence of negative factors, but rather the ability to flourish and live well. The concept of well-being captures many facets of the human experience, and researchers are beginning to consider well-being a major outcome used to evaluate the effectiveness and impacts of policies designed to enhance the public's health. With this in mind, the National Institute for Occupational Safety and Health (NIOSH) and the RAND Corporation embarked on an effort to develop a conceptual framework and operationalize indicators for worker well-being. This abstract presents an overview of existing worker well-being literature and presents a new framework for worker well-being that (1) addresses workers, workplaces, and the communities in which they reside or operate; (2) contains both subjective and objective well-being indicators; and (3) acknowledges organizational, environmental, and health conditions that provide opportunities to thrive instead of only preventing illness and injury and the risk factors for these outcomes. Our framework reflects the idea that achievement of worker well-being cannot occur through employer-based workplace interventions alone but may require broad-based programs that touch on different areas of an individual's life and organizational partnerships that cross work and non-work settings. To build our framework, we examined existing well-being constructs and measures. A literature review returned about 150 constructs to consider, including over 500 existing measures. After categorizing and grouping constructs together, a framework consisting of five domains emerged to capture major themes in from the literature. These domains are (1) Workplace physical environment and safety climate, (2) Workplace policies and culture, (3) Health status, (4) Work evaluation and experience, (5) Home, community, and society. Table 1 includes a brief definition of each domain. Each domain contains several subdomains, gleaned from the literature and refined throughout the project's lifecycle. This presentation will overview existing literature, introduce each domain, and describe included subdomains and constructs. To summarize, this framework takes a comprehensive perspective in defining worker well-being across work and non-work contexts. The framework not only provides a more comprehensive understanding of this topic, but also offers the groundwork for assembling an instrument to measure worker well-being. Ultimately, this work is the first step towards improving organizational and community policies, programs, and practices to promote health and prevent disease for workers in the United States.

Measuring worker well-being: development and validation of a survey

Ramya Chari (RAND Corporation)

In recent years there has been a larger societal movement to incorporate the concept of well-being into evaluative assessments of how well nations, communities, organizations, and people are doing. This movement is also occurring in the workplace, where there has been increased interest in defining, measuring, and then acting on worker well-being as a means for achieving a host of positive outcomes such as enhanced productivity, increased employee retention, and better health outcomes. To inform both organizational research and practice on well-being, the National Institute for Occupational Safety and Health and the RAND Corporation initiated a multi-year study to conceptualize and operationalize the concept of worker well-being. The first phase of this research resulted in the development of a worker well-being framework consisting of five domains: (1) workplace physical environment and safety climate; (2) workplace policies and culture; (3) health status; (4) work evaluation and experience; and (5) home, community, and society. This presentation describes the second phase of the research, the development of a worker well-being survey instrument and the psychometric evaluation of the instrument. To develop the survey, we first extracted over 800 items from 46 existing instruments that covered dimensions germane to the five domains. Candidate items were prioritized and selected through an expert panel process for inclusion in the worker well-being survey. In June and July of 2018, the instrument was fielded in a nationally representative U.S. sample of 1,894 employed adults drawn from the Knowledge Networks online Internet panel. The response rate was 52% and the final number of completed surveys was 975. Altogether 83 questions (187 items) across 22 dimensions, most of which were adapted from validated surveys, were tested with exploratory and confirmatory factor analyses. Six items were newly developed for the survey. This presentation will describe the analytical results including the number of items and dimensions included in the final worker well-being survey instrument, the reliability and validity of the various scales representing the dimensions included within each domain, survey scoring guidance, and any changes proposed to the original worker well-being framework.

What's Next? Conceptual and Practical Implications and Next Steps for Measuring Worker Well-Being

Gwenith Fisher (Colorado State University)

Previous presentations in this symposium introduced our framework for the measurement of worker well-being based on five domains: (1) Workplace physical environment and safety climate, (2) Workplace

policies and culture, (3) Health status, (4) Work evaluation and experience, (5) Home, community, and society. Additionally, the other presentations described the methods used to develop the scale and collect data for validation purposes, and presented results from the validation study and described how we reduced the overall length of the survey while still aiming to cover multiple domains of worker well-being. The purpose of this presentation is to return to the bigger picture or larger context by discussing conceptual and practical issues of worker well-being assessment with the audience. We will also summarize next steps regarding the use and dissemination of this new well-being measure. To accomplish this purpose, we will engage in a dialogue with the audience to address numerous relevant issues. We hope that academics, practitioners, and other professionals interested in assessing worker well-being and / or intervening to improve well-being will attend the session to engage with us on the following topics: 1) Conceptual issues. We will facilitate a discussion regarding the conceptual strengths and limitations of this new measure. First, we will discuss how well our measure of well-being addresses the multidisciplinary conceptualization of well-being across psychology, public health, environmental and occupational health, epidemiology, medicine, and economics. Second, we will discuss the strengths of combining subjective and objective approaches to well-being measurement. Third, we will also aim to compare the conceptual similarities and differences between this new well-being measure and other existing measures (e.g., Gallup-ShareCare Well-Being Index, among others). Finally, we will also discuss strengths and limitations associated with various possible scoring algorithms, including the use of a composite score in which scores for each domain of well-being are combined into a single score across the five domains included in our measure, compared to examining the domains individually and not aggregating them into a single composite indicator. As part of this discussion, we will solicit and entertain comments from symposium attendees on potential ways instrument content might be adjusted to improve its usefulness in different applications and contexts. 2) Practical issues. Following our discussion with the audience about the aforementioned conceptual issues, we will discuss many ways in which this measure may be used. For example, this measure may be used to assess worker-well-being across a variety of organizational and research contexts (e.g., as an organizational diagnostic tool to facilitate academic research in occupational and environmental health and Total Worker Health®; and to contribute to improving organizational, community, regional, and national policies, programs, and practices to protect worker safety and promote worker health and well-being). Options for management of data arising from application of the instrument for use by organizations and researchers will be part of this discussion of practical issues. 3) The third portion of our presentation will consist of describing our next steps for dissemination and use of this new measure of well-being. We will welcome any comments or suggestions from the audience regarding ways to share this measure with the broader community. 4) We will conclude this presentation with a question-and-answer (Q&A) session with the audience. Our objective will be to answer any questions that the audience may have, whether it is about the instrument itself, its development, or broader implications and next steps.

Wenjing Huang

Independence Ballroom B

Leadership as a Resource for Work Life

PAPER SESSION

A Multi-level Model of Unit Work-Family Resources and Employee Well-being

Jacquelyn Brady (Portland State University)

Work-life stress is a health hazard (Hammer & Sauter, 2013), therefore work-family (WF) research has focused on resources to reduce stress and improve employee lives. Resources such as flexibility, schedule control (Lyness, Gornick, Stone, & Grotto, 2012), and family supportive supervisor behaviors (FSSB; Hammer et al., 2009), have been linked with employee well-being (for review see Crain & Stevens, 2018; Thomas & Ganster, 1995). However, with most WF literature relying on single source and time measures, there exists a need for novel multi-source methods. WF resources are traditionally examined at the individual rather than unit level, despite that unit perceptions can be stronger predictors of individual outcomes (Christian, Bradley, Wallace, & Burke, 2009), and that WF resources can emerge as a group level construct (FSSB; Hill, Matthews, & Walsh, 2015. Unit perceptions of resources can yield important information conceptually different from individual perceptions. For instance, unit level analyses shed light on unit culture as a whole. Drawing on COR theory (Hobfoll, 1989), and using a time-series design with multi-level data (aggregate employee unit, and individual), we take a novel approach to further our understanding of how unit WF resources may ultimately influence employee well-being.

COR theory posits individuals seek to obtain, protect, and maintain resources (personal, material, energies, and conditions; Hobfoll, 1989) that serve major goal attainment, and share value across groups. Establishing WF resources as a group level predictor of psychological and job well-being would be a test to determine the shared value of resources, which also fits well within the climate research. Climates are defined as employees' shared perceptions (positive or negative; strong or weak) about procedures, practices, and kinds of behaviors that are supported or rewarded (Schneider, 1990; Zohar, 1980; Zohar, 2014). Yet, very few studies have utilized COR theory to link shared WF resources to psychological well-being, despite the conceptual overlap of shared perceptions.

Both psychological distress (Kossek et al., in press) and job burnout (Maslach, Schaufelli, & Lieter, 2001, pp. 397) are considered poor well-being outcomes resulting from chronic exposure to stressors (e.g. work-life stress). However, resources are known to help. For example, FSSB has been linked to improved job and psychological well-being (Crain & Stevens, 2018; Kossek, et al., 2018), and schedule control (SC) has been linked to lower burnout (Almer & Kaplan, 2002) and negative WF spillover (Moen, Kelly, Tranby & Huang, 2011). Importantly, these findings have relied almost entirely on individual perceptions of FSSBs and SC. Shared perceptions of FSSB and SC may be particularly meaningful for individuals trying to balance work and family by solidifying the work environment as unambiguously supportive. If resource perceptions are shared among group members, the availability of the resources may feel more certain, and therefore reduce psychological distress and job burnout further.

H1: Unit perceptions of FSSBs will be negatively related to a) psychological distress and b) job burnout

H2: Unit perceptions of SC will be negatively related to a) psychological distress and b) job burnout

Methods and Analysis Strategy. This study will draw on archival, transdisciplinary, Work, Family, and Health Network (WFHN) data. Participating employees worked in the long-term healthcare industry from 30 extended-care facilities. Measures include aggregate resources as predictors at time 1 (FSSB; Hammer, Kossek, Bodner, & Crain, 2013; schedule control; Thomas & Ganster, 1995), and well-being outcomes, at time 2 (psychological distress; Kessler et al., 2003; job burnout; Maslach & Jackson, 1986). To analyze our data, first we will report justification for aggregation on unit level variables (SC, FSSB) by using Mplus v8 (Muthen & Muthen, 2018) to establish acceptable ICCs consistent with the literature (e.g. ICC1 values should generally be > .10). Once shared perceptions are established, a series of multi-level regressions will be run with employees nested within their supervisors to examine the link between unit level WF resources and employee well-being.

Implications and Future Directions. In conclusion, the current study takes a novel approach in understanding the role of resources on employee well-being. Analyses will shed light on the impact of unit level resources from a shared perspective, and therefore yield new information about the WF culture of a unit. Considering a substantial amount of WF research relies on single source and time data, our findings will provide novel insights to the culture around resources and their role in employee well-being.

Findings should yield important considerations for organizations, and researchers, including potential targets of WF interventions. Future research questions may seek to compare individual versus unit level resources on employee well-being, informed by safety research suggesting unit-level perceptions may be more strongly related to outcomes (Christian, et al., 2009). Alternatively, researchers may seek to determine whether WF resource climate is changeable, or associated with family outcomes (e.g. family well-being) that are known to be associated with WF conflict (Amstad, Meier, Fasel, Elfering, & Semmer, 2011).

Co-worker and supervisor support buffer job demands upon return to work after paid parental leave

Lisset Dumet Poma (Oregon Health & Science University)

Problem. Nations with paid parental leave, a policy that compensates the time that parents spend away from work to take care of a new child, have shown positive health and socio-economic outcomes (Burtle & Bezruchka, 2016). The United States remains the only high-income nation that does not offer a federal paid parental leave policy (OECD - Social Policy Division, 2017). However, American firms have opted to provide this benefit as a strategy to enhance the recruitment and retention of a talented and skilled workforce (Bartel, Baum, Rossin-Slater, Ruhm, & Waldfogel, 2014). These employer-based policies impose implementation and evaluation challenges given the interaction of local, state, federal public policies (Beauregard & Henry, 2009). Analyzing the experience of new parents upon return to work (RTW) after paid parental leave is a significant endeavor to shed light on the policy successes or challenges. Furthermore, exploring the role of coworkers and supervisors on the effectiveness of an optimal RTW after parental leave is critical given they are critical actors for the establishment of family-supportive work environments and the reduction of harmful stereotypes (Australian Human Rights Commission, 2014).

The study aims are: (i) to test if job demands and other job-related reasons (e.g., job satisfaction, schedule flexibility) to RTW shorten the duration of parental leave, and (ii) to test if workplace support as indicated by family-friendly supervisor support, general supervisor, and co-worker social support buffer the associations of job-related reasons to return to work with leave duration for birth and non-birth parents.

Procedures. This study used data from an anonymous online cross-sectional survey conducted on August 2017 among employees who took paid parental leave and/or FMLA (n=134) within a large municipal employer in Portland, Oregon.

Analyses. Bivariate statistics and multiple generalized linear regression models (GLM) were used to estimate model parameters. We fitted three models for the association between leave duration (outcome), reasons to return to work (RTW) (predictor) and workplace social support (moderator). The first model included the predictor and several control variables (education, tenure, and whether respondents had any leftover leave). The second model expanded the former adding workplace support variables (family-friendly supervisor support, general supervisor support, and general coworker support). The third model included the interaction term between reason to RTW and workplace support variables.

Results. For birth mothers, a significant and positive association was found ($p<.05$) for the interaction of family-friendly supervisor support and the reason RTW: 'My job did not offer flexible schedule' compared to birth mothers who did not state that reason. Non-birth parents (of whom 74.1% are fathers) who reported the reason to RTW "I had too much work to do at my job" had an average of 27.6 fewer days of leave than non-birth parents who did not state this reason to RTW ($p < .01$). Non-birth parents who reported RTW because their job did not offer flexible schedule had an average of 23.9 days of longer leave than non-birth parents who did not report that reason ($p<.05$). For non-birth parents, the interaction estimates of general supervisor support and the reason to RTW "I had too much work to do at my job" had a significant positive association ($p<.05$) on the length of leave days compared to non-birth parents who did not assert that reason. Moreover, non-birth parents who reported the reason to RTW: "I enjoy my job" were more likely to have a longer leave with higher coworker support compared to non-birth parents who did not indicate that reason ($p<.05$).

Conclusion. We analyzed the link of reasons to RTW related to job demands, job satisfaction, and flexible job schedule with leave duration for birth and non-birth parents, and also explored the moderation of workplace social support on this association. Birth mothers who reported that their supervisors were family supportive took longer leave even if they did not have flexible job schedule. The reason to RTW "I had too much work to do at my job" was linked to shorter leave duration and the RTW "My job does not offer flexible schedule" was associated with longer parental leave. General co-worker support and general supervisor support moderated the association between the RTW: "Because I enjoy my job" and "I had too much work to do" and leave duration, respectively for non-birth parents. Study limitations include a small sample and a possible over or underestimation of leave duration. Future studies should include administrative data for a more accurate estimation of the length of leave.

Practical implications. Further interventions should focus on giving supervisors and co-workers the resources they need to better help employees on the process of leave, for example, offering information and coordinating handover of duties and communication while on leave.

Authoritative parenting and transformational leadership: A family-to-work enhancement example

Christopher Cunningham (The University of Tennessee at Chattanooga)

Do parental experiences at home influence one's functioning as a leader or manager at work? This question reflects a phenomenon known as positive interrole spillover or interrole enhancement (i.e., a process of positive affect, skill, value, and/or behavior transfers between roles; Hanson et al., 2006). Behaviors exhibited in family/parenting roles may transfer to other roles that an individual perceives as being similar (Furr & Funder, 2004). This interrole behavioral congruence (Diener & Larsen, 1984) also helps to explain the connection between parenting at home (originating domain) and leadership at work (receiving domain). With the present study, we explored a specific example of family-to-work enhancement: the theoretically and conceptually justified link between authoritative and "transformational" parenting at home and transformational leadership at work.

Within the child development literature, authoritative parenting is often identified as the "best" or most effective form of parenting (Gecas & Seff, 1991; Takeuchi & Takeuchi, 2008), similar to how transformational leadership is seen by many organizational psychologists as among the most effective styles of managing others at work (Hater & Bass, 1988). Authoritative parents demonstrate a balance between demandingness and responsiveness by being strict and assertive, while also being loving and responsive (Baumrind, 2013). Transformational leaders are described as selfless, and focused on enhancing employee performance and well-being (Bass, 1985; Rafferty & Griffin, 2004). The similarities between these two forms of "managerial" style are especially clear when closely considering the behavioral tendencies and values generally associated with authoritative parents and transformational leaders. Despite clear theoretical rationale, few studies have examined the possible link between these two behavioral styles (e.g., Graves et al., 2007). Thus, we undertook the present study to test the following:

H1. Leaders who demonstrate an authoritative parenting style at home are more likely to demonstrate a transformational leadership style at work.

H2. Perceived family-to-work enrichment is highest for those who perceive a higher degree of transformational leader/transformational parenting behavioral congruence between work and family domains.

H3. (a) There is a positive relationship between perceived strengthening of transformational leadership after becoming a parent and perceived family-to-work enrichment, and (b) this relationship is moderated by a person's level of authoritative parenting, being strongest for those who are more authoritative than for those who are less authoritative.

Method, Results, and Discussion. Participants were working managers who were also parents (N=150). Mixed method data were gathered via internet-based survey composed of measures of parenting style, work-family enrichment, and transformational leadership. Participants also provided qualitative responses regarding the overall impact of having children on their personal leadership development.

Results using the cocor tool for comparing the strength of correlations (Diedenhofen & Musch, 2015) showed that leaders who are authoritative parents at home are more likely to be transformational leaders at work (H1). This aligns with evidence that parenting roles and managerial roles require similar behaviors, which can lead individuals to behave similarly within those roles (Morton et al., 2010, 2011; Popper & Mayseless, 2003).

Polynomial regression and response surface modeling did not support H2. Results did, however, indicate that family-to-work enrichment may be experienced more strongly for individuals who perceive their parenting roles and leadership roles to require similar behaviors.

Hierarchical regression analyses supported H3a, showing a positive relationship between perceived strengthening of transformational leadership after becoming a parent and perceived family-to-work enrichment. These findings support the notion that the resources accumulated while raising children are applicable to many other facets of life, including the workplace (McNall et al., 2009). This also helps to explain past research indicating that many managers who are parents attribute their leadership effectiveness or success to the skills that they developed through being a parent (McCall et al., 1988; Morrison et al., 1992). No support was found for H3b.

Additional analyses revealed that 91% of respondents indicated having or developing "stronger" or higher levels of leadership ability as a result of becoming a parent and 94% reported that they are better leaders after having children than they were before. No participants reported that becoming a parent in some way hindered or weakened their leadership abilities. Thematic content and prevalence analyses on participants' qualitative data revealed that the most frequently identified leadership skills developed as a parent were: communication, patience, empathy and understanding, and coordination; these skills were frequently used by more than 90% of respondents and used "all of the time" at work by 42% of respondents.

These findings suggest there is more to examine regarding the potentially positive relationship between parenting and leadership. It is important to note that leaders reported not only developing critical leadership skills through their parenting, but also needing and using these skills regularly in their everyday work-lives. These findings also provide a specific illustration of family-to-work enrichment and enhancement with multiple implications (e.g., guidance for future research and strategies for developing effective transformational leadership skills and abilities).

Don't Leave it All at the Door: Leadership Development Programs, Emotion Regulation, and Work-Life Enrichment

Chelsea LeNoble (Clemson University)

Introduction . Leaders in organizations face complex demands, putting them at risk for burnout (Lee & Cummings, 2008). To address leadership challenges, organizations have turned to leadership development (LD) programs (Lacerenza, Reyes, Marlow, Joseph, & Salas, 2018). However, whether LD programs affect employees' well-being or non-work lives is relatively unknown. Using principles from work-family enrichment theory and organizational training, we examined how LD may enrich leaders' non-work lives and enhance resilience through emotion regulation. This study aimed to answer: Does LD transfer skills to the non-work domain? If so, what are the effects and through what mechanisms does this occur?

Work-life enrichment (WLE) refers to experiences or resources from work role(s) improving one's non-work role(s) (Greenhaus and Powell, 2006) and is related to increased work engagement (Zhang, Xu, Jin, & Ford, 2018). As LD programs teach strategies for developing better relationships with staff (Lacerenza et al., 2018), they may provide leaders with resources that enhance non-work lives. Theoretical support can be found in the organizational training literature. When

interpersonal skills—predictive of well-being in all domains (Segrin, Hanzal, Donnerstein, Taylor, & Domschke, 2007)—are learned in LD programs, they may transfer outside of the workplace (Noe, 2017).

Hypothesis 1: Participants in LD programs focused on building interpersonal skills at work will report enrichment at home.

Hypothesis 2: Comfort practicing LD program skills at work will be positively related to comfort practicing LD program skills at home.

As affective mechanisms are thought to explain WLE effects (Greenhaus and Powell, 2006) and emotion regulation is a significant component of leadership (Gardner, Fischer, & Hunt, 2009), we propose that emotion regulation strategies leaders learn through LD programs are key mechanisms in explaining well-being outcomes. If leaders feel comfortable practicing LD program skills at home, they will likely continue refining emotion regulation strategies at work—positively influencing well-being. We examine three emotion regulation strategies: suppression, or hiding emotions; reappraisal, cognitively reprocessing a situation to feel positive emotions; and the genuine expression of emotions (Diefendorff, Croyle, & Gosserand, 2005).

Hypothesis 3: Comfort practicing LD program skills at home will be (a) positively related to emotion reappraisal and (b) genuine expression, and (c) negatively related to suppression at work.

Hypothesis 4: Comfort practicing LD program skills at work will be indirectly negatively related to burnout through (a) comfort practicing LD program skills at home, (b) emotion reappraisal, (c) genuine expression, and (d) suppression at work.

Procedures. A LD program designed to enhance interpersonal effectiveness was implemented at a large healthcare system in the southern United States. The program teaches candid emotion expression, avoiding suppression, and rethinking stressful situations as learning experiences. A survey administered to leaders assessed feelings of comfort with practicing the skills learned, open-ended reaction comments, emotion regulation (4 suppression, 6 reappraisal items; Gross & John, 2003; 3 genuine emotion expression items; Diefendorff et al., 2005), and the emotional exhaustion dimension of burnout (3 items; Maslach, Jackson, & Leiter, 1996). Participants (N=624) included healthcare leaders (73% female, 90% white) at various levels (47% managers, 33% supervisors, 15% directors, 5% executives).

Analyses and Results. Means and correlations are reported in Table 1. Three coders independently coded the open-ended responses to identify themes in perceived LD program benefits (Table 2). Comfort practicing program skills at work was significantly related to comfort practicing at home (B=0.69, SE=0.04, p<0.001). Qualitative and quantitative results provide support for hypotheses 1 and 2. Data were analyzed using structural equation modeling with estimates of indirect effects. Based on established cut-off values (Hu & Bentler, 1999), the hypothesized model (Figure 1) was a good fit for the data. A modified model omitting suppression and reappraisal was tested, demonstrating improved fit (Figure 2 and 3; Table 3). Comfort practicing LD skills at work was indirectly negatively related to burnout through comfort practicing LD skills at home and genuine emotion expression (B=-0.04, SE=0.01, 95%CI [-0.07,-0.03]). Results provide support for hypotheses 3b, 4a, and 4c (Tables 4 & 5).

Implications and Conclusions. These findings expand the potential impact of LD program learning to the home domain, suggesting that LD programs may enrich leaders' non-work lives. The more comfortable leaders are practicing LD program skills at work, the more likely they are to be comfortable practicing and refining emotion regulation strategies at home, thus reducing burnout. Limitations of this study include the use of cross-sectional data collected from a single organization. However, qualitative analyses add depth to the results. As single time data collection prevents us from making conclusions about causality from mediation analyses, future research should examine these effects over time. From a practical standpoint, these results support including emotion regulation strategies in LD programs, as a mechanism for leader effectiveness and well-being. An emphasis on interpersonal skills and self-regulation in leadership training can boost leader resilience in the face of complex and demanding work environments.

Independence Ballroom CD

Age and Work Ability

PAPER SESSION

Age in differences in psychological and physical dimensions of work ability and the moderating influence of burnout symptoms

Guy Potter (Duke University)

One of the principal goals of occupational research is to foster a healthy work environment, which can be reflected in the longevity of an individual's ability to work. This longevity is important because the labor force in the U.S. and many other countries is expected to include an increasing proportion of workers aged 55 years and older; therefore, it is important to understand how aging is related to maintenance of work ability over time. Research indicates that many psychosocial and mental health factors contribute to work ability, including job demands, job resources, burnout symptoms, and depression symptoms. Job demands-resource theory (JD-R) predicts that both job demands and job resources may contribute to work ability, either directly, or indirectly via their effect on burnout and depression symptoms. Adding further complexity to the issue is research suggesting work ability is not a unidimensional construct, and may include distinct psychological and physical factors. This indicates the need to better understand the job characteristics and mental health factors that contribute to deficits in psychological and physical work ability, and how they might be moderated by age. The current research was undertaken to examine this problem.

We recruited individuals actively working in the nursing field from a health care system in the southeast USA (N = 402). Participants completed a battery of questionnaires at study entry, including job demands and resources (Copenhagen Psychosocial Questionnaire), burnout symptoms (Oldenburg Burnout Inventory), and depressive symptoms (PHQ-9). They received follow-up questionnaires on a monthly basis, which included the Work Ability Index (WAI) at 12-month-follow up. We used confirmatory factor analysis (CFA) to test the dimensionality of the WAI. We used structural equation modeling (SEM) to test latent paths of job demands and job resources to burnout and depressive symptoms, and further to test the paths of these variables to work ability after 12 months. We additionally tested for the interaction of these variables with age.

Results of CFA found distinct factors for psychological and physical work ability that provided a better fit than a unidimensional model. The results of SEM indicated multiple direct and indirect associations to psychological and physical work ability. For job demands, there were significant and separate paths to psychological work ability, one mediated by burnout symptoms and the other mediated by depression symptoms. In addition, there was a significant path from job demands

to physical work ability mediated by burnout, but no comparable path via depression symptoms. For job resources, there were also significant and separate paths to psychological work ability, one mediated by burnout symptoms and the other mediated by depression symptoms. In contrast to job demands, there were no significant paths from job resources to physical work ability. We further explored the association of burnout symptoms to both psychological and physical work ability as moderated by age, and found significant interactions with both dimensions. Psychological work ability was relatively better among older workers when burnout symptoms were at below-average levels, but relatively worse when symptoms were at above-average levels. For physical work ability, values were relatively worse for older workers with increasing levels of burnout symptoms.

Our findings indicate that work ability has distinct psychological and physical dimensions that have different associations to underlying psychosocial factors, and which are both moderated by age. These results indicate that it is important to consider both psychological and physical dimensions of work ability in older workers. High job demands appear to have a greater influence on physical work ability than do job resources, and burnout symptoms appear to have a greater influence on physical work ability than do depression symptoms. Physical work ability appears to be particularly vulnerable among older workers relative to psychological work ability, but burnout symptoms are a threat to both dimensions of performance. Managing levels of job demands and burnout are beneficial to work ability regardless of age, but particularly among older workers, who are more vulnerable to impairments in physical work ability over time. Modification to job demands may help older workers maintain physical work ability with age. These results also that highlight prevention and intervention strategies for burnout may to particularly important for promoting healthy work ability with age.

Workability in Relation to Occupational Requirements among Older Construction Workers in the United States

Xiuwen Sue Dong (The Center for Construction Research and Training (CWPR))

Introduction. The labor force in the U.S. is rapidly aging. The average age of American workers was 42.2 years old in 2015; nearly 5 years older than it was in 1985 (CPS 2018). Construction workers are typically younger than the national labor force, but the average age of construction workers reached 42.5 in 2015, exceeding the average age of all U.S. workers and about 6.5 years older than it was in 1985. During this period, the number of construction workers aged 55 or older nearly doubled. This trend will continue since baby boomers (those born between 1946 and 1964) - the major component of the aging cohort will remain longer in the workforce than their predecessors (Dong et al. 2017). Workers aged 55 and older is projected to increased from 22.4% in 2016 to 24.8% in 2026 (Lacey et al. 2017). In spite of this, the aging population leads to a declining labor force participation rate, limiting the number of workers available for employment. Therefore, how to sustain workability of older workers is critical, in particular for those with high physically demanding jobs, such as construction workers. To better understand challenges facing the construction industry and older workers themselves, and provide insight to workplace interventions, this study examined general health status and workability among older construction workers in relation to occupational requirements in this industry.

Methods. Three large data sources were analyzed for this study, including the Occupational Information Network (O*NET), Occupational Requirements Survey (ORS), and the Health and Retirement Study (HRS). The O*NET is a primary source of occupational information in the U.S., containing hundreds of standardized and occupation-specific descriptors on almost 1,000 occupations covering the entire U.S. economy. The ORS is a new survey developed collaboratively by the U.S. Bureau of Labor Statistics (BLS) and the Social Security Administration (SSA), and conducted by the BLS. The ORS collects information about the physical demands and mental requirements for jobs, as well as environmental conditions, education and training. HRS is a longitudinal household survey of U.S. residents aged 50 and older conducted by the University of Michigan. Occupational requirements for this study were measured by major construction trades using data from O*NET and the ORS. Workability among older workers was determined according to the HRS question "Do you have any impairment or health problem that limits the kind or amount of paid work you can do?" and health-related questions on physical and mental health status, functional limitations, and doctor-diagnosed health conditions and diseases. Workability among older construction workers at the baseline and follow-up was estimated and compared. Associations between workability and age, health behaviors, chronic health conditions, and employment history were examined. Workability among older construction workers and occupational requirements were matched by major occupations.

Results . The initial findings indicate that workability decreased rapidly in workers' later years. The proportion of older construction workers reported work limitations increased significantly in the follow-up compared to the baseline. Workability was much better for those who were still working full-time at follow-up, but significantly reduced among retirees. Workers whose longest job was in construction more often reported lower workability; however, current construction workers reported better workability than their non-construction counterparts at similar age.

Workability decreased linearly with the number of chronic conditions. Only 3% of workers without any chronic conditions reported work limitations compared with about 80% among those with seven or more health conditions. Lung disease, stroke, and back problems were more likely to reduce workability than other conditions. Smoking decreased workability, particularly for current smokers. Regular exercise, even light exercise, increased workability. Workability also somewhat improved with light and moderate alcohol intake, and plunged with underweight or obesity.

The results suggest remarkable gaps between workability among older workers and occupational requirements in construction. For example, many construction occupations require lifting/carrying > 50 lbs and ≤ 100 lbs, but some older construction workers are unable to carry 10 lbs or stretch their arms up. Detailed analyses will be performed after the new data sets are released.

Conclusions/implications . This study suggests that differentials between workability of older construction workers and their job requirements should be taken into account in developing workplace intervention programs. Job redesign and retraining should be available for older workers to sustain their employability. Moreover, promoting healthy aging for workers is essential in the construction industry and beyond.

A new SOC (selection, optimization, compensation) questionnaire focusing on sustainable work, and including the group and leadership level

Annette Meng ((The National Research Center for the Working Environment (NFA), Denmark))

Background and statement of problem. Due to the demographic changes in the western society, the workforce is ageing and as a response to this, many countries has made the political decision to increase the retirement age. Ageing is generally associated with a reduction of physical and cognitive functioning as well as increased risk of illness and "wear and tear" (Ilmarinen, 2009). Therefore the need for strategies to maintain workability throughout the prolonged work life is increasing. The SOC model, developed by Baltes and Baltes (1990), proposes that we use selection, optimization, and compensation strategies throughout our lifespan to cope with reduced resources. Selection refers to the selection of goals or tasks, rather than trying to reach all goals or complete all task when faced with reduced resources, or to the pursuing of one goal or task at a time. Optimisation refers to the devotion of more time and effort to reach the selected goals or complete the selected tasks. Finally, compensation refers to the use of alternative means to reach the goals or complete the tasks. In the work context, the use of SOC strategies has been associated with the maintenance of work related competencies (Abraham & Hansson, 1995) and workability (Müller et al. 2012). Thus, the use of SOC strategies may contribute to a more sustainable work life. Nevertheless, Moghimi et al. (2017) argue for the need for further development and improvement of measures of SOC strategies in the work context. So far, research in the field has only explored the use of SOC strategies at the individual level. However, at a workplace the individual autonomy to use SOC strategies may be limited. For example, if an employee uses selection and chooses not to complete one or more work task, the manager or colleagues may oppose to this. At the same time, colleagues in a team may collectively use SOC strategies that help creating a sustainable work life for all, and the manager may likewise use SOC strategies to support the workability of the employees.

The purpose of the present study was therefore to develop a questionnaire to measure the use of SOC strategies at the work group and the immediate manager level, as well as the individual level. In addition, we wanted to make the questionnaire more suitable as a practical tool to be used at workplaces. Therefore we aimed to operationalise SOC strategies more explicitly relating to creating sustainable work habits or procedures rather than the more general operationalisation of SOC in the questionnaire commonly applied in the field (e.g. Zacher & Frese (2011). Thus, the questionnaire can serve as a tool for mapping the use of SOC strategies at these three levels at a workplace, and thereby identify where targeted interventions, to increase the use of these strategies, may be appropriate. In addition, the questionnaire can be used in future research in the field to, for example, explore the association between the use of SOC strategies at the different levels and various outcomes such as work engagement, work ability, and intention to stay at work.

Method. Inspired from existing SOC questionnaires, and using input from qualitative interviews, conducted at an earlier stage of this project, as well as input from experts in the field, we developed a first draft of the questionnaire. We then completed eight cognitive interviews with persons from the target group to refine this draft. Finally a questionnaire survey to further validate and adjust the questionnaire will be completed in spring 2019.

The final sample of participants in the questionnaire survey is expected to be 800 nurses working at public hospitals and 800 employees from the Danish dairy industry.

The questionnaire will be electronic and the participants provided with a personal password to access the questionnaire. The participants will receive the invitation either by mail (nurses) or by letter (employees at dairies). Reminders will be sent out to ensure highest possible response rate. Participation will be voluntary and anonymous.

In the analysis, we will run a confirmative factor analysis to validate the structure of the questionnaire. To test the construct validity, we will explore the correlation between the SOC questionnaire and factors we expect the use of these SOC strategies to be associated with, for example, work ability and expected retirement age. The analyses will be completed in summer 2019.

Expected results. We will present the final questionnaire and discuss its potential for future research and practice.

Expanding the SOC model in a work context to include group, leadership and organizational level

Iben Karlsen (The National Research Center for the Working Environment (NFA), Denmark)

Background and problem statement: In the face of the demographic changes in the western society, and due to an ageing workforce and extended life expectancy, political initiatives to postpone the retirement age are implemented. Ageing is generally associated with reduced functional ability due to wear and tear, age-related physical and cognitive changes and/or health problems (Ilmarinen 2009). Postponing the retirement age can therefore pose a challenge in some industries. However, existing studies show that senior employees may use a combination of selection, optimization and compensation (SOC) strategies to create a balance between work demands and resources at work (e.g. Müller et al. 2012). Thus, the use of SOC strategies may enable senior employees to stay in the workforce for longer.

In order to capture the complexity of a workplace setting, we argue, in line with Moghimi et al. (2017), for the need to expand the SOC model in a work context. Inspired by the IGLO model (Nielsen et al. 2018), we propose expanding the original SOC model (Baltes and Baltes 1990) from only focusing on the individual level, to include the organizational, the leadership, and the group level into the model. This expansion allows for the exploration of the use of SOC strategies at all four organizational levels, and thereby taking into account the more limited freedom of the individual to influence and transform work conditions, and to focus on what can be done across the different organizational levels.

The purpose of this study was to explore this theoretical expansion of the SOC model focusing on developing a sustainable workplace, and to get insight into which factors hinder or facilitate the use of different SOC strategies in an everyday work setting.

Methods and Procedures. The study is based on a total of 23 semi-structured interviews with senior employees and immediate managers at four different workplaces; two hospitals (nurses) and two dairies (skilled/unskilled workers). We used both focus group and individual interviews. During the interviews we discussed everyday work practices and the specific strategies the employees used when handling their jobs despite age related difficulties. The interviewees were urged to be as concreate as possible allowing us to gather information about the specific SOC strategies they used, as well as information about which organizational level these were initiated at, and what hindered or facilitated the use of the strategies. Interviewing immediate managers at each workplace, furthermore, provided insights into possibilities and challenges using the SOC strategies at the leadership level.

Results. In this study we developed an extended SOC model. The case study provides knowledge about the specific strategies used at the

four IGLO levels. Using the expanded model we were able to explore important SOC strategies at work such as; is your manager providing the necessary equipment to avoid wear and tear, are your coworkers helping you with heavy or difficult work tasks etc. The empirical study, furthermore, brought insights about factors that hinder or facilitates the use of SOC strategies among senior employees, such as time pressure, space issues at the workplace, norms of the group and feelings of guilt and ambiguity towards helping coworkers etc.

Practical implications. The list of specific SOC strategies used at the different workplaces at all four IGLO levels may serve as inspiration to other workplaces when aiming to retain senior employees at work. Knowing which factors hinders or facilitates the use of the SOC strategies may prove particularly relevant for practitioners aiming to create a more sustainable workplace.

Furthermore, the results of the interviews provided input to the development of an expanded SOC questionnaire in another part of this project.

Conclusion. Based on the empirical findings, exploring the new theoretical outline of the SOC model, we conclude that it is advantageous to expand the original SOC model in order to better fit a workplaces setting. We therefor propose expanding the original SOC model to include the additional levels: group, leadership, and organization.

Salon 3 & 4

Building Successful Academic-Employer Partnerships for Research Innovation: Examples from the Construction and Health Care Sectors

SYMPOSIUM

Chair: Jessica Williams (University of Kansas Medical Center)

Strong partnerships between academic researchers and employers are necessary to ensure that research questions are relevant to practice, pinpoint employer needs, design solutions to meet these needs, and bring program solutions to scale for widespread distribution and dissemination. Such partnerships have guided research conducted by the Harvard T.H. Chan School of Public Health Center for Work, Health, and Well-being, a Total Worker Health® Center of Excellence. The Center aims to expand the evidence on integrated approaches through etiologic and intervention effectiveness research studies and to build the practice base through translating and disseminating best practices, developing policy recommendations, and building the capacity of trained professionals and organizations. In this symposium, we present three perspectives on research collaboration from three major research projects conducted by Center investigators. These papers represent collaboration for different research objectives across two different industries, construction and healthcare.

The first paper describes collaborations developed in the context of intervention and observational studies within the construction industry, examining worker safety, health, and well-being within the complexity of the industry. The first project, All the Right Moves (ARM) was a worksite program that aligned with fundamental worksite programs already in place in the industry – safety inspections, pre-task planning, job hazard analysis, and safety week. Based on the lessons learned, we developed a second program based within subcontractors called ARM for Subs. This paper defines and describes the role of partnerships specifically in the ARM for Subs research project. Intervention development and evaluation consists of several phases of research where our partnership with the industry played out in different roles. The success of many safety and health interventions appreciates when the intervention's goals and objectives match those of the partnering organization so that those receiving the intervention and are engaged in the activities see a value added for their participation.

The second paper describes collaborations among the Center, nursing home associations, and state Worker's Compensation boards to support the Enterprise Outcomes study. The goal of the Enterprise Outcomes study is to promote the health and safety of workers in the nursing home industry through understanding of TWH approaches in the industry. The study aims to determine the extent to which existing programs, policies, and practices in nursing homes align with Total Worker Health®. This paper discusses the methods used to build collaborations with state nursing home associations and state Worker's Compensation boards. Several methods were used to build potential collaborations, however, not all of them resulted in successful partnerships. Data availability and state regulations were the major barriers to collaboration with Worker's Compensation institutions. Major barriers to collaborations with state nursing home associations included: perceived reputational risk, organizational change, and ongoing state level policy processes. Potential training opportunities, future research opportunities, and additional knowledge were key facilitators for collaborations with nursing home associations.

The third paper discusses how an academic-employer partnership, between the Harvard Center for Work, Health, and Well-being (a Total Worker Health Center of Excellence) and Partners HealthCare, a major health system in Massachusetts, has been successful in creating relevant public health research and practice. The Boston Hospital Workers Health Study (BHWHS) consists of approximately 15,000 workers and involves an integrated, longitudinal, administrative database linked with self-report surveys. Several facets of the partnership will be discussed in the presentation starting with how the two groups have gone about negotiating data-sharing, joint agenda-setting, and partnership throughout the research process. Second, we will present the structure and function of BHWHS and discuss the rationale for the setup. We will also provide a brief synopsis of scientific insights that demonstrate how BHWHS advances both the public health enterprise and Partners' concerns about the health of its workforce.

Partnering with construction companies for health and safety research adds value in a shared mission

Jack Dennerlein (Northeastern University)

Statement of the Problem: Completing worker safety, health, and well-being research in the construction industry has many challenges while the need to improve working conditions for construction workers is quite evident.1 Integrated worksite programs that target the conditions of work have become increasingly popular due to their comprehensive nature and their added value to an organization's mission; however, fitting interventions to the context of the construction industry poses many challenges. 2,3 Work organization and the hierarchical structure in construction does not follow the traditional manufacturing model; workers on a given worksite are employed by different companies and move from worksite to worksite (Figure 1).4,5 On a given worksite, there will be multiple construction companies working side by side employing different trades needed at a given time for the project. These are often overseen by the general contractor and the owner. We

have implemented a number of intervention and observational studies within the construction industry examining worker safety, health, and well-being within the complexity of the industry. Two intervention projects were based on a conceptual framework put forth by the Center for Work, Health and Well-being at the Harvard T.H. Chan School of Public Health.2 The first project called, All the Right Moves (ARM) was a worksite program that aligned with fundamental worksite programs already in place in the industry – safety inspections, pre-task planning job hazard analysis, and safety week.6 Based on the lessons learned, we developed a second program based within subcontractors called ARM for Subs. For both programs we partnered with industry stake holders to complete almost all stages of developing, implementing, and evaluating the interventions. Our goal here in this abstract is to define and describe the role of the partnerships in our ARM for Subs research project from intervention development to the program evaluation. Procedures and Analyses. Intervention development and evaluation consists of several phases of research where our partnership with the industry played out in different roles. Before developing the intervention fully, we utilize formative research to understand the organizational structure, current practices, attitudes and beliefs within the organization. We completed key informative interviews with four sub-contracting companies. Once we developed an intervention design, we vet the program with both managers (safety, project execs, and foreman) and workers. For this project we vetted the program with three companies. Then we piloted the program with a single subcontractor to work out the implementation logistics and finalize the design. We are currently evaluating the program with three subcontractors needing a total of 14. For this phase we have teamed up with the Association of Subcontractors of Massachusetts to recruit these 14 subcontractor companies. Data collection during the most of these phases were primarily qualitative, which included research staff process tracking notes collected during intervention activities as well as key informant interviews with company managers and focus groups with workers. We used standard analytic methods for thematic content analysis of qualitative data that are collected in the form of texts.7 Results. Throughout the formative research phases of the projects our industrial stakeholders described a need for the work we were proposing to do. They shared our need to help create change within their organizations. As a result, they shared how they as an organization currently work, how they create teams and how crews work together. They provided us with organizational structures in order to understand how they work and how they are structured. During the piloting of the intervention with the single subcontracting company our process tracking revealed that the company saw value in what we were doing. "In our collaboration we gained a better understanding of what we do well and what needs improvement." "[the program achieved measured improvement and increased morale." Currently in our recruitment of the 14 companies, we are hearing the interest in partnering with us has come from our previous success in helping companies meet their needs. Practical Implications and Conclusions. The success of many safety and health interventions appreciates when the intervention's goals and objectives match those of the partnering organization so that those receiving the intervention and are engaged in the activities see a value added for their participation. Developing an intervention in partnership with the key stakeholders through collaborative process has benefits for the intervention design in achieving this goal. In addition aligning activities with current work practices also allow for the intervention to adapt to and adopted by the partners.8,9 Overall, both parties involved in the research, the academic research staff and the industrial partners simply want to do the right thing to improve the safety, health, and well-being of their workers. This shared value has proven time and again to be key in the success of our research.

Confronting challenges in collaboration: Examples from the nursing home industry

Jessica Williams (University of Kansas Medical Center)

Problem. Industry-wide adoption of TWH approaches offers a promising comprehensive strategy to address elevated health risks among nursing home workers. Yet, the degree to which the industry's existing programs, policies, and practices align with the Total Worker Health® approach is unknown. In order to determine whether scarce resources should be allocated to implementing TWH, it is important to understand if this approach is associated with a reduction in occupational injuries and/or with improvements in patient outcomes. The primary goal of the Enterprise Outcomes study is to promote the health and safety of workers in the nursing home industry through understanding of TWH approaches in the industry. The central hypothesis of the Enterprise Outcomes study is that nursing homes whose programs, policies, and practices align more closely with TWH as measured by the Workplace Integrated Health Assessment1 will have better outcomes with respect to occupational injury and quality of patient care compared to worksites less aligned with TWH approaches. Procedures. The project combines three types of organizational level data: (1) survey of Directors of Nursing in nursing homes in three states; (2) quality of care from an administrative database housed at Harvard Medical School; and (3) facility level data on occupational injury rates, which will come directly from state workers compensation boards. To obtain the necessary data for the study, extensive partnerships were sought among several states (MA, NY, OH, CA, and OR). Potential partners included nursing home professional associations and State Worker's Compensation Boards. The goal was to have nursing home associations inform their members of the survey with letters of support or to send out the survey to increase salience for respondents. Facility level data on injuries were needed from the State Worker's Compensation Boards. Ideally, there would be functioning partnerships of both types in each state. Crucially though, we could not do the research without the Worker's Compensation data on injuries, making their participation a binding constraint. For the state worker's compensation boards, state practice regarding data access and our assessment of data quality drove the relationship process. Several methods were used to build partnerships with nursing home associations. These included both email and phone contact, with and without preexisting relationships and referrals from colleagues. Results. The level of identifiers for the nursing homes was the major determinant of whether relationships with state worker's compensation boards could move forward (all states). However, institutional changes, such as in personnel and management structure were also important. In some states the attempted methods worked to build relationships with nursing homes associations, resulting in successful collaborations, while in others they were insufficient to induce participation. In all states, political and policy concerns were important to partner organizations. The perceived heightened scrutiny surrounding nursing homes and pending legislation were insurmountable barriers in some states. There was also a great degree of concern for the workload of the directors of nursing—our intended respondents. There was also concern about the level of shared value for the individual nursing homes as the survey did not itself address patient care—a primary motivator2. Additionally,

management and other changes within organizations made building relationships difficult as personnel, goals, and priorities changed between grant submission and project period. In working with nursing homes associations, the value of the information, training opportunities, and building networks for future collaboration were all central benefits for the associations. Pervious exposure to research seemed to be an important factor in the decision-making process for the potential partner organizations. Despite a lengthy process to build relationships, the partnerships took different forms in each state, with only one state having both types. Practical implications. Establishing shared value for nursing home workers in general was a key part of the original research proposal. Outcomes, such as injury and patient safety were to be evaluated along with testing the Workplace Integrated Health Assessment measure developed by the Center for Work, Health, and Well-being. However, the value to the nursing home associations was more difficult to establish and was balanced by the perceived reputational risks inherent in organizational research.

The mutual benefits of data-sharing for employers and academic researchers: Boston Hospital Workers

Erika Sabbath (Boston College)

Statement of the Problem: Data is the backbone of public health research. Epidemiologists are experts at data analysis, but they often struggle to find data sources that are high-quality, relevant to their research questions, and efficient to collect and analyze. Conversely, many employers are awash in data that they collect in the course of their everyday operations, but they lack the capacity or skills to turn that raw data into meaningful insights about their organization or its employees. The Boston Hospital Workers Health Study (BHWHS) (1) exists at the intersection of these two realities. Through an academic-employer partnership between the Harvard Center for Work, Health, and Well-being (a Total Worker Health Center of Excellence) and Partners HealthCare, a major health system in Massachusetts, we have found novel ways to harness the administrative data that Partners collects in its daily operation. In this presentation, we will discuss how we turn those data into studies that are relevant both for public health research and practice, and for Partners' own interests. Procedures and Analyses BHWHS consists of approximately 15,000 workers to date (growing by about 1,000 people per year) and involves an integrated, longitudinal, administrative database linked with self-report surveys. The sampling frame consists of all patient care services workers at two of Partners' largest hospitals. Types of administrative data include: occupational injury and workers' compensation; health plan spending and utilization; employee workload and productivity; payroll and scheduling; workplace policies and practices at both unit and hospital levels; and, in the upcoming phase, patient outcomes data. We also conduct periodic surveys of a subset of workers to ask questions about both the work environment health outcomes and risk factors. All data can be merged at the individual worker level and all worker data can be aggregated at the workgroup level. Results This presentation will have three parts. First, we will discuss how the two groups have gone about negotiating data-sharing, joint agenda-setting, and partnership throughout the research process. We will discuss practical strategies for building the researcher-employer relationships and data management capacities to construct, administer, and maintain a project like BHWHS, including lessons learned, the structure of the team, and strategies for communication. Second, we will present the structure and function of BHWHS and discuss the rationale for the setup. We will talk about the relationships we built across Partners for all aspects of the study in order to create and sustain the database, with a focus on how that process could be translated to other employer-researcher partnerships. Third, we will provide a brief synopsis of scientific insights that demonstrate how BHWHS advances both the public health enterprise and Partners' concerns about the health of its workforce. For example, Partners is concerned about burnout, employee mental health, bullying, and health disparities within its workforce; these, not coincidentally, are important public health issues and concern employers beyond Partners. We have addressed these issues in a series of empirical studies that we will briefly present (2-5). Practical Implications and Conclusions The BHWHS partnership and database—and the research and practice insights that have emerged from them—can serve as a model for other occupational health practitioners about methods for harnessing administrative data and translating it into a robust dataset that serves the needs of both the scientific community and the employer.

Discussant: Glorian Sorensen

2:30–3:45 p.m.

Concurrent Sessions 7

Independence Ballroom A

Stress and Teachers

PAPER SESSION

One-Year Longitudinal Study of Teacher Stress

Irvin Schonfeld (City University of New York)

There is evidence that the working conditions to which teachers are exposed affect mental health and morale (Schonfeld, Bianchi, & Luehring-Jones, 2017), which we otherwise call strain. There are, however, a number of limitations to that evidence.

First, cross-sectional studies dominate the research literature on teacher stress (Schonfeld et al., 2017). Problematically, such studies cannot establish the direction of causal effects.

Second, a number of studies have been undermined by the "circularity trap," a methodological artifact resulting from content overlap in the measures of the independent variables (IVs) and the dependent variables (DVs) of interest. Such a problem has been noticed in the field of burnout research. For example, the Maslach Burnout inventory (MBI), a popular DV in research on the impact of job stress, employs items such as "I feel emotional drained by my work," creating construct overlap (Cole, Walter, Bedeian, & O"Boyle, 2012) with many measures of job stress such as the workplace-stressor IV, and boosting the IV-DV correlation artificially (Kasl, 1978, 1987).

Third, although longitudinal research provides better leverage for assessing causal relationships, even longitudinal studies have shortcomings. For example, in one longitudinal study (Burke & Greenglass, 1995) in which burnout at year 2 were regressed on working conditions at year 1, year-1 burnout was not controlled. It is critical that the baseline version of the DV be controlled because such a design "explicitly [estimates] the change in the outcome" (Kelloway & Francis, 2013, p. 376-377). Interestingly, the number of well controlled longitudinal studies of teacher stress that examine the impact of baseline stressors on later strain is relatively sparse (Schonfeld, et al., 2017).

We conducted a one-year longitudinal study to further document the impact of workplace stressors on strain (e.g., mental health and morale) in teachers. As part of a cross-sectional psychometric study of 734 teachers (Schonfeld, Verkuilen, & Bianchi, 2019), we asked the teachers to send us their email addresses if they would like to participate in a follow-up one year later: 324 teachers (44%) gave us their email addresses. When we reached out to the teachers who had given us their email addresses, 159 of the 324 (49%) responded. A total of 134 of the 159 (84%) were teaching in the same schools in which they taught the year before. The remaining 25 teachers retired, took time off, or changed schools. The study we describe here is limited to the 134 teachers who were present at Times 1 and 2 and who taught in the same school, and presumably continued to have similar stressor exposures.

At Times 1 and 2 we assessed depressive symptoms with two different scales, the 10-item version of the CES-D (Cole, Rabin, Smith, & Kaufman, 2004) and the PHQ-9 (Kroenke and Spitzer, 2002), anxiety with the 7-item Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), and turnover intentions with a 3-item scale (Leiter, Laschinger, Day, & Oore, 2011). We created a 5-item School Stressor scale by selecting items from Schonfeld's (2001) lengthy Episodic Stressor Scale. We also created an abridged School Support scale by selecting 4 items from two scales from Schonfeld's (2001) Colleague and Supervisor Support Scales. All scales had satisfactory alpha coefficients (> .70).

To check for biases, we compared the members of the final teacher sample to all the other teachers. The gender composition was similar (final sample 80% women vs. 78% for the others). On almost all the other relevant Time 1 factors, we found no mean significant differences: age (42.6, final sample v. 43.4, the other teachers), years teaching (13.79 v. 13.54), CES-D (2.42 v. 2.33), PHQ-9 (9.78 v. 9.84), GAD-7 (8.33 v. 8.37), School Stressor scale (1.30 v. 1.35), and Support (1.86 v. 1.93). There was a significant difference on one Time 1 variable, Turnover Intentions (2.01 v. 2.35). The non-participants were more likely to desire to leave their current position (Cohen's d = 0.24).

In regression analyses, we regressed each Time 2 DV (CES-D, PHQ-9, GAD-7, and Turnover Intentions) on its Time 1 version. Then in a second step we entered three factors, School Stressors, School Support, and, for control purposes, the number of stressful life events that occurred outside of work. School Stressors predicted Time 1 - Time 2 increases in CESD, GAD-7, and Turnover Intentions but not PHQ-9. Time 1 Support was marginally ($p < .07$) related to a reduction in PHQ-9 symptoms from Time 1 to Time 2. The findings suggest that, compared to support, work-related stressors exert a greater influence on changes in strain. Our study is consistent with prior studies suggesting that work stress plays an important role in the development of anxiety and depressive symptoms.

Burnout or Depression: A Study of Austrian Teachers

Silke Vrouletis (Virginia Tech University)

The concept of burnout is well known in occupational health psychology but has not found sufficient standing to be included as a diagnosis in either the DSM-5 or the ICD-10. One problem with the burnout concept is that there is no common definition despite burnout being widely used in the research literature. The most commonly used definition comes from Maslach, Leitner, and Jackson (2016), who defined burnout as a job-induced syndrome that combines emotional exhaustion (also called Exhaustion), depersonalization (also called cynicism), and a reduced sense of personal accomplishment (also called professional efficacy). There is, however, some agreement that exhaustion is the only consensual dimension of burnout (Kristensen, Borritz, Villadsen, & Christensen, 2005; Shirom & Melamed, 2006).

Burnout scales tend to have good convergent validity (Demerouti, Bakker, Vardakou, & Kantas, 2003; Halbesleben & Demerouti, 2005; Shirom & Melamed, 2006). However, burnout measures have still been found to have problematic construct validity. This is because the discriminant validity of the exhaustion component of burnout, burnout's consensual core, correlates highly with depressive symptom scales (Ahola, Hakanen, Perhoniemia, & Mutanen, 2014; Bianchi, Schonfeld, & Laurent, 2014, 2015; Schonfeld & Bianchi, 2016; Schonfeld, Verkuilen, & Bianchi, 2017; Wurm et al., 2016). These findings indicate that scores on burnout scales correlate about as highly with depression scales as they correlate with other burnout scales. The findings thus

suggest that the exhaustion component of burnout scales measure what depression scales measure.

Additional research has shown that burnout and depression have similar nomological networks (Bianchi, Schonfeld & Laurent, 2018; Bianchi & Schonfeld, 2016; Schonfeld & Bianchi, 2016). For example, unresolvable job stress plays a role in both burnout and depression (Schonfeld & Chang, 2017). Further burnout is associated with anxiety (Bianchi et al., 2014; Rössler, Hengartner, Ajdacic-Gross, & Angst, 2015; Schonfeld & Bianchi, 2016). Due to the close relation between depression and anxiety symptoms, research in psychopathology has suggested that they are part of the same dimension of psychopathology (Caspi et al., 2014; Kotov et al., 2017). To further examine the relationship between burnout and depression, we conducted a study of the abovementioned factors in a sample of Austrian school teachers. To our knowledge, there has been no published research on burnout-depression in such a sample.

We recruited a convenience sample of 300 Austrian teachers who would completed burnout, depression, and anxiety scales. This study was intended to be a pilot study for a similar, but much larger study to be conducted in Germany. We examined the scales' intercorrelations and looked for parallels in the scales' nomological networks. We used the German version of every scale. To broaden our understanding of burnout beyond the well-known Maslach Burnout Inventory, we used the Oldenburg Burnout Inventory (OLBI) (Demerouti, Bakker, Vardakou, & Kantas, 2003). We used two different depression measures, the 9-item depression module of the Patient Health Questionnaire (PHQ-9; Löwe & Spitzer, 2002) and the 10-item version of the CES-D (CESD-10; Cole, Rabin, Smith, & Kaufmann, 2004; Hautzinger & Bailer, 1993). We further used the 7-item Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006; Löwe et al., 2008).

Maslach and Leiter (2016) suggested that one of the reasons why burnout and depression scales may correlate highly is that there is some item-level content overlap in the two types of scales. To avoid this problem, we excluded two depression items that pertained to fatigue from the PHQ (sleep problems and fatigue), and one item from the CES-D (everything is an effort). Even though these adjustments were made the correlations between the Exhaustion subscale and the content-controlled depression scales ($r = .63$ and $.58$) were higher than the correlation between the Exhaustion and Disengagement subscales ($r = .53$). If burnout were truly a syndrome, then one would expect exhaustion and disengagement to be more highly related than exhaustion and depressive symptoms. In addition, exhaustion and anxiety were also more highly correlated ($r = .60$) than exhaustion and disengagement. Nomological network findings indicated that exhaustion, depressive symptoms, and anxiety are similarly related to school stressors, colleague/supervisor support, and turnover intentions. Further light on burnout- depression redundancy has been shed by the DSM-5, which indicates that in depression "often insomnia or fatigue is the presenting complaint" (2013, p. 162).

These research findings suggest that burnout scales are interlaced with items that reflect depressive symptoms; burnout might therefore not be categorized as an independent syndrome (Bianchi, Schonfeld, & Laurent, 2017). Exhaustion items from burnout scales, like items on depression and anxiety scales more likely reflect psychological distress (Caspi et al., 2014; Dohrenwend, Shrout, Egri, & Mendelsohn, 1980).

"Unsure but optimistic": Preservice teacher stress, health, and career plans post-fieldwork

Jessica Streit (NIOSH)

Background. Growing evidence suggests teaching is one of the most stressful occupations in the United States. According to a 2012 survey conducted by a major insurance company, 51% of K-12 public school teachers are almost always under a great deal of stress (MetLife, 2012). More recently, two quality of work life surveys conducted by a large labor union found 61% to 73% of educators report their jobs as often or always stressful (AFT & BAT, 2015; 2017).

Teacher stress is a noteworthy public health problem because it can negatively affect multiple levels within a school system. For teachers, stress can lead to poor physical, mental, and emotional health; increased work-life conflict; and decreased job satisfaction (AFT & BAT, 2015; AFT & BAT, 2017; Klassen & Chiu, 2010; Shernoff et al., 2011; Steinhardt et al., 2011). For students, teacher stress has been associated with decrements in conduct (increased misbehavior frequency and intensity) and performance (decreased academic achievement and motivation to learn; Jennings & Greenberg, 2009; Osher et al., 2007). For schools and districts, stress-driven teacher turnover contributes to staff instability and operational challenges (Ryan et al., 2017; Sass et al., 2017).

To date, the majority of published teacher stress research has focused on experienced classroom instructors. Consequently, there are significant gaps in our understanding of stress trends throughout the entire career lifecycle for teaching. In response, the current study investigates work-related stress at the preservice stage of teaching. By definition, preservice teachers are college students who are completing a school-based field experience as a means for gaining hands-on training in classroom management and instruction (Virginia Wesleyan University, 2017).

METHOD. Participants. The National Center for Education Statistics Integrated Postsecondary Education Data System (NCES IPEDS) was used to identify K-12 teacher training programs at four-year public colleges and universities across the United States ($n = 400$). To comply with the Family Educational Rights and Privacy Act (FERPA), University of Cincinnati (UC) researchers sent study advertisements to fieldwork placement personnel at each program. Administrators from 39 programs responded and helped recruit a convenience sample of 298 preservice teachers to participate in an online survey study.

Procedures. UC researchers collected preservice teacher responses via Qualtrics from March to May 2018. This presentation reports findings from a secondary analysis of the survey data. Variables of interest for the current investigation include stress, burnout, work-family interference, self-rated health, career commitment, and future career plans. All health-related items were adapted from the NIOSH Quality of Work Life survey, and career-related items were either adapted from the Utrecht Work Engagement Scale (Schaufeli et al, 2002) or created by the researcher team.

PRELIMINARY RESULTS. By the end of their Spring 2018 fieldwork, preservice teachers reported stress levels ($M = 3.50$, $SD = .76$) that significantly exceeded the current national worker average ($M = 3.09$, $SD = 1.04$), $t(276) = 9.02$, $p < .001$, two-tailed. Almost half of preservice teachers ($n= 127$) found teaching to be often or always stressful, and 69% ($n = 191$) often or always felt used up by the end of a school day. Teaching interfered with family or personal life responsibilities for 83% ($n = 228$) of preservice teachers and made it difficult for 75% ($n = 207$) to complete their other schoolwork.

When asked about their professional plans, 60% of preservice teachers ($n = 155$) said they intended to pursue a teaching career (i.e., to teach until they are retirement eligible). In contrast, 4% ($n = 11$) said

they initially wanted to become teachers but now planned to pursue alternative careers. The remaining preservice teachers were noncommittal: 18% (n = 45) said they will probably switch careers after teaching for 5 to 10 years, and 16% (n = 42) said they intend to try teaching for one year before making any long-term career plans.

Additional analyses are currently underway. These include between-group comparisons (within the preservice teacher sample data and against national estimates) and predictive modeling for preservice teacher health and career outcomes. Results of these analyses will be available for presentation at the conference.

CONCLUSIONS. This study adds to the school health literature by investigating work stress and stress-related outcomes in preservice teachers. Preliminary results provide evidence that the onset of teacher stress occurs early in the career lifecycle. When compared to findings from longitudinal studies conducted by the National Center for Education Statistics (Alt et al., 2007; Gray et al., 2015), the preliminary results of the current study also suggest U.S. teacher retention rates have not improved in the past 25 years. The conclusions shared in this presentation have utility for the design, implementation, and evaluation of stress prevention and career retention interventions for teachers.

Independence Ballroom CD

CEP

Strategies to Improve Workers' Perceptions and Performance on the Job

PAPER SESSION

Let's talk about it: What factors influence workers' willingness to report physical and psychosocial hazards?

Robert Sinclair (Clemson University)

Employees are well-positioned to identify and report hazards, but may be hesitant to do so; as many as 81% of physical safety incidents go unreported (Probst et al., 2008). Underreporting of psychosocial hazards is not well understood and systems for reporting psychosocial hazards are not well established. In light of these concerns, our research investigated antecedents of employees' willingness to report physical and psychosocial hazards.

We tested parallel models of physical and psychosocial hazard reporting by (1) developing measures of physical/psychosocial hazard reporting (2) identifying antecedents of safety reporting behaviors, and (3) developing parallel versions of those antecedents to predict willingness to report psychosocial hazards (i.e., stressors). The antecedents included climate perceptions, supportive leadership, destructive leadership, knowledge, and motivation. We expected employees would be more likely to report physical hazards when they had more positive safety climate perceptions, more supportive and less destructive leaders, higher levels of safety knowledge and stronger safety motivation. Similarly, we predicted that employees' willingness to report psychosocial hazards would be stronger when they had stronger perceptions of stress climate, more supportive and less destructive leadership, and higher levels of stress knowledge and motivation.

Method. Participants were recruited through Amazon's Mechanical Turk (MTurk). MTurk has gained popularity as a platform for data collection (Sheehan & Pittman, 2016) in part because it offers an ethnically and socioeconomically diverse pool of participants (Casler, Bickel, & Hackett, 2013). Labor characteristics of MTurk workers are representative of the labor market (Michel, O'Neill, Hartman, & Lorys, 2018).

We used a pre-qualification screening survey to limit our sample to participants exposed to at least some physical hazards at work. Participants used a 5-point scale to indicate frequency (1 = "Never" to 5 = "Most days") that they had experienced 21 physical hazards at work over the last three months. We then summed the item scores to create an overall hazard score. Participants who worked 30 hour or more week, reported to a direct supervisor, and had an overall hazard score of 33 or higher were retained for the present study. Of 1,366 participants, 770 participants completed the survey at Time 1 and passed all four attention checks. Of these, 410 participants completed a second survey and passed four attention checks again. The average age of the sample was 37.1 years old and their average organizational tenure was 6.7 years. Participants came from a wide range of industries included healthcare, mining, manufacturing, and construction.

We measured Supportive Safety Leadership with 11 items (alpha = .95) from Foundations for Safety Leadership measure by the Center for Construction Research and Training (cwpr.com). These items reflected safety-specific content related to leading by example, engaging team members, and recognizing team members. We measured supportive stress leadership with 11 parallel items (alpha = .96). We measured destructive leadership with six items (alpha = .93) developed for this study based on pre-study focus groups with employees from a construction company concerning leader behaviors that negatively influence their health at work. We measured safety climate with 12 items (alpha = .94) from Lee et al. (2014) that captured employees' perceptions of the extent to which their supervisor and organization prioritized safety. We measured stress climate with 12 parallel items (alpha = .94) focusing on health/well-being concerns. We measured safety knowledge (3 items, alpha = .90) and safety motivation (4 items, alpha = .92) with items from Neal et al. (2000) and developed parallel items of stress knowledge (alpha = .88) and motivation (alpha = .90). Finally, we developed a measure of willingness to report 21 safety hazards (alpha = .93) and 30 psychosocial hazards (alpha = .96).

Results. Table 1 shows the cross sectional regression results predicting willingness to report physical hazards with all measures from Time 1 (total R2 = .22). Employees who were more willing to report physical hazards also had more supportive leaders, perceived a more favorable safety climate, and reported higher levels of safety knowledge. Table 2 shows the prospective results, predicting the Time 2 outcome from the Time 1 measures (R2 = 16). Supportive leadership still predicted willingness to report hazards, but none of the other predictors were significant.

Table 3 shows the cross sectional regression results predicting willingness to report psychosocial hazards (total R2 = .27). Stress climate and stress knowledge were significant predictors. Table 4 shows the prospective results in which, although the predictors explained less variance in willingness to report (R2 = .16), stress climate and stress reporting knowledge were once again significant predictors.

Discussion. Focusing on factors that influence employees' willingness to report hazards, encourages a preventative perspective rather than focusing on problems that transpire when hazards are left unchecked. Our research demonstrating the importance of supportive leadership, organizational climate, and employee knowledge as predictors of willingness to report hazards. These findings suggest the importance of interventions targeting these factors.

Total Worker Health: strategies, climate, and employee motivation

Natalie Schwatka (CU Anschutz Medical Campus/University of Denver)

Employee engagement is a critical component of how a business develops and implements Total Worker Health (TWH) strategies, including policies and programs. Safety and health climates (perceptions of company commitment through consistency between espoused vs. enacted strategies) is also an important engagement factor. Organizational resources, defined in the present study as both business safety/health strategies and safety/health climates, are fundamental to TWH. Through organizational resources, businesses aim to facilitate the engagement that is necessary to produce desired outcomes of better health, safety, and well-being.

Employee motivation is an indicator of engagement. Previous research indicates that safety/health strategies and climates are key motivation factors. However, Gagne et al. argue that it is important to differentiate between autonomous and controlled types of motivations, as opposed to total motivation, as each differentially impact performance and well-being. In the present study we evaluate three kinds of motivation – intrinsic, identified regulation, and external motivation.

Understanding how TWH strategies and climate are related to different types of motivations is novel. We assess how both health protection and health promotion constructs can contribute to a stated need to better understand the benefits of a TWH approach. Additionally, we assess multiple climates as well as the combined effect of strategies and climate on motivation.

Methods. We measured safety (e.g., hazard control) and health (e.g., stress management program) strategies with the online Health Links™ Healthy Workplace Assessment. An individual from the represented organization including executives, human resource professionals, health and safety professionals, and other administrators completed the assessment. Employee data was collected through a health and safety culture survey. This survey used Lee et al.'s safety climate measure, Zweber et al.'s health climate measure, and an adapted Conchie et al.'s safety motivations measure that assessed the three kinds of safety motivations and the three kinds of health motivations.

We used linear mixed models with a random intercept for organization to test the hypothesized relationships between strategies, climates, and motivations. Our outcome variables were the three safety motivations and the three health motivations. We first evaluated the associations between safety climate and the three safety motivations independently (H1a) as well health climate and the three health motivations independently (H1b). Second, we evaluated the associations between safety strategies and the three safety motivations independently (H2a) as well as health strategies and the three health motivations independently (H2b). Next, we evaluated the associations between both safety climate and safety strategies (H3a) and health climate and health strategies (H3b) with each of the three safety and three health motivations independently using multivariable models. To test the synergistic effect of climate and strategies, we included an interaction term. We controlled for tenure, management role, organizational size, and industry. Due to the number of multiple comparisons, we set our significance level to 0.001. All data analyses were performed using SAS Software Version 9.4.

Results. Our study sample represented 1,052 workers from 36 businesses. Half worked in the service industry (53%). Respondents were on average 40 years old, college educated (63%), non-Hispanic white (79%), female (64%), and 42% had supervisor duties.

Safety motivation. We observed that safety climate was related to all three types of safety motivation (H1a). For example, every one-point increase in safety climate resulted in safety intrinsic motivation increasing by 0.27 points on a five-point scale, 95% CI [0.21, 0.33]. The magnitude of the coefficients was not practically different by type of motivation. Safety strategies were not significantly related to safety motivations as hypothesized (H2a). Additionally, the addition of the interaction term between safety climate and safety strategies was not statistically significant (H3a).

Health motivation. We observed that health climate was related to all three types of health motivation (H1b). For example, for every one-point increase in health climate, health intrinsic motivation increased by 0.26 points on a five-point scale, 95% CI [0.20, 0.31]. The magnitude of the coefficients was not practically different by type of motivation. Health strategies were not associated with health motivation as hypothesized (H2b). Additionally, the addition of the interaction term between health climate and health strategies was not statistically significant (H3b).

Conclusions/practical implications. Our study indicates that safety/health climates are associated with multiple types of motivation to participate in TWH strategies, which is consistent with safety climate research. However, strategies were not related to motivation indicating that what organizations are doing to engage employees are not directly associated with how motivated employees are to participate. Future research should investigate the ways in which strategies are measured as well as the quality of strategies. Next steps could also include an investigation of the interaction between health and safety (e.g., do safety/health climates interact to influence safety/health motivations?). In practice, our findings suggest that businesses can increase employee safety/health motivations through consistently communicating the importance of TWH to employees and ensuring TWH policies are used in practice.

Being Present in Enhancing Safety: Examining the Effects of Workplace Mindfulness, Safety Behaviors, and Safety Climate on Safety Outcomes

Candice Thomas (Saint Louis University)

The significant health and financial implications of safety (e.g., ILO, 2015) necessitate that the trait predictors of accidents and injuries and the influence of person-situation interactions on safety be examined. We therefore focus on trait mindfulness—a key target for trait research due to the efficacy of interventions in improving mindfulness (e.g., Carmody et al., 2008; Chambers, Lo, & Allen, 2008)—as a predictor of accidents and injuries and assess the mediating mechanism, safety performance, through which mindfulness is related to employee safety outcomes.

Trait mindfulness refers to disposition-based differences in the quality of consciousness and is defined as "a receptive attention to and awareness of present events and experience" (Brown & Ryan, 2003). Although trait mindfulness is related to safety (e.g, Dierynck et al., 2017; Zhang & Wu, 2014), we have limited understanding of the mechanisms and moderators underlying this relationship. To address this gap, we examine the indirect relationship of trait mindfulness with injuries, through safety performance (compliance and participation), and the role of group-level safety climate as a contextual moderator.

Hierarchically nested data (i.e., employees nested within teams with a supervisor) were collected, via surveys, from employees within a large petroleum distribution company in the U.S. 706 employees (84% response rate), representing 142 work teams, responded. Each group had an average of 8.69 employees. The majority of the participant were

male (85.1 %, SD = .36), average age was 44.89 years (SD = 10.69), and average organizational tenure was 8.32 years (SD = 8.99).

The following measures were collected: trait mindfulness (α = .90; Brown & Ryan, 2003), safety compliance (α = .93; adapted from Griffin & Neal, 2000), safety participation (α = .87; adapted from Griffin & Neal, 2000), Safety climate (aggregated to the workgroup level; α = .95; rwg = .95; Zohar & Luria, 2005), workplace injuries (α = .77; Kao et al., 2016), and covariates (gender, age, organizational tenure, and education level).

The ICC for safety compliance was .09 ($\chi2$ (133) = 210.36, $p < .001$) and .16 ($\chi2$ (133) = 263.38, $p < .001$) for participation: group membership explained an important proportion of variance in safety performance (James, 1982; Muthén, 1994). Therefore, hierarchical linear modeling was used (Raudenbush & Bryk, 2002). Trait mindfulness was related to work injuries (γ = -.05, SE = .02, $p < .01$), safety compliance (γ = .28, SE = .04, $p < .001$), and safety participation (γ = .21, SE = .05, $p < .001$).

The results also show that employees' trait mindfulness had a negative relationship with injuries that was partially explained by their safety compliance. Safety compliance was related to injuries (γ = -.04, SE = .02, p = .02), but safety participation was not (γ = -.002, SE = .02, p = .92). After controlling for safety performance, the effect of trait mindfulness on workplace injuries became lower (γ = -.04, SE = .02, p = .01). The bootstrapped (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2008) unstandardized indirect effect of -.02 through safety compliance was significant (95% CI [-.027, -.008]).

Results support cross-level interaction effects on safety compliance (γ = .29, SE = .12, p = .02) and on safety participation (γ = .27, SE = .13, p = .04). The relationships between trait mindfulness and safety compliance and safety participation were stronger when safety climate was high (t = 5.75, $p < .001$; t = 4.12, $p < .001$), compared to when safety climate was low (t = 2.84, p = .010; t = 1.57, p =.12). Contrary to a moderated mediation model (Bauer et al., 2006) neither the indirect effects of trait mindfulness on workplace injuries via safety compliance nor participation were significant at high or low levels of safety climate.

Our results support mindfulness as an individual difference that employees can utilize to improve safety (i.e., performance & injuries). Trait mindfulness was directly associated with injuries, safety compliance, and safety participation and was indirectly related to injuries through safety compliance. The direct effects of trait mindfulness on safety compliance and safety participation were found to be moderated by safety climate such that the most safety performance occurred when employees had high trait mindfulness and were embedded within teams with high safety climate.

Building on prior research (e.g., Zhang & Wu, 2014), we show that trait mindfulness not only supports positive safety performance, but that these behaviors ultimately impact safety related injuries. Practically, our findings highlight the importance of trait mindfulness in safety. Trait mindfulness can be improved through training (Carmody et al., 2008; Chambers et al., 2008). Given the high costs associated with safety incidents (e.g. ILO, 2015), developing mindfulness in conjunction with safety climate initiatives may be a way for employees and employers to support safety performance and a decreased likelihood of accidents/injuries.

The Stigma of Reporting Stress-related Problems and Workplace Injuries as Predictors of Changes in Burnout and Physical Discomfort

Thomas Britt (Clemson University)

Introduction. Employees are often exposed to workplace stressors that have the potential to overwhelm their coping strategies and result in stress-related problems (Cooper et al., 2001). In addition, employees often experience workplace injuries that result from physical hazards encountered in the workplace (Zohar, 2010). Reporting stress-related problems and workplace injuries is one step toward employees receiving help from supervisors and/or co-workers that addresses the respective problem and taking action to decrease the probability of increased psychological or physical distress. However, research has shown that employees are often hesitant to report psychological problems (Britt & McFadden, 2012) and workplace injuries (Zohar, 2010) that exist in the workplace, in part because of the expected stigma associated with reporting these issues. However, little prior research has examined how the stigma associated with reporting stress-related problems and workplace injuries is related to indices of mental and physical health over time. In the present study we predicted that the perceived stigma associated with reporting stress-related problems would be related to an increase in burnout over time, and the stigma associated with reporting workplace injuries would be related to an increase in level of physical discomfort over time. We also tested for the potential of reverse causation.

Method. A total of 410 adults residing within the USA who worked in hazardous work environments participated in the study at Time 1 and Time 2, six weeks apart. On average, participants were 37.08 years of age (SD = 11.53). All participants were employed for 30 hours or more per week in various different industries, including healthcare, mining, manufacturing, and construction, among others. All participants in the current study indicated that they worked in hazardous work environments. Participants were recruited through Amazon's Mechanical Turk (MTurk). Over the last decade, MTurk has gained popularity as a platform for data collection among social scientists (Sheehan & Pittman, 2016). MTurk offers access to an ethnically and socioeconomically diverse pool of participants (Casler, Bickel, & Hackett, 2013), which may be otherwise difficult to obtain. Employees completed measures assessing the stigma of reporting stress-related problems and workplace injuries, which were recently created based on an analysis of the work stress, workplace safety, and stigma literatures (Britt et al., 2016; Zohar, 2010) and were responded to on a 1-5 point scale (Strongly Disagree to Strongly Agree). A sample item for the stigma of reporting stress-related problems is "My supervisor would treat me differently if I reported a concern that I was experiencing too much stress." The Time 1 Alpha was .96. A sample item for the stigma of reporting workplace injuries is "If I got hurt on the job I would be concerned about being treated negatively by my supervisor." The Time 1 Alpha was .96. Burnout was assessed using the Shirom-Melamed measure (Shirom & Melamed, 2006) that assesses physical fatigue, cognitive weariness, and emotional exhaustion (Time 1 Alpha =.95). Physical Discomfort was assessed through a 9-item musculoskeletal symptoms scale created by Kuorinka et al., (1987). Employees were asked how often they experienced discomfort in different parts of their body (e.g. neck, shoulders, knees) as a function of work on a 5-point scale (< once per month to several times per day; Time 1 Alpha = .89). Finally, participants completed a 12-item version of the Marlowe-Crown social desirability scale (Reynolds, 1982) as a control variable.

Results. Table 1 presents the results for the stigma of reporting stress-related problems and burnout. As seen in the top portion of the Table, the stigma of reporting stress-related problems at Time 1 predicted an increase in burnout at Time 2. However, as seen in

the bottom portion of the Table, burnout at Time 1 also predicted an increase in the stigma of reporting stress-related problems at Time 2. The same pattern emerged for the stigma of reporting workplace injuries. As seen in Table 2, the stigma of reporting workplace injuries at Time 1 predicted an increase in physical discomfort at Time 2, but physical discomfort at Time 1 also predicted an increase in the stigma of reporting workplace injuries at Time 2. The results were obtained after controlling for the tendency for employees to present themselves in a socially desirable manner and suggest support for both the theoretical causal direction and the reverse causal direction.

Conclusions. The results of the present study suggest that in a sample of employees working in hazardous environments, reciprocal relationships emerged between the stigma of reporting stress-related problems and workplace injuries and the outcomes of burnout and physical discomfort, respectively. These results indicate the importance of further examining the stigma of reporting stress-related problems and workplace injuries and investigating the effectiveness of interventions to reduce stigma and encourage the reporting of problems encountered as a function of physical and psychosocial hazards experienced at work.

Salon 3 & 4

Psychosocial Factors and Health: Surveys of Working Conditions and Training Opportunities

PAPER SESSION

A Repeat Cross-Canada Survey of Workplace Psychosocial Conditions

John Oudyk (Occupational Health Clinics for Ontario Workers Inc.)

Statement of the Problem: Recent Canadian workplace legislative developments have recognized various workplace psychosocial hazards such as violence and harassment. Workers' compensation systems have also begun to recognize work-related chronic workplace stress-related health conditions. Representative population surveys are needed to understand the scope and breadth of workplace psychosocial hazards in order to target prevention efforts and resources and evaluate past interventions. While a previous survey was conducted in 2016, a repeat survey planned for February-March 2019 will help to determine whether psychosocial conditions are changing in Canadian workplaces.

Procedures. The original 2016 survey was conducted by a polling company which maintains a probability based, mix-mode, full-coverage panel of Canadians (over 70,000 recruited). The 2019 survey will be a repeat of the survey in the same population panel. Inclusion criteria will be any working Canadian in a workplace with more than 5 workers. Results of the survey will be weighted to the most recent Statistics Canada (StatsCan) monthly Labour Force Survey, based on the demographic factors of age, sex and geographical region. The survey is based on the Copenhagen Psychosocial Questionnaire (COPSOQ III – Burr et al. (2018)). The 2016 results were used to evaluate the psychometric properties of the English and Canadian French versions of the COPSOQ III, which were found to be acceptable for use in Canadian workplaces.

Analyses. The analysis will include a comparison of the current with the previous average scores for the COPSOQ III scales covering work demands (3 scales), work organization (4), work relationships (7), social capital (2), job/employment conditions (4) symptoms (5 scales and one general health question), and 6 questions about offensive behaviours encountered in the workplace in the past year. These average scores will also be stratified by selected demographic factors (age, gender identity, occupational category, language, and economic sector). The results will also allow a second evaluation of some of the psychometric properties of both the English and French versions of the COPSOQ III instrument. The results will also used as reference data as a comparison for individual workplace surveys.

Results. The current survey will be completed by April 2019. Average scores will be computed for the various COPSOQ III scales and weighted against the StatsCan Labour Force Survey demographics. The comparison with the 2016 results will indicate whether a change in average scores can be discerned. The sample size (target n=4000) should have the power to detect a statistically significant change of 5 to 10 points on a score ranging from 0 to 100. Psychometric evaluations of the scales will provide further evidence for the validity and reliability of the instrument in the Canadian working population.

Practical implications. The comparison of the current survey results with the previous will indicate changes in the psychosocial conditions in Canadian workplaces. Since 2016 significant developments including new legislation strengthening workplace violence and harassment policies, the compensation of chronic workplace stress conditions, high profile workplace sexual harassment cases; it will be interesting to see if these societal level developments are reflected in anyway in changes in workplace psychosocial conditions. Specifically, the data should also allow for targeting interventions for the unique issues in specific economic sectors. The results may also help policy makers in their evaluations of recent legislative changes and plans for future changes. The average scores, weighted to the Canada Labour Force Survey, will also update the reference data used for comparison purposes in individual workplace psychosocial risk assessments.

Conclusions. The 2019 repeat of the cross-Canada COPSOQ III workplace psychosocial survey will allow comparisons to evaluate whether psychosocial conditions in Canadian workplace have changed since 2016. This may provide some evidence as to whether changes in legislation and societal norms have influenced behaviours and workers' experience of workplace psychosocial conditions. At the economic sector level, the data will allow the targeting of specific issues unique to those sectors. This survey is an important barometer of psychosocial conditions in Canadian workplaces.

NEW DEVELOPMENTS AND TRENDS IN PSYCHOSOCIAL RISK MANAGEMENT IN EUROPE: EVIDENCE FROM THE ESENER-3 SURVEY

Xabier Irastorza (European Agency for Safety and Health at Work)

In the European Union (EU), the approach taken to deal with psychosocial risks at work is based on preventive risk management, stemming from the EU Framework Directive (89/391). According to the Directive, European employers are obliged to assess and then eliminate or reduce any risk to workers safety and health. The awareness concerning the necessity to manage psychosocial risks as part of this obligation, although still relatively low, has increased over the last decade. Several countries (including Italy, Sweden and Belgium) have modified their OSH legislation, making the management of psychosocial risks explicitly an immanent part of occupational safety and health (OSH). The Communication of the European Commission (EC) on the Modernisation of EU occupational safety and health legislation

identifies psychosocial risks and the need to protect workers mental health among the most important OSH priorities (EC, 2017). The importance of psychosocial issues at work is further highlighted in the European Pillar of Social Rights (EC, 2017).

The European Survey of Enterprises on New and Emerging Risks (ESENER) was launched by EU-OSHA in 2009 to provide a comparative picture of how psychosocial risks are managed across Europe, identify gaps and needs for support. The data is collected through computer-assisted telephone interviews (CATI) and covers public and private establishments of different sizes (including micro, small and large enterprises) and sectors in more than 30 European countries. The survey (ESENER 2 and 3) asks those 'who know best' about safety and health in establishments about the way OSH risks are managed in their workplace, with a special focus on psychosocial risks.

The first survey carried out in 2009 showed that a significant share of European managers (79%) are concerned about stress at work, nevertheless only around 30% establishments had procedures in place to deal stress, violence or harassment. The level of psychosocial risk management varied greatly depending on the country, sector and establishment size. Some methodological weaknesses were also identified and used to inform the second wave of the survey.

ESENER-2 was carried out in 2014 and while the modifications to the questionnaire limited the comparability of the results, it showed a fairy similar picture of psychosocial risk management across Europe. 77% of establishments in the EU identified at least one psychosocial risk factor as being present in their workplace, however, significantly fewer reported having in place measures to deal with those risks. An action plan to deal with work-related stress was reported in just around 30% of establishments. In the Northern European countries, large enterprises and sectors such as education and health care, a higher level of implemented measures to deal with psychosocial risks was reported. Nevertheless, some shifts in terms of particular aspects of psychosocial risk management were also observed. In Italy, the share of establishments that reported having in place a procedure (called 'an action plan' in ESENER-2) to deal with work-related stress increased from 20% in 2009 to 49% in 2014, which, while bearing in mind that there could be different factors contributing to this increase, can arguably be linked to the legislative changes in this country.

The secondary analyses of the ESENER-2 data (EU-OSHA, 2018) have indeed shown that both the organisational drivers such as management commitment and worker representation and the contextual factors such as national initiatives related to psychosocial risks, stronger economy and some cultural factors are related to higher levels of psychosocial risk management in workplaces. Importantly, however, the contextual factors were not related to the level of psychosocial risk management in micro companies (5 to 9 employees), which consequently reported a very low level of implemented preventive measures in this area. Also, in general, the psychosocial risk management laid far behind the ´traditional´ OSH management in all types of enterprises.

ESENER-3 builds on the methodology of ESENER-2. Following a cognitive pre-test in three countries in August 2018 and a pilot test in all 33 countries covered by the survey in January-February 2019, the main fieldwork will take place between April and June 2019. The survey will include representative samples of public and private establishments with 5 or more workers, from all sectors. The analyses of the data will be presented at the Conference.

The results will be explored to observe trends in terms of reported psychosocial risks present in the workplace and measures implemented to deal with them. The analysis will take into consideration the contextual developments observed between 2014 and 2019, including the 2-year European Campaign ´Manage Stress´ (2014-15), the EU and national key policy documents and initiatives by the social partners. The analysis will look at how workplaces can be further supported by the policy makers, social partners and practitioners to assure an adequate protection of workers and sustainability of businesses while facing current and future challenges.

Academic resources in Occupational Health Psychology: A three-year international survey

Philip Moberg (University of Northern Kentucky)

Purpose. As the field of Occupational Health Psychology has evolved progressively over the past four decades, formalized opportunities to pursue academic training in OHP have emerged. The purpose of the present project was to gain a better understanding of the prevalence and nature of these training opportunities.

In 2015, with the assistance of the Society for Occupational Health Psychology (SOHP), the European Academy of Occupational Health Psychology (EAOHP), and the American Psychological Association (APA), we administered an initial survey to respective members of these organizations; Work, Stress, and Health conference attendees; and OHP listserv participants that collectively identified 81 international sources of academic training in OHP. From these preliminary responses, we developed a second, more comprehensive exploratory survey designed to elicit detailed information that more fully described these training opportunities. The present paper highlights findings of this three-year study and characterizes the contemporary status and prevalence of international academic training programs in Occupational Health Psychology.

Method. We employed a multi-stage strategy to design and implement these surveys. In year one, we developed and piloted a 10-item digital survey with SOHP board members to invite comment and examine instrument logic, flow, and software functionality. In response to board feedback, we revised and reduced the survey to three items, and distributed to members of SOHP and EAOHP, along with prior APA / NIOSH Work, Stress, and Health conference attendees, and OHP listserve participants. We posed three questions (1) "Have you taken or taught any formal university or college courses in OHP?", (2) "Are you aware of any university or college courses with OHP in the course title or description?", and (3) "Have you taken or taught a formal course with a primary focus on OHP but without the phrase 'OHP' in the course title or description?" In each instance, a positive response invited the respondent to identify the institution and department, institute, center, or program in which the course was offered. Our analysis of 301 responses revealed that 157 respondents had taken or taught an OHP or OHP-related course at 81 distinct, international institutions.

In year two we developed a more comprehensive survey instrument designed to expand on the insights obtained in year one by eliciting detailed information describing the specific programs identified. The primary objectives of this comprehensive survey instrument were to identify the nature of specific course offerings, program characteristics, student enrollment, faculty participation, and resulting certificates or degrees awarded.

In year three we extensively refined the comprehensive survey instrument with sensitivity to variations in international terminology used to describe programs and program characteristics. We converted the survey to digital format (Qualtrics), incorporated digital logic to streamline response time to 15 minutes, and exhaustively pilot tested

for comprehension, sense, flow, duration, and information extraction. After updating contact information obtained from stage one survey respondents, we emailed pre-distribution survey announcements to individual faculty, program directors, or department chairs at the 81 previously identified universities and colleges to ensure that the forthcoming survey would target appropriate faculty.

To encourage participation, we forwarded three subsequent email prompts to nonresponding contact persons. Of the 81 universities and colleges contacted, 50 (61.7%) responded, 46 with fully-completed surveys (56.7%) and 4 (4.9%) with partially completed surveys. Because we anticipated a subset of nonresponses for various legitimate reasons (e.g., workload, timing, insufficient information, language barriers, etc.), we are contacting nonresponding universities and colleges to elicit maximally inclusive information prior to presentation.

Results and Discussion. Of the 46 international universities and colleges that responded in full, 12 offered formal programs in OHP, 6 offered training programs with a primary focus in OHP, and 28 offered OHP-related courses but not within a formal OHP program or training program with a primary focus in OHP.

For the 12 international institutions offering formal training in Occupational Health Psychology, we elicited information about academic departments; program names; and the availability of graduate degrees, majors, minors, concentrations, specializations, diplomas, and courses offered. In addition to individual contact information, we obtained internet addresses for program websites; names of specific courses provided at each institution; program duration; range of student enrollment; internship or practicum information; and the academic disciplines, numbers, and roles of contributing faculty. We obtained similar information from six institutions offering training programs with a primary focus in OHP.

For the 28 institutions that offered courses, but no formal training programs in OHP, we obtained information describing current course offerings having "OHP" in the title or course description for courses that covered OHP topics but without employing that phrase. For these institutions, we posed additional questions and inquired about potential plans to offer formal OHP training programs in the near future.

In this symposium, we will highlight findings from this three-year international survey project and briefly characterize the emergence, nature, and prevalence of formal, academic training programs in contemporary Occupational Health Psychology.

Independence Ballroom B

CEP

Applied Health and Safety Research Projects, Challenges, and Recommendations

SYMPOSIUM

Chair: Rebecca Brossoit (Colorado State University)

Background. The proposed symposium session is focused on applied health and safety research projects. Each presenter will first provide an overview of their research study and then discuss challenges they encountered and recommendations they have for others working on similar applied studies. Each study uses data from organizational samples, including emergency medical service workers (i.e., paramedics), fire departments, construction workers, the US National Guard, and nursing education programs. A number of challenges will be discussed, including those related to recruitment and retention of companies and participants, widespread implementation of an alertness testing technology, design and implementation of a Total Worker Health® intervention, and building collaborative partnerships as a way to obtain data.

Applied Safety and Health Research Projects. This symposium is comprised of four presentations on applied health and safety research projects. The first presenter will describe a study with paramedics on the influence of traumatic events on strain outcomes (i.e., burnout, sleep disturbance, alcohol consumption), and the influence of rumination and mindfulness in these relationships. Subjects participated in a ten-week weekly diary study assessing exposure to traumatic events at work, ruminative thoughts, burnout, drinking behavior, and sleep quality throughout the past week. The results indicate that rumination serves as one mechanism between weekly traumatic event exposure and strain outcomes (with the exception of sleep disturbance) for paramedics. Further, trait mindfulness acted as a buffer in this relationship and can therefore serve as a resource to these workers.

The next presenter will discuss a mixed-methods study that evaluates employee and manager perceptions of openness to and effectiveness of a commercial alertness testing platform—AlertMeter® – designed for safety-sensitive industries. The sample included participants from a fire department and two construction companies. Participants were encouraged to use AlertMeter® before beginning their shift, and employees and managers took five-minute surveys at baseline and 6-months following the implementation of AlertMeter®. Overall, managers and employees in safety-sensitive industries reported that fatigue and lack of alertness is a concern, were open to alertness testing as a way to counteract fatigue, and found AlertMeter® easy to use and somewhat effective for improving safety. Additional data from a mining site will also be collected and prepared by November 2019.

The third presenter will describe a large-scale, randomized control trial study with members of the Oregon Army and Air National Guard. The primary aim of this applied research project is to develop and test the effectiveness of a Total Worker Health® intervention aimed at improving workers' sleep, risk behaviors, health, and work-related outcomes. Part of the intervention involves providing service members with individualized sleep feedback reports that incorporate their personal sleep data, collected from actigraph watches. Based on this information, participants set goals for improving their sleep. The second component of the intervention is a computer-based sleep leadership skills training that is provided to supervisors. Although these data are still being collected, final analyses will be ready by November 2019 and will include results related to participants' sleep, the types of goals they set, perceptions of the individualized sleep reports, and comparisons between Army and Air National Guard samples.

The final presenter will discuss their work examining safety standards in nursing education programs. This study examines how safety is taught to nursing students and whether nursing curricula are aligned with the standards for accredited nursing education programs. Data were collected from literature searches and documents on safety education guidelines obtained from nursing education accreditation organizations. These documents were used to create a safety education checklist. Then, this checklist was used to assess safety competency covered in nursing programs based on course syllabi and learning objectives. Although this study is ongoing, the preliminary results suggest that most safety standards are included in nursing education program materials, though several critical safety procedures are not as prevalent

as they should be, such as how to safely move patients. Additional coding and analyses will be prepared by November 2019.

Format of Symposium . Each presentation will be followed by an interactive discussion with audience members in which the project, challenges, and proposed solutions will be further explored. The intention of this symposium is for audience members to learn about current health and safety research and identify ways to prepare for and respond to similar challenges they may experience in their work.

Traumatic Events and Strain in the Emergency Medical Services: The Role of Rumination and Mindfulness

Stephanie Andel (University of South Florida)

Introduction Paramedics are consistently exposed to traumatic events on the job (Donnelly & Bennett, 2014). This exposure is often linked to negative health outcomes, including post-traumatic stress symptoms and burnout (e.g., Alexander & Klein, 2001; Berger et al., 2012). However, the mechanisms linking these traumatic stressors to strain are unclear. The present study aims to add to the existing literature by considering rumination, or repeatedly thinking about negative events (Whitmer & Gotlib, 2013), as one mechanism that links traumatic event exposure to strain within the paramedic population. Specifically, in alignment with the transactional model of stress (Lazarus & Folkman, 1984), cognitive theories of rumination (Smith & Alloy, 2009) and goal progress theory (Martin et al., 1993), we propose that on weeks that paramedics are exposed to emotionally disturbing and traumatic events, they will be more likely to ruminate about work. This rumination will cause continued activation of stress appraisals, and thus will lead to negative health outcomes (i.e., higher burnout, alcoholic drinking behavior, and sleep disturbance). Further, we investigate the role of trait mindfulness, or the tendency to be non-judgmentally aware of and attentive to immediate experiences (Bishop et al., 2004), as a buffering resource in this process. In particular, we propose that mindfulness will attenuate the relationship between traumatic event exposure and rumination, as well as between rumination and strain. See Figure 1 for a model with all study hypotheses. Method Two hundred and eleven paramedics were recruited from the National Registry of Emergency Medical Technicians (NREMT) email database to participate in a ten-week weekly diary study. This study consisted of two phases. In the first phase, participants received an email with links to an online training video and the initial baseline survey. The initial baseline survey included questionnaires to capture participant demographics and trait mindfulness. The online training video briefly reviewed the general study purpose, survey schedule, participant confidentiality, and compensation. In the second phase, beginning one week after completion of the initial baseline survey, participants received a weekly survey link each week for the next ten weeks. These surveys assessed the degree to which employees were exposed to traumatic situations over the past week, as well as their rumination, burnout, drinking behavior, and sleep quality over the past week. See Table 1 for the survey measures. Retention rates across the study were high, as each participant in the study completed an average of 9.47 out of 10 weekly surveys. Results See Table 2 for descriptive statistics and correlations of the study variables. To test the study hypotheses, path analysis in the multilevel structural equation modeling (MSEM) framework was implemented with Mplus version 7.4 (Muthén & Muthén, 1998-2012). In order to test the within-person main effects and the mediation effect, we first estimated a model that did not include trait mindfulness as a cross-level moderator (M1). Rumination and strain from the previous week (t-1) were included as predictors of current week (t) rumination and strain in order to assess the change in these variables over each week. At the between-person level, all constructs were allowed to covary (Preacher et al., 2010). To test the cross-level moderation effect, we estimated a model (M2) that is based off of M1 but includes trait mindfulness as a Level-2 predictor of the within-person random slope between traumatic event exposure and rumination, and also of the within-person random slope between rumination and each strain outcome. See Tables 3 and 4 for the path estimates of both models. Overall, most hypotheses were supported. Specifically, hypothesis 1 was partially supported (with the exception that traumatic events were not significantly related to sleep), hypotheses 2 through 4 were fully supported, and hypothesis 5 was partially supported (with the exception that mindfulness did not significantly moderate the relationship between rumination and sleep). Discussion and Challenges Encountered Results from this weekly diary study provide evidence that rumination serves as one mechanism by which weekly traumatic event exposure is linked to strain in the emergency medical services population. Further, results suggest that trait mindfulness can serve as a resource to these individuals, as it buffers both the impact of traumatic event exposure on rumination as well as the impact of rumination on strain. We encountered a number of challenges throughout this study. Some of these challenges include recruiting participants from a specialized population, developing a training program to educate participants about the complex study protocol, and maintaining a high retention rate across the duration of the study. We recommend that future researchers conducting similar diary studies address these challenges by (1) seeking out and partnering with national organizations that cater to the population of interest (e.g., the NREMT), (2) recording an online training video that introduces the research team and clearly outlines the study procedures, and (3) sending consistent reminder emails to participants throughout the study.

Alertness Testing's Effects on Workplace Health and Safety: A Pilot Study

Rebecca Brossoit (Colorado State University)

Introduction There are well-established links between fatigue and workplace accidents (e.g., Akerstedt et al., 2002; Lerman et al., 2012; Uehli et al., 2014). It has been proposed that alertness testing can help prevent fatigue-related workplace safety incidents (Dinges, 1995), though research on accessible, commercially-available alertness testing platforms is sparse. The present study investigates employee and manager perceptions of implementing AlertMeter®—a novel platform designed to assess employee alertness on computers or smartphones before beginning safety-sensitive work ("AlertMeter", 2019; Langley et al., 2009). The test measures reaction time, decision-making speed, orientation of images, and hand-eye coordination. The present mixed-methods study evaluates employee and manager perceptions of openness to and effectiveness of the AlertMeter® platform. Methods Safety-sensitive work sites that had filed a workers' compensation insurance claim in the past 12 months were recruited for this study. Participating worksites included a fire department and two construction companies. A mining site is currently participating in the study. These data will be collected by February 2019 and included in the final analyses. During the study, employees were encouraged to use AlertMeter® prior to starting their shift. Five-minute surveys were distributed to employees and managers at baseline and 6-months following the implementation of AlertMeter®. Twenty-seven employees and 13 managers completed baseline surveys and seven employees and five managers completed

follow-up surveys. Results Baseline Results Initially, 85.8% of employees reported being open to using pre-shift alertness tests and none were opposed (the remaining were neutral or unsure). Responses to an open-ended question about openness to alertness testing include: "I think it's a great gauge to determine risk levels on a day to day basis," though some employees were less open to alertness testing: "[I] do not have time for brain games." Most employees (85.2%) reported being involved in zero safety incidents in the previous six months. However, 67% reported that employees work while they are not fully alert. There were significant positive correlations between employee openness to AlertMeter® and sleep-related impairment (e.g., trouble staying awake throughout the day; $r = .64$, $p < .05$) and hours worked per shift ($r = .38$, $p < .05$), suggesting that employees who were more open to using AlertMeter® were also more likely to experience sleep-related impairment and work longer hours. A majority (84.6%) of managers surveyed at baseline reported that AlertMeter® would help to improve safety at their workplace. Managers elaborated on why they believed the platform would be effective: "I think we will use the information to see if we have a safety issue;" and, "I'm always glad to implement a new safety measure." Conversely, some managers were apprehensive about AlertMeter® due to their unfamiliarity with the platform: "I don't know enough about it yet." All managers (100%) reported that they think that employees work while they are not fully alert. 6-Month Results After six-months of using AlertMeter®, 100% of employees and 40% of managers reported that the platform was easy to learn and adopt in the workplace. However, managers also reported that the majority of employees were not using AlertMeter® as directed and provided explanations such as: "They work shiftwork and I am not around every shift to remind them." Similarly, employee reports indicated: "Time was minimal but remembering to fit something new into my routine at work was cumbersome." Still, 29% of employees and 60% of managers believed that using AlertMeter® had a slight positive effect on safety in their workplace. Discussion and Challenges Encountered These findings suggest that managers and employees in safety-sensitive industries believe fatigue is a concern, see value in using alertness testing to reduce fatigue, and found AlertMeter® easy to use and somewhat effective for improving workplace safety. We encountered challenges related to company recruitment, large-scale adoption and consistent use of AlertMeter®, and survey response rate. Although AlertMeter® was easy to use, managers reported that most employees failed to use the platform as directed because employees did not receive enough training, forgot to take the test, or were not reminded by managers. Additionally, most participants completed the baseline or follow-up survey, but not both, making it challenging to draw conclusions about changes in perceptions of AlertMeter® over time. Similarly, analyses were restricted due to the small sample size. Despite these challenges, the data provide important insights into usability and effectiveness of the AlertMeter® platform and difficulties associated with implementation. We recommend that future applied safety projects obtain written participation agreements from interested companies, require training when introducing new technologies to facilitate buy-in, and provide frequent reminders on technology use and survey participation (e.g., emails from researchers, signage at worksites, alerts on smartphones). This study highlights the need for further research, development, and widespread implementation of preventative measures that improve workplace safety. Resulting from this study, Predictive Safety SRP, Inc. is enhancing the client onboarding process, including training, assessment, and reporting.

The Oregon Military Employee Sleep and Health (MESH) Study: Intervention Successes and Challenges

Shalene Allen (Oregon Health & Science University)

Introduction The Oregon Military Employee Sleep and Health (MESH) Study is a large scale, randomized control trial funded by the Department of Defense, designed to improve the health, well-being and sleep of full-time service members of the Oregon Army and Air National Guard. The main goal of the study is to develop and test the effectiveness of a Behavioral Health Leadership training intervention (health protection), combined with an individual Service member health promotion intervention based on actigraph sleep tracking and cognitive effectiveness feedback, on risk behaviors, psychological health, and workplace outcomes of Service members within the context of the Oregon National Guard. Background Information Sleep is an integral part of overall quality of life, health, and well-being. Insufficient sleep is linked to a host of mental and physical problems (e.g., physical distress, mental distress, activity limitations, depressive symptoms, anxiety, and pain; Strine & Chapman, 2005). Furthermore, continually getting less than 7 hours of sleep on a regular basis has several adverse health and safety outcomes (e.g., impaired immune function, impaired performance, increased errors, and greater risk of accidents (Watson et al., 2015). Current research indicates that sleep is both determined by, and influences, workplace attitudes and behaviors (e.g., Crain, Brossoit, & Fisher, 2018). Further research also suggests having a supportive supervisor, especially when they provide leadership related to sleep, can lead to positive outcomes for employees' overall health and work, specifically in the military domains (Adler et al., 2014; Gunia, Sipos, LoPresti, & Adler, 2015; Hammer, Wan, Brockwood, Bodner, & Mohr, 2019). The military has increasingly realized the potential impact sleep can have on the readiness and well-being of their force (Department of the Army, 2015). Methods In the current study, the sleep/actigraph feedback portion of the intervention involves providing service members with an individualized report of their sleep following a 3-week period of wearing an actigraphy watch that tracks sleep. A trained research staff member reviews the report with the participant, interpreting the sleep data and focusing specifically on sleep issues relating to duration of sleep (i.e., 7-9 hours), consistency (i.e., sleep onset and wake times), and fragmentation of the sleep period (i.e., interruptions in sleep). In addition, participants are provided sleep recommendations from experts in the field and create two self-reported goals for sleep based on their feedback. Research suggests self-set specific goals have a higher likelihood for individuals to follow through on their goals, relating heavily to goal-setting theory (Locke, Shaw, Saari, & Latham, 1981). This feedback is provided to those randomized to the treatment group; the waitlist control group receives feedback after data collection is complete. The interactive computer-based sleep leadership skills training for supervisors is a behavioral health leadership tool aimed at providing useful and applicable information for supervisors to be more supportive of their employees. In particular, supervisors are provided information on both the importance of sleep and potential impacts on health and organizational outcomes, such as productivity and absenteeism. In addition, supervisors are trained on how they can support healthy sleep behaviors in their employees. Anticipated Results MESH data are still being collected, but the intervention-related data from individuals will be complete in time for the WSH conference in November. We will discuss the most prevalent sleep issues in our sample based on the key components of the sleep report, discussed above: 1) duration of sleep, 2) consistency of sleep

times, and 3) fragmentation of sleep. We will also present the most prevalent participant-generated sleep goals, and particularly how they relate to the identified sleep issues, as well as reaction data to the feedback reports (i.e., how helpful was the information, how likely are they to make changes to their sleep based on the information). We will also present information on the supervisor training, such as participation rates, reactions, and amount of learning that occurred between pre- and post-test quizzes. Finally, because we are working with both the Army and Air National Guard, we will be able to compare and contrast these two samples. Analyses will be largely descriptive and qualitative. Challenges & Recommendations We will describe some of the challenges faced in designing and implementing our intervention, as well as the solutions and recommendations we developed. For example, this will include developing a standardized and rigorous review and delivery process of the sleep reports, in addition to reduced ambiguity and ensured consistent messaging. We will discuss challenges from a Total Worker Health® approach, incorporating sleep health from an organizational and employee level perspective.

An Examination of Safety Standards in Nursing Education Programs

Drake Terry (Old Dominion University)

Introduction Nurses play a vital role as healthcare providers in high-risk work settings. Guidelines and expectations for safe nurse practice and education exist, but little is known or documented about how comprehensive and effective actual safety education is within today's nursing education programs. In this presentation we will share preliminary evidence from an ongoing study to address this knowledge and practice gap. We will include lessons learned from our efforts to build a supporting collaborative network for access to data, as well as our development of a methodology for gathering, coding, and analyzing national nursing accreditation standards and nursing education program educational materials. The guiding research questions driving this work are: (1) How is safety being taught to nurses in-training? And (2) Is what is being taught well-aligned with what is outlined in the existing standards for accredited nursing education programs? Method To address our research questions, three forms of data were considered: (1) published applied research on nursing safety, (2) safety education guidelines from American nursing education accreditation organizations, and (3) course syllabi and learning objectives information from several well-respected nursing education programs in the southeastern USA. These contents were ultimately cross-mapped to identify alignments and gaps between what is being taught and emphasized in nursing education programs versus what is identified as critical safety education requirements in the research and accreditation standards. First, we assembled an evidence of relevant recent (i.e., 2008-2018) and peer-reviewed research. This was done through keyword searches within PsychInfo, PubMed, and Google databases using phrases such as "nursing safety" and "safe work practices in nursing". From the 25 resulting sources (of which Chenot & Daniel, 2010 and Pollard et al., 2014 were particularly pertinent) the widely used Quality and Safety Education for Nurses (QSEN) framework emerged as the primary lens through which we could identify evidence of quality safety-related education within nursing education program curricula. The QSEN framework identifies seven knowledge areas, eight skills, and five attitudes nurses should possess for the competency of safety (Cronenwett et al., 2007). To ensure we had the most comprehensive framework to guide our review of safety education guidelines and materials, we then expanded the QSEN framework by incorporating the seven National Institute of Occupational Safety and Health (NIOSH) safe patient handling learning outcomes (Waters, Nelson, Hughes, & Menzel, 2009). The result was a safety education checklist to facilitate identification of the comprehensiveness of national nursing education accreditation guidelines and nursing education program materials. Second, we applied this checklist in reviewing the national accreditation standards for BSN, MSN, and DNP level programs from the Commission on Collegiate Nursing Education (CCNE; available online), as well as syllabi and other curriculum-related documents from regional nursing education programs. For each knowledge area, attitude, skill, and learning outcome included in our QSEN-NIOSH checklist, we identified relevant search terms. We then noted relevant usages of these terms within the accreditation and education materials when they matched up with the knowledge area, attitude, skill, and learning outcome from the checklist. We then tallied these statistics as an indication of extent of core safety competency coverage for each of the safety-related domains in our safety education framework. Collaborative Partnerships Here it is important to note that this type of applied evaluation research requires strong and collaborative partnerships. For this project, these relationships developed through volunteer consulting to a regional healthcare safety group with members from various healthcare professions and occupational positions. This engagement led to the development of a collaborative network of nursing education program directors and senior level hospital administrators. It is through this network that the nursing education materials were made available. Findings and Discussion While we are still in the process of coding other national accreditation documents from a secondary accreditation body (ACEN) and curriculum materials from additional regional nursing schools, these preliminary findings are telling. In general, most QSEN and NIOSH standards were mentioned in the materials we reviewed. However, several elements critical to safety education are not present or not as prevalent as they need to be. In general, the CCNE guidelines and nursing program materials are in alignment with the elements in our checklist. The CCNE materials do, however, fail to mention and emphasize the need to teach strategies to limit memorization for nurses, as well as methods to safely move patients. The latter issue was also absent in the nursing education materials reviewed to-date. These education materials also do not directly address the topic of how to analyze errors in nursing practice. Given the inevitability of errors in complex healthcare settings, this is one example of an education-to-practice gap that needs to be addressed in a way that helps nurses learn from errors without fear of punishment.

Philadelphia Ballroom North

Using Guidelines to Implement Integrated Approaches to Work, Health and Well-being: Applications in a Health Services System, Food Services, and Construction

SYMPOSIUM

Chair: Deborah McLellan (Dana-Farber Cancer Institute/Harvard University)

Background and approach. The National Institute for Occupational Safety and Health Office for Total Worker Health® (TWH) supports research and practice activities that integrate workplace policies, programs, and practices that protect workers' safety and health with efforts that advance their overall well-being.1 While growing evidence supports the benefits of these approaches in improving both worker and employer outcomes,2-9 resources and technical support for these integrated worksite initiatives remain limited. Models for distribution of effective TWH programs are needed.

Recognizing this gap, the Harvard T.H. Chan School of Public Health Center for Work, Health, and Well-being (Center) published Implementation Guidelines10 (Guidelines) to provide direction on how to plan, implement, and evaluate integrated policies, programs, and practices addressing working conditions. They include a framework, processes, case studies, tips, tools, and resources. While examples are included, the Center recognizes that adaptations to the Guidelines are likely across different organizational contexts. As such, it is important to understand how these adaptations occur, what they are, and how they can be used to further research and practice.

The Guidelines are currently being used in studies to plan and implement integrated approaches in three industries: a large health services system, food services, and commercial construction. Each industry provides unique contexts and working conditions for implementing integrated approaches and this has informed their use of the Guidelines. As we plan and implement with our collaborators, successes and challenges surface that are instructive for those interested in the practice of implementing integrated approaches.

The symposium will use the organizing structure of the Guidelines to provide a framework for each presentation. This structure includes leadership and building collaboration, planning, implementing, and evaluating. Presenters will focus on slightly different aspects of the structure that are highly relevant in each of their respective industries and reflect different experiences in implementing integrated approaches.

The symposium will begin with an introduction to the Guidelines, with specific examples provided. Some of the lessons learned will be discussed, including feedback received from those using and adapting the Guidelines. The second speaker will describe how the Guidelines are being applied by a health services vendor in a pilot project with three employers representing diverse industries. Practical insights will be shared about early recruitment, staff training, collaboration-building, and planning in different worksite contexts. Particularly, challenges and opportunities will be discussed for enterprises in the early stages of implementing integrated approaches focusing on working conditions. The application of the Guidelines in developing and implementing an integrated intervention in worksites with low-wage workers in food services will be discussed by the third presenter. This speaker will describe how to gain management's support for and use participatory processes to engage workers and management to implement practical and sustainable strategies to improve working conditions at their worksite. An intervention plan will be outlined that addresses the three working conditions identified by formative research: safety and ergonomics, work intensity, and job enrichment. The last speaker will cover how the Guidelines have informed planning, implementing, and evaluating integrated approaches in a project with commercial construction sub-contractors. Despite the complex nature of the construction work environment, the Guidelines provided a framework that could be adapted for subcontractors in the commercial construction sector.

We will then stimulate an audience discussion about additional potential successes and opportunities in implementing research-to-practice initiatives focusing on integrated approaches to safety, health, and well-being.

Analyses . The analytic methods used in the presentation will be qualitative, and dependent on project aims. Each presenter will provide methods and results from qualitative data. These data were collected using a combination of interviews, focus groups, and data tracking systems. The data were systematically analyzed by research teams and collaborators using standard qualitative analyses methods.

Practical Implications. The Center for Work, Health, and Well-being's Guidelines are useful for worksites implementing integrated approaches focused on working conditions, and are used by a large health services system, food services, and commercial construction. Adaptation to each context may be necessary.

Conclusions. The Center for Work, Health, and Well-being's Guidelines to worksite safety, health, and well-being may be used in different industries implementing integrated approaches that focus on changing working conditions. Implementation in practice may focus on different sections of the Guidelines and depend on worksite context and experience.

Implementation guidelines for integrated approaches to work, health and well-being

Deborah McLellan (Dana-Farber Cancer Institute/Harvard University)

Problem Total Worker Health® (TWH) is defined by the National Institute for Occupational Safety and Health as "policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being."1 Growing evidence supports the benefits of these approaches in improving both worker and employer outcomes.2-8 Resources and assistance for implementing these integrated worksite initiatives are limited, however, and effective implementation models for worksites to use are needed. Procedures/approach Recognizing this need, the Harvard T.H. Chan School of Public Health Center for Work, Health, and Well-being (Center) published implementation guidelines9 (Guidelines) to provide direction for worksites to consider on how to plan, implement, and evaluate integrated policies, programs, and practices addressing working conditions. The Guidelines include a framework, processes, case studies, tips, tools, and resources. Our Center's research-based conceptual model10 serves as the basis and overarching framework for the Guidelines. We focus on using policies and practices to impact the working conditions that are often the root causes of both worker and employer outcomes. These working conditions can include hazards in the physical environment, the pace and amount of work, and psychosocial factors like harassment and supervisor support. Using this framework, the Guidelines articulate a process enterprises can use as they identify, implement, and evaluate policies and practices to impact the specific working conditions and outcomes relevant to their worksites. This process is based on Plan, Do, Study, Act cycles that are inherent in management and safety improvement initiatives.11 Specific examples, case studies, tips, and tools are provided to further assist worksites in implementing integrated approaches. The Guidelines are available at http://centerforworkhealth.sph.harvard.edu/ on the Center's website, as well as on other websites related to TWH, since their publication in late 2017. Subsequent to their distribution, the Center is providing training and obtaining feedback on the Guidelines. As a result, we are learning how

the Guidelines are being used and adapted in practice. This presentation will provide

- an introduction to the Center's integrated approach to work, health, and well-being to serve as the springboard for the other symposium presentations
- descriptions and examples from each phase of the Guidelines—leadership and building collaboration, planning, implementing, and evaluating
- lessons learned—input on research-to-practice experiences in implementing the Guidelines Methods/Analyses

To obtain information on lessons learned, we used qualitative analyses of verbal and written evaluations gathered in key informant interviews, meetings, and trainings on Guideline use. Interview scripts were used in discussions with key informants, and written transcriptions developed from the interviews. Notes are developed from meetings with collaborators. Training evaluation forms were circulated to and requested from training participants. Analyses entail intensive reading and group discussion of the data by the research team and collaborators. Results Preliminary results indicate that: the Guidelines can provide direction to organizations implementing integrated approaches to worker safety, health, and well-being; additional tools, technical assistance and training are desired by those implementing the Guidelines; calls for simplifying and reducing the amount of information provided were also made; end users may adapt the Guidelines depending on worksite context; and specific tools and examples are valued. Practical Implications The Center for Work, Health, and Well-being's Guidelines are useful for enterprises implementing integrated approaches focused on working conditions, and users report the specific tools and case examples provided are especially valuable. Conclusions The Center for Work, Health, and Well-being's Guidelines to worksite safety, health, and well-being may be used by enterprises implementing integrated approaches that focus on changing working conditions. Additional tools, training, and technical assistance to accompany the Guidelines were recommended, but requests for simplifying and reducing the amount of information were also received. There is a tension between providing enough and too much documentation and information that warrants further study.

Application of Implementation Guidelines in a health services vendor: the WISH@Work pilot

Abigail Katz (HealthPartners)

Statement of the Problem As a part of its integrated health plan and care delivery system, Minneapolis-based HealthPartners creates and deploys web, telephonic and on-site solutions that aim to improve employee and organizational well-being. Employer customers range from small organizations to Fortune 500 companies, many of which are interested in strategies to address organizational factors affecting employee health, safety and well-being. In response to this need, HealthPartners uses organizational approaches that are consistent with and guided by the National Institute for Occupational Safety and Health's Total Worker Health® program1 (TWH). As a Center for Excellence within the TWH program, the Center for Work, Health and Well-being (CWHW) at the Harvard T.H. Chan School of Public Health has worked closely with researchers from the HealthPartners Institute, a TWH affiliate, to implement employer-based organizational interventions2. These efforts contributed, in part, to the development of CWHW's implementation guidelines (Guidelines), designed to help employers address the conditions of work affecting employee health, safety and well-being3. Procedures/Approach HealthPartners, as it develops its own TWH approaches, is interested in testing the use of the Guidelines as part of its set of employer-based solutions and consultative services in the areas of Health & Well-being and Occupational Health and Safety. While organizational consultation is already part of its consultative approach, HealthPartners lacks a formal process to help guide employers in using policies and practices to address working conditions at their worksites. This presentation will describe the WISH@Work project, a 12-month pilot designed to assist 3 Minneapolis-based employers in applying select sections of the Guidelines. These include sections addressing:

Building collaborations

Getting leadership support

Assessing major working conditions driving outcomes at the worksite

Prioritizing actions to address them

Creating an evidence-based action plan

We have chosen to focus on these specific sections of the Guidelines in order to feasibly implement a worksite-based pilot within a 12-month period. Pilot activities are outlined in the timeline on Figure 1. [Insert Figure 1 here] Analyses Data collection for WISH@Work is scheduled to begin in July, 2019. By the time of the conference, we plan to present qualitative data collected in the early months of the pilot. Data will be gathered from key pilot stakeholders, including HealthPartners Technical Assistance (TA) consultants, worksite leaders and staff participating in the pilot process. Analyses will involve intensive reading, group discussion and synthesis of the evaluation data by the research team and pilot project collaborators. Results Results will provide initial insights about implementing the Guidelines within the early phases of a worksite pilot. We plan to present qualitative data related to the successes and challenges of:

Recruiting worksites to participate in the pilot

Training TA providers to deliver consultation to support worksites in implementing the Guidelines

Enlisting support of worksite leadership

Building teams at participating worksites to collaborate on using policies and practices to address working conditions at their enterprises

Practical implications We plan to present practical insights about the early phases of implementing a research pilot within worksites. These will include learnings regarding recruitment, training of consultants, getting leadership support, selecting champions and building intra-organizational collaboration on addressing working conditions. We will also consider differences in applying the Guidelines across participating worksites of different sizes, sectors and stages of readiness to implement organizational change. Conclusions. While the Guidelines are informed by field research, additional research is needed to understand the way the Guidelines can be adapted for practical implementation within worksites across size, sector and region. This presentation will present both opportunities and challenges related to the early phase of applying the guidelines as a vended consultative service to employers seeking to make meaningful organizational change in the areas of health, safety and well-being.

Using Guidelines for planning and implementing an integrated intervention for food service workers

Eve Nagler (Dana-Farber Cancer Institute/Harvard University)

Statement of the Problem Low-wage work, defined as work that earns two-thirds or less of the national median gross hourly earnings, is on the rise in many countries, including the US.1,2 Low-wage jobs

are especially common in the food service industry,3 which employs approximately 9.5 million workers.4 These workers include a large number of immigrants, women, young workers, and those with low levels of education. These positions are often characterized by job insecurity, uncertain work hours, physical work demands, repetitive work, and low job decision latitude and autonomy.5-11 There are few studies of interventions to improve the working lives of these low-wage workers. In response, this paper presents how the Harvard Center Implementation Guidelines (Guidelines) were used to develop and implement an integrated intervention to improve the health, safety and well-being of front-line food service workers. The intervention is part of the Workplace Organization Health Study, which is developing practical, sustainable strategies to modify the work organization to improve outcomes related to musculoskeletal disorders, worker well-being and turnover intention. The intervention was developed with a multinational food service company and is being conducted in five business and industry employers in the Greater Boston area. Procedures We conducted formative research to better understand the work context of food service workers by conducting: 1) a review of relevant literature; (2) on-site non-participant observations; (3) key informant interviews with general and district-level managers; and (4) focus groups with front-line employees. The formative research defined what our outcomes and working conditions of interest would be and identified implementation strategies used in these worksites. Using our qualitative findings, we followed three chapters from the Guidelines to plan, develop and implement the intervention in collaboration with our industry partner: Leadership and Collaboration; Integrated Planning; and Integrated Implementation. Our guiding principles throughout planning and implementation included: leadership commitment, employee participation, communication between the different levels of management and employees, and fit—making sure what was developed was appropriate for the sites. Analyses We analyzed the qualitative data using content analysis in stages. Interviews and focus groups were tape recorded, transcribed and entered into N'Vivo software to facilitate data organization. The Harvard Center/industry partner team synthesized the data and agreed upon the major themes that would guide our intervention planning. Throughout data analysis and intervention development, our research team met regularly (in person and by phone) to interpret the data and determine how it would be used to inform the intervention, according to the steps laid out in the Guidelines. Results We designed a 13-month intervention to address three working conditions identified by the formative research: safety and ergonomics; work intensity; and job enrichment. The intervention was recently launched and is implemented at two levels: A Coordinating Committee - was established with the aim of engaging stakeholders at the district level and coordinating efforts with general managers across the five participating worksites Employees and the general manager at each site - are responsible for operationalizing what the working conditions look like at their site, brainstorming solutions to address the root causes of these conditions, prioritizing actions to take, and developing action plans for each working condition A research team member works closely with the manager and employees at each site to coach them through the process of developing the intervention at their site – from root cause identification through implementation. Results will detail how we garnered and maintained leadership support throughout the intervention planning process. They will also illustrate creative ways of engaging employee participation in the process, especially in a time-constrained environment. By the time of the conference, we will be able to present the full implementation plan. Practical Implications The Guidelines provided a step-by-step approach to identify working conditions and for each site to devise an action plan to address them. Guidance is also provided for worksites to ensure employees at multiple levels are engaged in the process, particularly front-line workers. We also illustrate how leaders can act to modify the work organization through policies and procedures in support of the health, safety and well-being of low-wage employees. Conclusions Developing interventions for low-wage employees that improve their working conditions is critical to improve their health, safety and well-being. This wholistic process outlined in the Guidelines can be used by other worksites to plan and implement interventions to benefit employee and organizational outcomes.

Using guidelines to implement an integrated health and safety intervention for construction

Susan Peters (Harvard University School of Public Health)

Statement of the problem Construction workers have high rates of injury and illness compared to workers in other industries.1 Due to the complexity of the work environment, working conditions may manifest in multiple ways because of differences in worksites, company trade and characteristics, and the other companies present on the worksite. On a construction worksite, subcontractors execute between 80-90% of the volume of work and thus are one of the biggest construction employers.2 However, these small to medium size companies frequently do not have the resources to develop their own health and safety management systems.3 Companies are motivated to improve worker safety, health and well-being, but often do not know how. Interventions to improve construction workers' safety, health and well-being can be challenging due to the multi-employer structure on worksites, the transient nature of construction workers moving on and off sites, highly physical job demands and hazardous work environments, as well as competing high production pressures, and job insecurity.4 Previous research has identified that integrating health promotion and health protection programs into existing organizational structures, thereby enhancing intervention-organization fit, increases the intervention's success.5 In addition, leveraging existing resources, such as employee's knowledge of the work hazards and contributors to poor health in the work environment, are often not executed to the company's full advantage. Procedures Using the Harvard Chan Center for Work, Health, and Well-being Implementation Guidelines,6 we developed a participatory integrated organizational intervention for subcontractors in the construction industry, called All the Right Moves for Subcontractors. The intervention was designed to develop a continual improvement process using a communication infrastructure to allow subcontracting companies to integrate strategies to promote worker safety, health and well-being easily and effectively into their daily operations. This is achieved using a five step process (Figure 1). This intervention was piloted to examine its feasibility and acceptance to owners, managers and workers, prior to a full randomized controlled trial that is currently underway. First, we used program vetting processes to develop the intervention and assess feasibility and acceptance, and to develop intervention content and processes. Next, we implemented the intervention with one company to pilot the intervention, and to further refine the intervention so that it would be able to accommodate the unique contextual elements of different companies, trades and worksites. Currently, we are conducting a randomized trial with fourteen construction subcontractor companies using a matched-pair (by trade) lagged intervention study design. In this presentation,

we will discuss how the Guidelines were used as a framework to build collaboration with industry partners, as well as to plan, implement and evaluate ARM for Subs intervention in a complex and dynamic work context. Unique challenges to this work environment will be highlighted to provide insight into the value of involving employees in intervention design and implementation. Analyses During the development and implementation of the intervention, qualitative (using focus groups, interviews and process evaluation logs) and quantitative data (using surveys) were collected. The Guidelines as well as a realist evaluation approach,7 were used to guide data collection and analyses. Qualitative data were analyzed using thematic content analysis from transcribed audio-files of focus groups and interviews and process evaluation data. Results Pilot and preliminary trial data revealed key elements of the intervention process and content that need to be considered in the context of the dynamic and complex construction work environment. The multi-employer structure and distributed nature of the workforce are important characteristics that impacted intervention design, implementation and evaluation. Additional key characteristics that influenced how the Guidelines were used included: leveraging existing company resources, and thereby engaging employee and managers to work together to identify work-related health and safety concerns; creating collaborative action plans; and strategizing to improve working conditions through implementation of policies, programs and practices. In addition, implications of the multi-level employment structure on a construction worksite to create comprehensive and collaborative strategies were identified. Practical Implications The Guidelines were used to design an intervention for construction subcontractors through all phases of intervention planning, implementation and evaluation. Despite the complex and dynamic nature of the construction work environment, this framework provided a structure that could be adapted to meet the needs and unique context of subcontracting companies in the commercial construction industry. The importance of worker engagement, leadership commitment and integrating an intervention into existing company structures and systems were essential. These elements could be applied across other complex work environments. Conclusion Subcontracting companies employ the majority of workers on commercial construction sites. Yet, these companies are less likely to have in situ health and safety management systems. The Guidelines provided a systematic and wholistic structure that enabled an intervention to be developed, implemented in an integrated fashion in subcontracting companies, and evaluated to improve construction workers' health, safety and well-being.

Salon 10

Work and Health Behaviors

PAPER SESSION

Does Healthy Lifestyle Matter?: A Daily Diary Study of Unhealthy Eating Behaviors and Behavioral Outcomes at Work

Seonghee Cho (North Carolina State University)

With abundant health-related information, the modern workforce is advised to engage in health-promoting behaviors such as good sleep, physical activities, and healthy diet to stay productive at work. However, no study has provided empirical evidence on the association between employees' unhealthy eating and the quality of their performance. Contributing to the work–nonwork interface literature, the current study tested a moderated mediation model to investigate the role of a healthy lifestyle in employees' work-related behaviors. Based on daily diary data collected from 97 full-time employees, we used an experience sampling method to examine this within-person phenomenon for 10 consecutive weekdays. Our multilevel path analysis shows that employees' unhealthy eating behaviors in the evening led to eating-specific negative emotions (e.g., guilt, shame) as well as physical symptoms (e.g., stomachache, diarrhea) on the next morning. The psychological and physical constraints experienced in the morning served as key mediators resulting in decreased quality of performance (i.e., less helping, more withdrawal behaviors). Further, emotional stability was found to moderate the association between unhealthy eating and the undesirable consequences, such that employees with higher emotional stability tended to experience less negative emotions and fewer physical symptoms due to unhealthy eating. The theoretical and practical implications of these findings are discussed, along with suggestions for future studies on health-related behaviors.

Does Active Leisure Improve Worker Well-Being? An Experimental Daily Diary Approach

Xinyu (Judy) Hu (Northern Illinois University)

Organizations strive to implement various types of programs to aid in maintaining employee health and wellness, in which wellness and health programs with a health promotion focus have been shown to be effective and feasible (Tetrick & Winslow, 2015). In particular, engagement in leisure activities during non-work hours has been associated with benefits to workers' subjective well-being (SWB; Kuykendall, Tay, & Ng, 2015). However, no leisure-related intervention program has been tested among a working adult sample to date (Kuykendall et al., 2015), with most leisure studies focusing only on non-experimental designs (e.g. Sonnentag & Zijlstra, 2006; Oerlemans, Bakker, & Demerouti, 2014). Building on positive activity intervention research (Layous, Nelson, & Lyubomirsky, 2013), conservation of resources theory (Hobfoll, 1989), and bottom-up theories of SWB (Diener, 1984; Newman, Tay, & Diener, 2014), this study aimed to fill the gap in the workplace intervention literature by using an experimental daily diary design to explore the effectiveness of a one-week long active leisure intervention program for boosting employees' daily feelings of pleasure (hedonic well-being), need fulfillment (eudaimonic well-being), and detachment from work thoughts (psychological detachment) while engaging in active leisure. Active leisure includes various forms of activities (e.g., exercises, hanging out with family or friends), which may be perceived as more effortful but bringing more benefits to one's SWB, compared to passive leisure (e.g., watching tv; Sonnentag & Natter, 2004). The bottom-up mechanisms of leisure-domain specific well-being indicators contributing to global SWB were also tested (see Figure 1 for theoretical model).

Employed participants (N = 79) were recruited from an online crowdsourcing platform (Amazon's Mechanical Turk), and randomly assigned to engage in either an active leisure intervention for one week (i.e., participating in active leisure for at least 30 minutes each day for seven days; n = 46) or receive no intervention. We provided a list of active leisure activities examples to guide participants in choosing appropriate activities (Engeser & Baumann, 2016; see Table 1). We measured global SWB (i.e., life satisfaction; Diener, Emmons, Larsen, & Griffin, 1985; general positive and negative affect; Watson, Clark, & Tellegen, 1988) at the beginning and the end of the study. Each

day, participants responded to a daily survey containing leisure activities log, and measures of subjective leisure well-being (Kuykendall et al., 2017), need satisfaction in leisure (autonomy, competence, and affiliation; Chen et al., 2015, Kuykendall et al., 2017), as well as psychological detachment (Sonnentag & Fritz, 2007) around evening time. We checked manipulation based on participants' understanding of instructions, and behavioral compliance, which the results confirmed compliance for intervention instructions among our sample. Descriptive statistics, intraclass correlations, and bivariate correlations are presented in Table 2; means and standard deviations of study variables across intervention groups are presented in Table 3. Results from multilevel structural equation modeling suggested participants in the active leisure intervention group experienced significantly higher levels of life satisfaction and general positive affect after one week compared to those in the no intervention group, after controlling pre-intervention scores. The active leisure intervention was effective in increasing competence during leisure, and this leisure competence mediated the effect of active leisure intervention on life satisfaction (see Table 4). The results did not change when controlling employees' average weekly work hours, as well as housework and childcare demands.

Through the use of a novel combination of experimental and daily diary designs, this research provided several key theoretical and practical implications. Firstly, our findings confirmed that intentional positive activities (i.e., engaging in active leisure activities intentionally each day) boosted positive well-being outcomes. Particularly, this study extended this literature (Layous et al., 2013) to activities in leisure domain, which covers a wide range of activities that individuals may want to engage in during nonwork time. Methodologically, this study contributed to past research on leisure and well-being by using experimental design among working population, and by including both domain-specific and global measures of well-being to unpack the nuanced dynamics of workers' subjective and psychological evaluations of experiences. More importantly, organizations have placed increasing value on the significance of employees' personal domains in designing interventions, which could be beneficial in promoting work-life balance and understanding employee well-being (Brough & O'Driscoll, 2010; Tetrick & Winslow, 2015). This active leisure intervention has practical values for organizations in terms of broadening the breadth of wellness programs and policy implementation, given its proactive and preventive nature, and high feasibility (i.e., granting high autonomy for employees and low time commitment). Leisure has already occupied part of our daily lives; however, due to various work and home demands, we tend to overlook the benefits active leisure affords. Therefore, we recommend adopting leisure-focused intervention in organizations in enhancing employee wellness.

Philadelphia Ballroom South

Technology and Harassment

PAPER SESSION

An Analysis of Online Commentary Regarding Workplace Harassment

Jillian Yarbrough (West Texas A&M University)

It is common for women in the workplace to report witnessing or experiencing harassment. However, there are many types of incivilities or harassment that exist in the workplace and a vast range of employee perspectives regarding the appropriateness of these behaviors. Varying perspectives and vague definitions can result in unreported incidents of harassment, thus, creating a "veil of secrecy" that protects the harasser. Therefore, this study seeks to connect the functional definitions of workplace harassment with enacted workplace harassment conflict reports as they occur online. A comparison was conducted of women's online, anonymous self-reports of harassment to the characteristics of foundational definitions. Specifically seeking to understand the explicate relationship between how official organizations view workplace harassment and how women experience harassment. Clarifying this relationship may serve as a foundation for developing more effective policies and training.

Sexual Harassment, Power, and Social Media Contact as Predictors of #MeToo Reporting

Rose Siuta (Texas A&M University)

This study investigates factors associated with reporting #MeToo on social media. The social media #MeToo movement went viral in Fall 2017 in the wake of sexual harassment and assault (SH) allegations against Harvey Weinstein. People who posted #MeToo on social media were disclosing their own sex-based victimization. The goal of this paper is to determine what personal, experiential, and social media-related factors precipitated #MeToo disclosures.

We explored several sets of predictors. First, we controlled for (a) social media use and (b) gender. We controlled for social media use because people who more frequently use social media in general may be more likely to use it for a specific event like #MeToo. We also controlled for gender because women are more likely to experience SH than men and more likely to report experiencing SH than men (Foster & Fullagar, 2018). We also controlled for SH history because people who have experienced more SH are more likely to report it (Bergman et al., 2002).

Additionally, we considered three classes of variables as antecedents of #MeToo reporting: a) the relative organizational power of the SH perpetrator compared to the target, b) whether the perpetrator and #MeToo reporter were still in contact, and c) demographic characteristics. Organizational power was considered because SH is usually enacted by the more powerful toward the less powerful (Bergman, Langhout, Palmieri, Cortina, & Fitzgerald, 2002; Harned, 2002), but reporting more powerful people is more threatening to workplace and economic well-being than is reporting less powerful people. Despite this, some evidence suggests that reporting is positively associated with the perpetrator's power (Bergman et al., 2002). We also examined whether the perpetrator and #MeToo reporter were still in contact, because #MeToo was a report of lifetime incidence and not time-bound, and because it is possible that the events leading to #MeToo declarations occurred after the perpetrator and/or the reporter left that workplace. Finally, we examined a host of demographic variables (e.g., race, sexual orientation, age) that have been linked to SH (Bergman & Drasgow, 2003; Fain & Anderton, 1987; Ryan & Wessel, 2012). Intersectionality theory indicates that people are mistreated due to multiple identity factors because of interrelated systems of oppression (Crenshaw, 1989). This accounts for why minoritized women and men are more likely to experience SH than are majority women and men (respectively). It is unclear whether these minoritized identities lead to more #MeToo reports (due to the need to express frustration over both the harassment itself and the higher rate of harassment experienced)

or fewer (due to the need to protect against risks to workplace and economic well-being).

Method. We collected data from 395 participants (Table 1) through MTurk. All were over 18 (M = 31.95, SD = 8.51), employed within the US, and working over 30 hours per week. We specifically recruited employees who had knowledge of the #MeToo campaign and had an experience with sexual harassment or assault that they considered sharing on social media (i.e., anyone in our sample could have reported #MeToo). Participants completed the 21-item version of the Sexual Experiences Questionnaire ($\alpha = .96$), adapted to ask about sexual harassment experiences over the lifetime (Fitzgerald et al., 1988; Nye, Brummel, & Drasgow, 2014); the SEQ includes items on workplace assault. Participants also completed a demographic survey, a 6-item adapted questionnaire about social media use (Hughes, Rowe, Batey, & Lee, 2012), and single-item measures related to social media use, social media connections to the perpetrator, perpetrator's organizational power, incident context characteristics.

Results and Discussion. We conducted hierarchical logistic regression to predict #MeToo reports (yes/no) by: (Block 1) gender and characteristics of social media use; (Block 2) history of SH experiences; and, (Block 3), perpetrator power, connections to the perpetrator, and demographics (Table 2). The final model was statistically significant [$\chi2(34) = 109.96$, $p < .001$], explained 40% (Nagelkerke R2) of the variance in posting #MeToo and correctly classified 87% of cases (Table 3). SH experiences and social media privacy predicted #MeToo posts. Perpetrator power and incident context incrementally predicted #MeToo, whereas demographics did not. Future analyses will include relative importance analyses to determine which variables are more important than others in predicting #MeToo reports (Tonidandel, & LeBreton, 2011).

Our results indicate that SH experiences are a powerful predictor of #MeToo disclosure. Additionally, our results indicate that power dynamics, rather than demographic characteristics, drive #MeToo reports. Beyond our results, it is worth reflecting on how the future of social media disclosure of SH affects workers' experiences in the workplace, relationships with coworkers and supervisors, and (where applicable) ongoing connections with their perpetrators.

What Happens After #MeToo? A Quantitative Case Study of #MeToo Disclosure Outcomes

Robert Martin (Texas A&M University)

The "MeToo" hashtag went viral as a response to sexual harassment allegations against Harvey Weinstein and facilitated open discussions of sexual harassment (SH) experiences. Although #MeToo is not formal reporting (i.e., reporting SH experiences to an organizational authority), #MeToo social media posts have some similarities, most notably the acknowledgement of sex-based victimization. The current study demonstrates how job and life satisfaction were impacted by the online and in-person reactions targets faced following their #MeToo disclosures.

Fitzgerald, Drasgow, Hulin, Gelfand, & Magley (1997) theorized that SH was a psychological stressor, such that SH is negatively related to occupational and personal well-being (for review, see Siuta & Bergman, in press). Bergman, Langout, Palmieri, Cortina & Fitzgerald (2002) demonstrated that reporting SH in the organization often resulted in even worse outcomes, beyond those caused by SH itself; this increased negative effect was caused primarily by the way the organization reacted to the SH report. With this in mind, we examined several factors in the #MeToo experience to predict job and life satisfaction. First, because all of the participants in this study experienced some SH, evidenced by having posted #MeToo, it was important to control for history of SH experience.

Next, we examined several context variables. First, we examined whether the discloser and perpetrator were still in contact. This is likely to influence job and life satisfactions by reminding the targets about the SH incident, making them at risk for continued SH, and/or working in an organization that has allowed the perpetrator to remain (Stockdale, 1998). Second, we examined reactions from coworkers. This included both positive and negative reactions following #MeToo posts as well as the extent to which others shared their own #MeToo experiences; social support is a critical factor in stress management (Thoits, 1986). Third, we examined the extent to which the workplace is similar to what it was when the SH happened (e.g., same workplace and workgroup, same workplace but different workgroup, different workplace). Finally, we also examined demographic characteristics (e.g., gender, race, education, income) as predictors of how #MeToo disclosure affected job and life satisfaction. The current study plans to addresses how these variables relate to job satisfaction.

Method. We collected data from 74 participants (Table 1) using Amazon's Mechanical Turk, all of whom a) reported having used the MeToo hashtag on social media and b) had an experience with workplace sexual harassment or assault. Participants were over the age of 18 (M = 29.41, SD = 6.40), and employed in the US for over 30 hours per week. Participants completed the 21-item version of the Sexual Experiences Questionnaire ($\alpha = .96$), adapted to ask about sexual harassment and assault experiences over the lifetime (Fitzgerald et al., 1988; Nye, Brummel, & Drasgow, 2014). Participants also completed a demographic survey, a 3-item job satisfaction measure (Cammann, Fichman, Jenkins, & Klesh, 1979), a 5-item life satisfaction measure (Diener, Emmons, Larsen, & Griffin, 1985), and single-item measures related to contact from others regarding the #MeToo post, and the overlap between one's current workplace context and the workplace context where the SH event occurred.

Results. We conducted separate hierarchical regressions to predict job satisfaction (Table 2), and life satisfaction (Table 3). Both equations included several blocks of predictors: 1) SH experiences; 2) contact variables (amount of contact regarding the post, amount of contact that was positive and negative, whether others shared stories with them, similarity between the current workplace and where the SH experience occurred, and whether the perpetrator currently shares a workplace with them); and, 3) demographics.

In predicting job satisfaction, the final model was statistically significant, $F = 3.08$, $p < .01$., and explained 51.4% of the variance in job satisfaction (Table 2). SH experiences predicted job satisfaction, while gender and race incrementally predicted job satisfaction beyond these experiences. In predicting life satisfaction, the final model was not statistically significant, $F = .561$, $p = .85$, ns (Table 3). No context or support factors predicted either job satisfaction or life satisfaction. Our findings indicate that among people who disclosed #MeToo, SH experiences, gender, and race are predictive of job satisfaction, but are not predictive of life satisfaction.

Discussion. This study examined the impact of support following #MeToo disclosure, histories of SH experiences, and context variables on the discloser's job and life satisfaction. Unsurprisingly, we found that SH history affected job satisfaction. Additionally, gender and race further predicted job satisfaction above and beyond SH history. Surprisingly, no effects were found for life satisfaction, but this is a

more distal and multiply-determined outcome than job satisfaction when considering SH experiences. Our results show that organizations should be focused on preventing SH given that this was the primary (negative) predictor of job satisfaction, while experiencing positive support showed no ameliorative influence.

Salon 5 & 6

Risk Management of Workplace Psychosocial Environment

PAPER SESSION

Psychosocial risk management in different organizational cultures in the European Union (EU): A qualitative case study approach

Michael Ertel, Federal Institute for Occupational Safety and Health, Germany

Problem. While psychosocial risks are now widely acknowledged as an OSH priority in the European Union (Eurofound and EU-OSHA 2014), at the same time they are perceived as more challenging than other risks by many organizations and are not as well managed (EU-OSHA 2018). Accordingly, our aim was to gain an in-depth understanding of the "challenging" nature of psychosocial risks, and also to identify and compare contexts which are favourable to address and manage psychosocial risks at work, in four European countries. For this purpose, we used an explorative, qualitative case study approach. Elaborating on previous studies (Janetzke & Ertel 2017; Janetzke & Ertel 2017a), we focused on how facets of national and workplace culture act as drivers for or barriers to psychosocial risk management. Hence, our approach reflects the increasing interest in the role that cultural factors play in OSH Management practice (EU-OSHA 2018a).

Approach & Method: A case study approach was used that allows complex phenomena (i.e. the management of psychosocial risks) to be reproduced in its broader context and permits a detailed description of the respective processes (Yin 2014). Altogether 41 semi-structured, in-depth interviews with key players (management, worker representatives and OSH experts) from ten organizations in four countries (Sweden, Denmark, UK and Spain) and from different sectors (manufacturing, healthcare, hotel and catering) were conducted between April 2014 - August 2015. The interviews were based on a topic guide and lasted two hours on average. They were tape-recorded, transcribed and analyzed along thematic categories according to the process steps of psychosocial risk management. In a first step, these categories were created deductively. In addition, we created subcategories to consider our interview partners´ frame of reference. This targeted analysis was based on the data from a larger study on comparing approaches to psychosocial risk management in Europe. It was conducted by the Federal Institute for Occupational Safety and Health (BAuA) and with the financial support of the Hans Boeckler Foundation (Janetzke & Ertel 2017; Janetzke & Ertel 2017a).

Results. We found a broad spectrum of workplace practices as to how work overload, work-related stress, and psychosocial risks in general are perceived and addressed in organizations. On the one side of the spectrum were organizations where the management was reluctant to address work-related stress as an issue and only dealt with urgent problems (e.g. large financial losses due to long-term sickness absence of employees) in an ad-hoc manner, e.g. in response to an intervention by the labour inspectorate. This constellation was more prevalent in organizations in Spain and in the UK. On the other side of the spectrum were organizations that showed a "caring attitude" towards employees which was embedded in an organizational culture where it is accepted to speak openly about stress and work overload. This constellation was typical of the organizations in Denmark and in Sweden.

Remarkably , some of our interviewees mentioned the term "culture" in the course of the interview- without having been asked for it. As "culture" emerged in the interviews, it reflected the interviewees´ frame of reference. For example, in an NHS trust in the U.K. , an OHS specialist mentioned a parallel development: while the workload has increased over the last years, the "culture to speak openly" about stress has also grown such that now employees can go along to their manager instead of "feeling like a failure" – as in the past. The development of this positive OSH culture was based on the recognition that employees need support in managing their daily stress. Workplace stress audits were conducted regularly. Conversely, in a manufacturing company in the UK, a union representative mentioned that almost all (male) employees who felt stressed at work kept this problem to themselves for fear of appearing weak in a culture of "masculinity" (Hofstede 2001). And at the time these interviews were conducted, the company´s management did not want to do stress risk assessments as it shied away from the consequences; i.e. was unwilling about how to manage the results of this assessment.

Conclusions. Using a qualitative case study approach to gain insight into the challenging nature of psychosocial risks in four European countries, we became aware of two contrasting organizational cultures: a "caring attitude" of management towards employees versus a low management commitment towards employee health, together with an individualized responsibility for stress prevention in the workplace. These two contrasting organizational cultures of perceiving and addressing psychosocial risks represent different development stages for psychosocial risk management in different countries. So we can conclude that our research results complement the findings of recent quantitative studies on the importance of "culture" on psychosocial risk management in workplaces (EU-OSHA 2018a). And our results can be used to inform the practice of psychosocial risk management in organizations: key players have to cooperate to develop a preventive organizational culture.

Promoting innovation and well-being in the workplace: Exploring challenges in policy making

Stavroula Leka (University College Cork)

Innovation and well-being at work are both current priorities across countries. Scientific research has shown that they both have common determinants, however developing appropriate policies to stimulate action to address them holistically in workplaces represents a challenge. The current study focused on the challenge of developing European Union (EU) level policies in this area by exploring perceptions of key stakeholders involved in this process. To this end we conducted semi-structured interviews with key EU stakeholders to take into account their opinions, experiences and attitudes. 36 participants from 23 organizations were contacted, covering a range of trade unions, employer's organizations, governmental and non-governmental representatives, and academic institutions. Our final sample consisted of 13 participants, and thematic analysis was used to analyse the data with 6 themes emerging. The first was complexity of concepts which

underlined there are several complex and inter-related issues that must be taken into consideration when discussing workplace innovation (WI) and well-being (WB), both as theoretical notions as well as in policy terms. Diversity of EU member states was the second and it made reference to the different factors, both between and within member states, which give rise to the heterogeneity of the EU community. This in turn has a direct effect on the development and implementation of policy because of different power balances and national agendas and priorities. The third theme was fragmentation and credibility surrounding factors that have led to a fragmented and disjointed policy framework in the EU, but also at the national level. Participants raised several issues such as silos of knowledge and practice at the EU and national levels and overall it became clear that much more work is needed to achieve more holistic policies, frameworks and programmes. Awareness and resources was the fourth theme, referring to the influence that awareness and knowledge, research and financial resources have on policy development and implementation. Focus on more holistic research programmes looking at WI and WB jointly, funding for awareness raising and the translation of knowledge into practice were underlined. The fifth communication and collaboration theme pointed towards the importance of having open channels of communication and collaboration between stakeholders at all levels, why that is important for policy development and implementation, and how that leads to achieving best practice. Finally, relevance revolved around the importance of keeping WI and WB issues on the policy agenda, and the challenges associated with having to integrate these issues within other emergent challenges. Overall, participants from various organizations all pointed towards the importance of being mindful of new developments in the world of work, such as digitalization, demographic shift and the dawn of the 4th industrial revolution and how these factors impact the shifting focus of the policy agenda.

4:00–5:30 p.m.

Concurrent Sessions 8

Salon 3 & 4

It's Time to Think More Formally About Time in Occupational Health Psychology

PANEL

Chair: Russell A. Matthews (University of Alabama)

Panelists: Tammy Allen (University of South Florida), Michael T. Ford (University of Alabama), Karina Nielsen (University of Sheffield)

Within the field of occupational health psychology (OHP) it has long been recognized (e.g., Zapf, Dormann, & Frese, 1996), and consistently reinforced (Kelloway & Francis, 2013), that commonly studied relationships, often conceptualized in terms of the stressor-strain process, should be examined using longitudinal designs. At their core, longitudinal studies (e.g., autoregressive designs, intervention studies, diary-studies) imply that Time is important. Yet, as Kelloway and Francis (2013) note, rather paradoxically, even for some of the fields most well-studied constructs (e.g., role stressors, burnout, commitment) we know very little about their basic unfolding across time. By extension, a common refrain of scholars when discussing their study's limitation is to highlight issues related to Time (e.g., "Our hypotheses should be tested using longitudinal data", "A dairy-study may shed more light on these issues", "An intervention should examine how these effects unfold over time"). Alternatively, reviewers will often critique a study based on issues related to Time (e.g., "Why wasn't this study done longitudinally?", "Why did you use X lag between assessments instead of Y?", "Why didn't you use Z analysis strategy to model change?", "Why didn't you use theory to justify the proposed over-time effect?", "Why didn't you replicate standard cross-sectional relationship in your study?"). The issue at hand though is that our understanding of Time in OHP is disjointed at best: Time is seldom formalized in common theoretical frameworks, scholars seldom consider fundamentals of Time in the design of their studies, and editors/reviewers (while well-intentioned) may not fully realize the implications of their critiques as they relate to Time.

The purpose of this panel is to help audience members to take a step back and think about Time in a more formal, and expansive way. The session brings together an expert panel of scholars who are not only actively thinking about issues of Time in their research, but who are actively changing how the field approaches Time.

After a brief introduction of each panelist, the session will open with panelist answering the basic question, "When it comes to the issue of Time and OHP research, what keeps you up at night?" In turn, collectively, panelists will be asked to respond to a series of prepared questions by the moderator. Sample questions are included below.

- What is the biggest challenge you face in conducting research related to Time?
- What are meaningful albeit potentially unexplored areas in OHP related to Time?
- What do you wish other scholars would think more about as it relates to Time?

Following the discussion of these initial questions, the panel will then take questions from the audience. Depending on level of participation, to ensure a continued and active discussion, the moderator will be prepared with additional questions for the panel. The intention is for audience members to walk away with new ways to think about Time in the context of their own research with the hope of moving the overall field forward in its treatment of Time

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Independence Ballroom CD

Approaches that Accelerate Research to Practice: Lessons learned from NIOSH Total Worker Health Centers

CEP

PANEL

Chair: Diane Rohlman (University of Iowa)

As the burden of occupational injury, illness, cost, and productivity grows for employees and employers, research is need to identify more effective solutions and to translate these research findings into practice. The economic burden of occupational injuries, illness, and death in the US is estimated to at $250 billion including both direct and indirect costs (Leigh, 2011). Healthcare costs have been increasing at rates far above inflation, and these costs will only continue to rise. The National Institute of Occupational Safety and Health (NIOSH) launched the Total Worker Health® (TWH) program in 2011 (Schill and Chosewood, 2013) to expand traditional occupational safety and health programs to include the promotion of health and well-being among workers. This approach is based on the recognition that work is a social determinate of health. Aspects of work, such as chemical exposures, hours, wages, stress, work demands and schedule, interactions with co-workers and supervisors, and equipment design can impact the well-being of workers, families, and communities. The program supports research and outreach activities addressing conditions of work that impact the safety, health, and well-being of workers. TWH programs, policies and practices address the underlying causes that impact the health and safety of workers (Schill & Chosewood, 2013). Moreover, these programs in larger organizations have demonstrated a return on investment between $2.05 and $4.61 per $1 invested (Bertera, 1990; Keuhl et al., 2013). More broadly, workplaces benefit from value on investment, including impacts on absenteeism, presenteeism, morale, and work satisfaction.

NIOSH has funded six Centers of Excellence for Total Worker Health to conduct basic and applied research, evaluate integrated interventions, and to identify evidence-based practices for employers. This work is carried out through collaborations with employers and other stakeholders. Proposed outcomes for the TWH program range from the dissemination and awareness of TWH research findings, the translation of TWH research into practice, and the development of TWH workplace policies and practices implemented in various employment settings, with the ultimate goal of improving worker safety, health

and well-being which can lead to improved productivity and reduced healthcare costs.

Each NIOSH Center of Excellence for TWH is required to conduct outreach and education activities to disseminate research findings and increase awareness of the benefits of workplaces that support and promote safety, health, and well-being. The key focus of the outreach core in each Center is to establish partnerships with regional and state organizations, including industry, labor, trade associations, professional organizations, public health, and academia to translate research into practice and also to better understand the needs and concerns of stakeholders. The TWH Centers also provide education to graduate and professional students, health and safety professionals, human resource specialists, and workers in a variety of synchronous and asynchronous formats. Employers of all sizes and across all industry sectors, including non-traditional work environments are impacted by outreach efforts from the NIOSH Centers of Excellence.

This interactive panel will provide an overview of the outreach activities of each NIOSH Center of Excellence for Total Worker Health. Specifically, the centers will describe how they support and promote the implementation and adoption of best practices, programs, and policies that promote worker safety, health, and well-being. This will include a description of partnerships and collaborations with researchers and practitioners and how they are responding to regional needs for worker safety and health. Information about the development of communication tools and interventions that are culturally, linguistically, and educationally appropriate for their audience. In addition, each Center will discuss evaluation metrics, including process and outcome measures, that are used to determine the efficiency and effectiveness of their program.

This panel will provide an opportunity to address the conference theme of "What does the future hold?" in regards to leveraging the safety, health and well-being of all workers and the aspects of work that contribute to organizational effectiveness. The outreach cores in the NIOSH funded TWH Centers play a pivotal role in helping employers navigate the rapidly changing workforce needs.

Center for Promotion of Health in the New England Workplace:TWH Dissemination and Implementation Hub

Suzanne Nobrega (University of Massachusetts Lowell)

The Center for Promotion of Health in the New England Workplace (CPH-NEW) is a Total Worker Health (TWH) Center for Excellence that is jointly based at two public universities – the University of Massachusetts Lowell and the University of Connecticut. The CPH-NEW Outreach Core is the Dissemination and Implementation (D&I) "Hub" from which research evidence is shared to inform policy, programs and practice in U.S. workplace settings. Its goals are to disseminate the research evidence for Total Worker Health while developing new tools and protocols to facilitate practical implementation and adoption in real world settings. Activities include communications, educational initiatives, employer program tools and training programs and implementation support, all informed by the research findings from CPH-NEW research projects. Ongoing evaluation of program tools and training programs indicate new ways of adapting and refining them to increase their usability and effectiveness in field applications. These activities work in concert to advance knowledge transfer and uptake by practitioners to advance health, safety, and well-being for working people. Figure 1. The CPH-NEW Total Worker Health® Dissemination and Implementation Hub Communications The communications component of the D&I Hub targets a broad public audience, policy makers and professionals. A coordinated, layered system of website pages, email marketing, and social media is used to translate emerging TWH knowledge and disseminate information about TWH events, tools and resources available from NIOSH and other TWH Centers for Excellence. Every quarter, CPH-NEW publishes new online articles, topic briefs (over 60 titles to date) and a quarterly newsletter that reaches about 2000 professionals and researchers. We evaluate these activities by tracking the reach and engagement with the materials disseminated (e.g., page visits, length of time on page, newsletter clicks and opens). The CPH-NEW website was visited 8500 times by people from 125 countries in 2018. Education CPH-NEW provides continuing professional education through online, self-paced educational programs for nurses and through professional conference workshops. The Center currently offers two online nurse education programs: Job Stress (available since 2014) and Ergonomics in Healthcare (launched in 2018). A third online program (on Total Worker Health) is planned for release in 2020. Center investigators deliver TWH training at professional conferences with a reach to 200-400 workplace safety and health professionals every year (e.g. industrial hygienists, safety managers, employee health nurses, and labor leaders). These workshops are designed to promote adoption of TWH practices in real-world settings. We use evaluation surveys to assess participants' intention to apply their learning in professional practice and we track requests for follow up implementation support as an indicator of TWH adoption. For example, in the prior grant year, 84% participants planned to share TWH information with their peers, and 18 professionals requested follow up assistance. Dissemination and TWH Implementation Support The CPH-NEW approach has always placed utmost importance on the participatory engagement of workers at all levels in the design of TWH interventions. Emphasis is on first making the work environment safe and health promoting, and then encouraging preventive health behaviors. The CPH-NEW Healthy Workplace Participatory Program (HWPP) Toolkit (www.uml.edu/cphnewtoolkit) is one of a very few tools designed specifically to help employer organizations adopt and implement a TWH program for continuous improvement. It is the only program toolkit developed through use of a participatory action research model in which organizations partnered in its design. The HWPP provides a comprehensive suite of field-tested program implementation tools and a sustainable management structure for engaging workers at all levels of the organization in TWH initiatives. Thus, the HWPP Toolkit offers a complete programmatic approach for applying TWH principles in the workplace. The Center also provides technical assistance and training tools to support the implementation of the HWPP and continues translational research activities to evaluate the factors impacting successful adoption of the HWPP Toolkit. For example, the toolkit materials have recently been expanded to include facilitation skills training videos and a new organizational readiness survey to aid with HWPP program implementation. An effectiveness study (with experimental design) is underway currently in 6 public hospitals to evaluate the health and organizational impacts of the HWPP. CPH-NEW is engaged in public health policy initiatives to advance TWH goals in two occupational sectors. We are actively engaged in a safe patient handling task force in Massachusetts, and we are the primary organizing leader of a National Corrections Consortium to advance research and programs that support correctional officer health and well-being. Both of these are directly informed by findings from our research projects and D&I Hub.

The Healthier Workforce Center of the Midwest: Theoretically and Data Driven

Shelly Campo (University of Iowa)

Employers need to reduce the burden of higher healthcare costs and lost productivity on their businesses caused by injuries and illnesses. Therefore, the goal of the Outreach Core of the Healthier Workforce Center of the Midwest (HWC) is to change Total Worker Health® (TWH) knowledge, attitudes, and/or behaviors by translating research findings into tools for employers to use to create a healthier, safer workplace. Evidence-based social science, utilizing communication and health behavior change theories, drive the development, implementation, and evaluation of all outreach activities. Theories point to how and why change may occur which enhances evaluation efforts to measure impacts. Each theory provides different insight into aspects such as adoption, readiness for change, planning models, levels of influence, and message design to reach culturally- and educationally-diverse audiences. The theory is coupled with data collected from employers and employees by the HWC including site visits, case studies, and surveys of Midwest employers to inform the dissemination of Total Worker Health programs, policies, and practices. This evidence base is used to develop communication strategies that are tailored to the needs of specific audiences, including employers, intermediaries, and academics, that are delivered via the appropriate interpersonal and media channels. Our research with smaller employers (<250 employees) identified the need for low cost, easy to implement TWH solutions. These employers are far less likely to have skilled staff members whose primary focus is health and safety. As a result, they have less knowledge and time to learn about new resources and would like to know that other small employers have successfully adopted TWH and suggestions about implementations strategies for TWH programs, policies, and practices. This has driven our approach to provide education in smaller doses via short videos (most less than 5 minutes) and podcasts, provide testimonials and examples from Midwest employers, and create more engaging content such as a hazard mapping exercise to employ at local meetings/conferences. The HWC is uniquely positioned at the University of Iowa along with several other NIOSH-funded centers including the Heartland Center for Occupational Health and Safety (the Federal Region VII Education and Research Center), and the Great Plains Center for Agricultural Health (serving nine states of the Upper Midwest). Since its inception, the HWC has collaborated with the Heartland Center and Great Plains Center to develop TWH programs and materials that are jointly disseminated throughout the Midwest. Another dissemination strategy for the outreach core is to reach employers throughout the four-state region (Iowa, Missouri, Nebraska, and Kansas) by partnering with intermediaries to disseminate TWH. Washington University in St. Louis and the Nebraska Safety Council/WorkWell, bring together an interdisciplinary team of researchers, practitioners, and advisors who are an integral part of the Outreach team. The HWC has worked closely for the past five years with the Nebraska Safety Council/Workwell, a NIOSH TWH Affiliate, which reaches over 550 Nebraska employers with TWH education and resources. Their expertise and networks are an essential part of our Outreach core. Their team has enhanced our ability to design, implement, and evaluate programs, practices, and policies that can be tailored to employers of various sizes with changing needs and high burdens of adverse health effects, particularly the needs of small employers in our states. We have recently developed a new relationship with WorkWell Kansas to incorporate TWH into their training and resources. WorkWellKS provides leadership and resources for business and organizations to support worksite health. Since its inception in 2011, WorkWellKS has worked with 1,123 worksites across Kansas. The HWC is also actively engaging trainees in TWH approaches including an upcoming case competition for undergraduate, graduate and professional student teams that requires them to work with a Midwest community to provide expertise in solving community and workplace issues from a TWH perspective. These teams will include students from health sciences, management programs, urban and regional planning, and engineering among others. Through the integration of theoretically based approaches, data collections, and collaborations with organizations throughout our region, we are able to expand the outreach efforts of the HWC.

The Center for Work, Health, and Well-being: Four Pillars of Our Approach

Lisa Burke (Dana-Farber Cancer Institute/Harvard University)

The mission of the Harvard T.H. Chan School of Public Health Center for Work, Health, & Well-being, one of six Total Worker Health® Centers of Excellence, is to protect and promote the health, safety, and well-being of workers through designing, implementing, and disseminating effective workplace policies, programs, and practices. Over the past 20 years, researchers at our Center have endeavored to expand the evidence supporting an integrated approach and to develop the resources to apply it. The Center's approach to outreach and education is comprised of four pillars: Disseminating Evidence-Based Practices The Center creates best practices to simultaneously improve working conditions and optimize health and safety investments in multiple industries. The Center's Workplace Integrated Safety and Health (WISH) Assessment measures effective workplace organizational policies, programs, and practices, and focuses on working conditions and organizational facilitators of worker safety, health, and well-being. The WISH Assessment is based on the Center's validated "Indicators of Integration" that were designed to assess the extent to which an organization has implemented an approach integrating occupational safety and health with worksite health promotion. The WISH assessment measures six core constructs identified as central to best practices and may inform organizational priority setting and guide research around causal pathways influencing implementation and outcomes related to these approaches. Several Center studies are utilizing WISH Assessment items, testing their psychometric properties. Shaping Workplace and Public Policy To inform policy decisions affecting the workforce, the Center examines the potential impact its research has on policies that enhance worker health and safety while supporting productivity and engagement. Our Center's Policy Working Group identifies, examines, and influences workplace and public policy issues related to Total Worker Health® by bringing together policy experts to explore implications of our past and current research. These experts recommend changes to workplace and public policies that can improve worker health, safety, and well-being. In addition, as part of our evaluation process, we examine how the research findings published by the Center can inform policy decision makers. The Center has also created "Policy Implication Summary Sheets" based on recent publications and written for non-academic audiences. These convey key messages from our research in non-academic language, for use at Conferences and available on the Center's website. Building Organizational Capacity to Improve the Conditions of Work To support organizations in adopting an integrated approach, the Center trains professionals, presents at conferences and on webinars,

and mentors students and post-docs. These efforts are based on the Center's conceptual framework targeting the conditions of work, including physical environment, organization of work, psychosocial factors, and job tasks & demands. The Center's "Guidelines for Implementing an Integrated Approach" provides organizations with a framework for implementing a TWH integrated approach to worker safety, health, and well-being, as well as strategies, organizational processes, tools and links to other resources. The Center's capacity building suite is based on the Guidelines and its accompanying tools and resources. The Center regularly offers an Executive and Continuing Professional Education course, "Work, Health, and Well-being: Framework, Evidence, and Applications", and has recently participated in the design and delivery of a Harvard EdX MOOC (Massive Open Online Course) on the Culture of Health. Basing It upon the Center's Groundbreaking Research The foundation of our Center's work continues to be groundbreaking research. The Center's research projects and initiatives study the effectiveness of workplace policies and practices designed to support and protect workers; and demonstrate how an integrated approach targeting working conditions improves outcomes for employees and organizations. We currently are involved in three primary research projects – in Healthcare, Construction and Nursing Homes. Among the other Center projects is a collaboration with the Boston Fire Department and the Boston Firefighters Local 718, which has provided opportunities for the Center to examine factors in fire stations that may be impacting firefighter cancer risk. Pilot study findings were published in the Journal of Occupational and Environmental Medicine and then translated for a non-academic audience and published in Firehouse Magazine , a firefighter trade publication.

Center for Health, Work and Environment

Liliana Tenney (University of Colorado Denver)

Promoting Total Worker Health® (TWH) to organizations and individuals requires a translation and dissemination strategy that is targeted and engaging. The Center for Health, Work & Environment at the Colorado School of Public Health focuses translation and dissemination strategies aimed at reaching employers, specifically small and midsized employers, to build a culture of health and safety in the workplace. The end goal is increasing the awareness, adoption, and implementation of TWH among small employers. Generally small businesses, defined by the Small Business Administration of firms with less than 500 employees, do not offer the same level of health protection, health promotion, employee benefits, and wages found in larger organizations. Research confirms that there is low adherence to traditional occupational safety and health best practices by smaller organizations. Despite the observation that 93% of surveyed small business owners report that the health of their employees is important to their bottom line, the real and perceived barriers experience by these organizations pose real challenges to making changes that improve worker health, safety and well-being. Engaging small organizations depends largely on how they receive the information and their stage of "readiness to change". To promote participation and awareness of TWH, we apply the RE-AIM (reach, effectiveness, adoption, implementation and maintenance) framework for translation and dissemination. Our Center focuses on reaching small employers to help them achieve TWH through a mixed methods approach including email marketing, digital media, and community partners. Our target audiences are private, non-profit and public employers across all sectors; key decision makers including executives (owners, CEOs, directors), human resource professionals, and practicing health and safety professionals. As part of this panel discussion, we will provide a brief overview of how our Center disseminates TWH best-practices to reach and engage small employers to implement effective and sustainable workplace policies and strategies. Methods Through a series of focus groups representing decision makers, human resource manager, and safety and health professionals we evaluated the barriers and facilitators to engaging small employers. Participants expressed that networking, through local chambers of commerce and business organizations, conference attendance and sponsorship, social media, blogs, local and national radio, and Google searches, were important and appropriate methods to get TWH message out to businesses. They agreed that partnering with insurance carriers, insurance agents, and other businesses that service smaller organizations provides a good way to foster engagement. We also conducted market and formative research understand the major drivers for investing in TWH with this group to help create key messaging that could speak to the business case. This work led to the launch of a TWH communications and marketing strategy that focused on three core initiatives executed through Health Links™, a mentoring program based at our Center that champions health and safety at work. Health Links offers evidence-based Healthy Workplace Certification™ and advising to help organizations and their team members achieve TWH. These initiatives included: 1) developing key partnerships with local organizations, 2) a robust digital media campaign, and 3) storytelling of TWH in practice through case studies and testimonials from senior leaders and workers. We built a website dedicated to engaging employers to take an online assessment to benchmark TWH policies and practices. We trained and deployed a team of community advisors to serve as the liaisons for engaging employers and connecting them with TWH resources. We built a content team to collect, organize, translate, and share TWH best-practices through social media and email marketing. Lastly, we conducted trainings to reach our target audiences in small organizations to offer new TWH knowledge and skill building. Results Since launching our TWH Center, we have been successful in recruiting 554 employers representing 190,388 workers across Colorado to enroll in Health Links. We have trained over 3,200 professionals through both online and in-person community trainings. We have formed partnerships with the largest provider of workers' compensation insurance, local public health agencies, the state's Small Business Development Center Network, and local chambers of commerce representing members across 19 counties. Through digital media activities, we have gained 547 Twitter and 1,220 Facebook followers. Social media posts reach an average of 328 individuals per day and 9,548 individuals per month. Discussion: Collaborating with local public health, chambers of commerce, workers' compensation and economic development groups can result in a streamlined approach to effectively reach and engage small employers to adopt and implement TWH best practices. Marketing and communication planning and strategy are essential to disseminating TWH. Importantly, these strategies need to be tailored to consider the unique needs and values of small employers.

Center for Healthy Work

Christina Welter (The University of Illinois at Chicago)

Introduction Across the country, an increasing number of workers engage in precarious employment. These workers have been affected by profound changes in the way business is conducted in the United States. Workers employed in precarious jobs are often: subject to lower wages, hazardous conditions, discriminatory practices, limited

opportunities for advancement, unstable work schedules, lacking social benefits, and unstable employment. Some of these workers are not covered by basic labor laws. These workers are disproportionately women, immigrants, and people of color. All of these employment characteristics have implications for the health and well-being of workers, their families, and communities. Precarious work is complex, interacting with multiple social determinants of health spanning across socioecological levels. Due to its complexity, workplace-based health interventions do not adequately address the many factors impacting workers in precarious jobs. Workplace-based interventions also disregard political, economic, and social factors that lead to the fracturing of traditional employer–employee relationships and discriminatory practices. There is an emerging call for increased interventions and approaches to address healthy work within and outside the workplace (Baron, Beard, and Davis, 2013) that consider approaches that address the complexity of emerging trends and determinants related to unhealthy and precarious work (Total Worker Health® Website, 2015; Bhatia, Gaydos, Yu, and Weintraub, 2013). Policy, systems and environmental initiatives are one such approach and have been increasingly called to address complex challenges that have myriad causes at multiple levels in the system (Golden et al, 2015). Little is known about policy and systems approaches to promote healthy work, and there is limited effort to promote health within precarious employment. The University of Illinois at Chicago Center for Healthy Work (CHW) has taken a unique approach to outreach and education activities to disseminate research findings and build the capacity of organizations that address worker health. The Center for Healthy work has two primary elements dedicated to such activities; the Communications and Outreach Group (COG) and Healthy Communities through Healthy Work (HCHW). The COG is dedicated to building awareness and knowledge of researchers and practitioners, community organizations and members, while HCHW is undertaking a multi-phased action research approach to understand and address the drivers of precarious work. HCHW facilitates a culture of healthy work specific to precarious employment by fostering multi-sectoral partnerships and building knowledge, skills and capacity to employ policy and systems strategies. Methods CHW has employed two approaches to its outreach core, the COG and HCHW. The COG's role within the Center focuses on increasing awareness of how precarious employment impacts health, by sharing research findings and promoting best-practices through webinars, in-person events, a quarterly newsletter, and communications materials such as flyers and drop pieces. HCHW has completed 3 phases of action research and is currently undertaking its forth AR cycle. Results The CHW COG outreach approaches to build awareness on precarious work have included the development of quarterly webinars on topics that impact workers in precarious jobs and /or researchers and practitioners that study or aim to impact the health of workers. In addition, the COG hosts quarterly journal club meetings which are open to faculty, staff, and students at the University, as well as local partners. Journal club articles focus on emerging research related to precarious work. Attendees discuss the article and are prompted to consider implications for research and practice. The COG has also created a glossary of relevant terms related to precarious work, shared on the website, such as; 'gig economy', 'contingent workers', and more, in order to provide definitions and standardize the language we use around precarious work. The CHW also produces a quarterly newsletter in order to provide project updates and promote events to our partners. The CHW listserv has over 250 contacts nationally. Additionally, the COG provides oversight on CHW communications in order to maintain brand and fund guidelines and ensure consistency across CHW products. HCHW completed two major actions: 1) An environmental scan including 55 interviews with individuals representing national, regional, and local organizations across health, labor, social service, and policy sectors. Analysis included the identification of types of partner initiatives across sectors and ecological levels; thematic analysis focused on perceptions of precarious work, its relationship to health; and structural constraints and facilitators to addressing work and health in their organization's activities; and 2) The development and evaluation of the first phase of the Healthy Work Collaborative (HWC). The HWC included eight teams of multi-sectoral partners of labor and worker advocacy organizations and public health/healthcare organizations, to participate in an exploratory process to address a work-related issue impacting the communities they serve. The next phase of the HWC, project implementation, is currently underway. Discussion Addressing precarious work outside of the organizational workplace requires novel organizational and evidence-building research strategies. In this session, the CHW will share details on our unique approach to outreach and dissemination, lessons learned, and next steps.

Oregon Healthy Workforce Center

Anjali Rameshbabu (Oregon Health & Science University)

With intervention development and practical application being the governing mission of the Oregon Healthy Workforce Center (OHWC), outreach and dissemination have remained critical conduits for the practical impact we aim to create. While outreach has been a consistent focus since OHWC's inception in 2011, the Center's activities within its dedicated "Outreach Core" have become amplified as we create stronger, and what we believe are bolder strides towards broadening the reach and uptake of Total Worker Health (TWH) in Oregon and beyond. The overarching goals of OHWC's Outreach Core are to (a) create sustainable partnerships and facilitate two-way communication, (b) transform research into action, and (c) develop educational opportunities in TWH. Our outreach and dissemination activity is bolstered and furthered by our close connection with OHWC's home organization, Oregon Institute of Occupational Health Sciences ("Institute") at Oregon Health & Science University. Geared toward the above goals, we have designed four drivers, each of which responds to unique and shared goals within the Outreach Core. Selected activities and accomplishments are shared here: Outreach Central: The focus of this driver is to learn and respond to the needs of the worker community and enable information exchange. o Oregon Total Worker Health Alliance: A direct outcome of our strong partnership development, the Alliance is a shared commitment by the Institute, Oregon OSHA, and SAIF Corporation (NIOSH TWH Affiliate) to leverage its collective strengths to improve the safety and well-being of workers. o Oregon and the Workplace Blog: Through our weekly blog we feature news, upcoming events, our research and topics relevant to TWH. Readers are invited to leave comments. o Bi-annual Symposia: Our long-standing Fall and Spring Symposia are day-long events that delve into workplace topics of timely and sustained importance. Some examples of these events, which see up to 100 attendees each, include mental health in the workplace, emergency preparedness, safety climate, and workplace aggression. Intervention Incubator: The aim of the Incubator is to generate new intervention tactics, research directions, and intervention research partnerships. o Partners' Luncheon: This annual event aims to create interactions with industry, government, and insurance stakeholders with the goal of illuminating ideas for future practical interventions.

o Journal Club: This monthly journal club serves to spark small-scale intervention projects by exploring the landscape of workplace research. o Change-Maker Speaker Series: Established by the Organizational Behavior Management Network and the Institute, the series is geared toward producing videos highlighting science and business innovation ideas for organizational change. Dissemination Engine: The primary goal of the Engine is to accelerate the dissemination of our evidence-based trainings, tools, and toolkits. o "What's Work Got To Do With It?": Our new podcast features conversations with scientists, practitioners, and employers as we explore TWH issues and their public health relevance. o YourWorkpath.com: Supplementing our existing website is a new platform developed for greater interaction, versatility, and engagement. It seeks to actively disseminate OHWC's educational information and evidence-based toolkits and tools. o Publications: Complementing our research publications is a new paper focused on the translation process of COMPASS, our evidence-based program for home care workers. Education Launcher: This arm aims to create opportunities for providing TWH education and expertise to students, fellow researchers, and practitioners. o Total Worker Health 101: A venture by the Oregon Total Worker Health Alliance, the curriculum is geared toward providing occupational safety and health practitioners with training that is research-based and supports the implementation and practice of TWH. The training was piloted at a regional conference in 2018 and will be launched as a half-day training session in 2019. o Summer Institute: This biennial three-day event focuses on themes within occupational health psychology. Our latest, titled Translation of Workplace Interventions: Dissemination and Implementation, sought to generate ideas for increasing collaboration between scientists and industry members as a way to share strategies and enable dissemination and implementation-friendly intervention development. o Total Worker Health Dissertation Award: Launched in 2018, the program is designed to support doctoral-level student research focused on the intersection of worker safety, health, and well-being. Future Directions In our newest efforts, OHWC and its home, the Oregon Institute of Occupational Health Sciences are working to develop a mechanism that will enhance our ability to provide active, targeted, and direct guidance to organizations at local and national levels. We are working to create an advisory group comprising scientists and outreach members at OHWC who will provide educational, hands-on, tailored, and strategic advice to help small, mid-size, and large organizations learn, assimilate, and systematically incorporate Total Worker Health. Finally, we continue to make sustained efforts to evaluate the scientific and practical impact of OHWC's comprehensive research and outreach efforts. Thus, an ongoing emphasis is to gather quantitative and qualitative data that can help inform our mission to help keep workers and organizations safe and well.

Philadelphia Ballroom North

The Impact of New and Changing Technologies on Employee Health and Well-being: A Panel and Research Incubator

Chair: Carolyn Winslow (University of California Berkeley)

Panelists: James Grosch (NIOSH), Molly Tran (University of Colorado Denver), Naomi Swanson (NIOSH), Larissa Barber (San Diego State University)

The purpose of this blended panel-research incubator session is to discuss the latest developments in research on the impact of technology on employee health and well-being. Panelists will first present current research on a variety of relevant topics, including: trends in technology use over time, telepressure, algorithmic management, and workplace robotics and other automated technologies. Following the presentations, attendees will break out into smaller groups to discuss ideas for future research, followed by a larger group discussion of a research agenda for the topic of technology and employee health and well-being.

Salon 5 & 6

Development and Implementation of Standards for Workplace Psychological Health and Safety: Opportunities and Challenges from International Perspectives

PANEL

Chairs: Peter Kelly (U.K. Health and Safety Executive), Merv Gilbert (Vancouver Psych Safety Consulting Incorporated)

The psychological health and safety of employees deserves the same attention as their physical health and safety. Positive psychosocial work conditions enhance workforce well-being, engagement and productivity. Adverse work conditions contribute to human suffering, organizational costs and social discord. This issue cuts across sectors, types of organization and national borders and has thus become a focus of increased research, policy creation and practice development. In order to capture and communicate the best of these efforts, a number of jurisdictions across the globe have created guidelines or standards for organizations to follow. The current panel will include presentations on the process of development and the successes and challenges of implementation of standards for workplace psychological health and safety in the United Kingdom, Canada and the Province of Quebec. A collaborative process by the International Standards Organization to create a global standard, due to be launched in 2021, will be described.

A National Approach to Mental Health and Work Related Stress: UK Experience of a Decade of Interventions

Peter Kelly (U.K. Health and Safety Executive)

During the last 5 years there has been an explosion of activity in the mental health ,well-being and work related stress . Much of the activity has focused on the individual level and not at the organisational level. The proliferation of individual interventions is leading to a culture of individualism on mental health programs of work which is taking the focus away from the organisations responsibility to manage the risk to health from poorly managed workplaces. If standards are to be useful then they will have to focus on organisation primary interventions , secondary intervention and not solely on the tertiary intervention as seen over the last ten years in interventions such as individual resilience and mindfulness training The United Kingdom has for the last 15 years promoted an organisational primary intervention for work related stress . The Management Standards for Work Related Stress. The presentation will outline what we have learnt during this time

and were standards for mental health will need to know go next in the changing world of work.

The Case Study Research Project: implementing the National Standard in Canada

Merv Gilbert (Vancouver Psych Safety Consulting Incorporated)

The National Standard of Canada for Psychological Health and Safety in the Workplace, released in January 2013, was developed to "facilitate the creation of a workplace in which every effort is made to avoid foreseeable injury to the mental health of employees." The Case Study Research Project (CSRP) studied 43 organizations volunteering to be early adopters of the Standard. Participants in this three-year project included large and small, public and private organizations from diverse sectors three years. The research objective was to understand the experiences of these organizations, measure their degree of Standard implementation and identify barriers and facilitators with regard to the implementation process. This presentation will summarize the findings from this project and provide recommendations for successful implementation of standards intended to improve workplace psychological health and safety.

Implementing the Quebec Healthy Enterprise Standard: The role of line managers' attitudes and behaviors

Caroline Biron (Université Laval)

In Quebec, the "Healthy Enterprise Standard" (HES) is becoming an influential motivator for organizations wanting to improve and structure their preventive efforts. Despite the increasing interest for obtaining a certification or an award for being considered a proactive organization, there is little known regarding the factors influencing the implementation of interventions in the framework of a voluntary standard. This presentation describes the results of a study on how the Psychosocial Safety Climate (PSC) influences managers' attitudes and its resulting association with perceived benefits regarding the effects of interventions relating to psychosocial constraints and management practices. The results highlight the role of practices, policies, and procedures, and how they enable line managers in adopting attitudes and behaviors that support the implementation of interventions.

Why is it so hard to go beyond healthy lifestyle activities in the implementation of Standards for workplace psychological health and safety? The case of the Healthy Enterprise Standard

France St-Hilaire (Université de Sherbrooke)

While it is now well established that intervention on psychosocial risk factors improve mental health at work, intervening in primary intervention is still a challenge for the organizations. Standards and guidelines are frames of reference to support organizations in the implementation of interventions. The Healthy Enterprise Standard (HES) targets four areas: Lifestyle, Work-life balance, Workplace environment and Management practices. The aim of this presentation is to present original data in order to provide a better understanding of the levers and obstacles involved in the implementation process of a voluntary standard to reduce exposure to psychosocial risk factors.These results will contribute to better understanding levers and obstacles in organizational interventions within the framework of a voluntary standard.

ISO45003: Development the first international standard on psychological health and safety in the workplace

Stavroula Leka (University College Cork)

This presentation will outline the development process of ISO45003, the first international standard on psychological health and safety in the workplace. The International Organization for Standardization (ISO) introduced the first international standard on occupational health and safety in 2018, ISO45001. During the development of ISO45001, a proposal was submitted to ISO for the development of a guidance international standard that would supplement 45001 and would specifically focus on the psychosocial work environment and psychological health and safety in the workplace. The research behind this was the increased prevalence and impact of psychological ill health and a greater recognition of the importance of promoting mental health and well-being in the workplace. The proposal presented to ISO built on developments in the UK and Canada. In the UK, PAS1010 was introduced by the British Standards Institution in 2011 following the development of the European Framework for Psychosocial Risk Management (PRIMA-EF). PAS1010 was the first standard in this area globally and it is a guidance standard. This was followed by the development of the first auditable standard on psychological health and safety in the workplace that was introduced in Canada in 2013. The presentation will provide an update on the development process of ISO45003 which is due to be launched in 2021.

Salon 10

Use of a Workplace Best Practices Measurement Tool to Support Strategic Planning, Collaboration, and Program Integration

Sara Johnson (Pro-Change Behavior Systems)

The workplace has been identified as a strategic setting for influencing the health and well-being of adult populations, as a majority of the U.S. population spends a significant amount of time in their workplace. Socio-ecologic models support the need to attend to environmental factors that influence health behaviors and downstream health outcomes. Several assessment instruments have been developed to identify evidence-based strategies employers can use to promote employee health outcomes, but many are quite long and create significant burden for organizations to complete, making them challenging to use as part of workplace health promotion research. The Health Enhancement Research Organization (HERO) Health and Well-being Best Practices Scorecard in Collaboration with Mercer (HERO Scorecard) is a tool that takes an average of 45 to 60 minutes to complete. A recently published study was conducted to identify a reduced set of measures from the HERO Scorecard applicable for research purposes and to examine the reliability and validity of the shorter version. This session will provide an overview of the HERO Scorecard and briefly describe the research supporting the utility and applicability of the new shortened version for use in workplace health promotion research. Additionally, it will demonstrate how working across segments in an organization to complete the HERO Scorecard allows it to be used as a tool not only for research, but also for increased collaboration, integration and strategic planning.

Independence Ballroom B

Working Outside the Ivory Tower: Insights and Advice on Occupational Safety and Health Careers

SYMPOSIUM

Chairs: Ashley Nixon (Willamette University) , Irvin Schonfeld (City University of New York)

Participants: Tim Bauerle (NIOSH) , Kristin Saboe (Boeing) , Kizzy Dominguez (K Parks Consulting)

This symposium is being submitted by the SOHP Education and Training Committee as part of a three-part series targets issues relevent for Education and Training in OHP as well as career development. This series follows a tutorial session that describes the knowledge and skills needed in today's occupational safety and health workforce. This session focuses on career development and opportunities outside of academia, whereas the others focus on development and changes research programs, and best practices in teaching across a variety of settings.

Occupational safety and health (OSH), especially occupational health psychology, is a rapidly expanding interdisciplinary field that focuses on enhancing the quality of working life through promoting, developing, and evaluating workplace health and safety-related initiatives. OSH scholars and practitioners draw from various disciplines, including (but not limited to) psychology, occupational and preventive medicine, public health, epidemiology, engineering, industrial hygiene, ergonomics, health physics, nursing, and law to develop sound theory and practices for protecting and promoting worker safety, health, and well-being. Given the interdisciplinary nature of the OSH field, as well as the growing focus on safety and well-being at work, there is a wide range of career opportunities available. The purpose of this panel is to bring together individuals who have experienced a range of careers outside of academia, including careers with government agencies, and in private industry, including consulting and a Fortune-50 company. This panel aims to describe a variety of paths for those looking to advance their careers outside of academia, including how they pursued their careers, found opportunities, and developed insights that helped their careers progress. Each panelist will present for approximately 7-8 minutes, followed by a 10-15-minute general discussion with the audience. The session will end with a 25-minute break out session, where the audience can network with individual panelists, and each other, for additional tips and discussion. Specifically, there are three learning objectives designed in this panel.

1. Attendees will learn about a variety of best practices to guide their transition into careers that are outside of academia.

2. Attendees will learn about ways to navigate their careers as well as the pitfalls, advantages, and disadvantages of applied careers in OSH-focused position, from a variety perspectives.

3. Attendees will be able to network with others of similar interests through the break out sessions, and be presented with opportunities to initiate new professional network connections.

Philadelphia Ballroom South

Modelling the Healthy Work Design and Well-Being Domain: An Interactive Forum

PANEL

Chair: Rene Pana-Cryan (NIOSH)

Presenters: Naomi Swanson (moderator), Tim Bushnell, Claire Caruso, Heidi Hudson, Jeannie Nigam, Brian Quay, Tapas Ray, Jessica Streit, Sara Tamers (NIOSH)

Background. During this interactive panel presentation, we will present a model on the domain of the Healthy Work Design and Well-being (HWD) Cross-Sector, one of the seven cross-sectors within the research portfolio organized and supported by NIOSH for the nation to advance the research in occupational safety and health and its transfer to practice. The HWD Cross-Sector focuses on protecting and advancing the safety, health, and well-being of workers by improving the design of work, management practices, and the physical and psychosocial work environment. HWD's holistic perspective focuses on how work affects overall safety, health and well-being, including physical, psychological, social, and economic aspects.

The HWD model considers work-related proximal (e.g., fatigue, stress), safety, health, economic, and other well-being outcomes for workers, and their consequences for their families, employers, and society overall in a holistic way that extends beyond injury and illness reductions. Within the model, outcomes are presented at four levels of analysis, including the worker-level, family-level, organizational-level, and societal-level. When determining potential outcomes, it is critical to examine the different effects of work design for the groups on each level of analysis. Workers suffer or benefit in ways that may differ from the ways organizations gain or benefit. In this interactive session we will provide a summary description of each level of analysis, describe possible metrics, and illustrate examples of each.

We will also present four levels of determinants of worker well-being and their consequences for others, including: market and societal factors that affect how employers recruit and manage workers, and thus worker well-being; organization and job level determinants; and worker level determinants.

Market and societal factors affect how employers recruit and manage workers, and thus worker-well-being. Many of these factors fall into broad groups: markets, regulation, availability of guidance, and availability of services. Additional important factors include the character of the educational system; social insurance programs; taxation and economic incentives for worker safety, health and well-being; transportation system and land use patterns; and social and cultural influences.

Organization and job level determinants of worker well-being include: the overarching mission and values of the organization; ownership structure and priorities; organizational culture; the scale of investment in facilities and equipment, R&D, and market and customer development; the scale and type of investment in workers; the location and divisional segmentation of operations; subcontracting; organizational structures for reporting, communicating, and decision-making; contractual agreements with workers; job design; supervision, including monitoring, performance evaluation, and incentives; technology-driven organizational communications; and hours of work and work schedules.

Worker-level determinants include physical and physiologic, psychological, emotional, cognitive, financial, behavioral, social, and experiential determinants.

Interactions among different level determinants will be discussed and some illustrative examples of the different elements of model components will also be presented.

The audience for this session includes mainly researchers but should also be of interest to others, including health and safety professionals, practitioners, and human resources professionals in industry, labor, academia, and government. Panelists and the audience will be asked to interact on the current model and discuss ways to expand or improve it. Because HWD represents an intersection of the broad areas of Work organization and stress-related disorders, Total Worker Health®, and Economics, the content of this session should be of interest to many conference attendees.

Discussion may include ways to expand or improve the model. After presenters have delivered their short overviews, the moderator will invite comments and questions from the audience. The moderator will sets limits for audience remarks as needed in order to allow for wide participation. The moderator will have prepared questions for panelists in case audience participation is limited.

Independence Ballroom A

CEP

Stress and Well-Being Today and Tomorrow: Practical Challenges for Scientists and Practitioners

PANEL

Chair: David Ballard (APA)

Panelists: Matthew Grawitch (Saint Louis University), Bob Merberg (Jozito LLC) Brenda Massanet (Empacadora Hill Brothers)

Though work-related stress and well-being have been researched for decades, it often appears as though little progress is being made on these fronts. American Psychological Association (APA) public opinion polls show, at best, modest improvements from year to year. According to APA's 2018 Work and Well-Being Survey (APA, 2018), 35% of working Americans report experiencing chronic work stress, a sizeable minority of the workforce. Further, only 41% of respondents reported that their organization provided them with the resources they needed to manage stress.

Grawitch, Ballard, and Erb (2015) argued that various types of psychologically healthy workplace practices (e.g., work-life balance, employee involvement, health and safety) could be better leveraged by organizations to improve stress and well-being. At its core, a psychologically healthy workplace is truly about the existence of a culture that recognizes the interplay between employee well-being and organizational functioning (Grawitch & Ballard, 2016). Because there is no one-size-fits-all approach to creating a psychologically healthy workplace and smaller employers often lack the internal expertise to design, implement, and evaluate a custom set of practices themselves, organizations may have difficulty developing effective practices that are aligned with their culture (Posthuma, Campion, Masimova, & Campion, 2013).

Instead, they may seek guidance from outside the organization, but that is where difficulties can arise. There is a plethora of information on the internet, but the veracity of claims and reliability of sources is often unclear. Organizations, especially those without a well-developed OD or HR department, may struggle in determining what is sound advice from what is snake oil. A myriad of vendors and consultants are available to peddle the latest and greatest approach to improving engagement, happiness, well-being, and stress levels, all based on the assumption that improvements in these areas will lead to improved performance, revenue, and bottom line results. From wellness programs to mindfulness training, organizations are continuously being led to believe that various vendors offer a panacea for improving engagement, happiness, well-being, and stress.

This session is designed to help stimulate conversation among scientists and practitioners regarding current and future challenges to improving work-related stress and well-being. The session will be chaired by the head of psychologically healthy workplace educational efforts at the American Psychological Association. He will provide an overview of stress and well-being and how psychologically healthy workplace practices can be leveraged to address those issues. He will then moderate a discussion around more practical issues that exist when it comes to researching and improving work-related stress and well-being. Issues that will be specifically discussed include the following: (1) difficulties surrounding ways to operationalize stress and well-being, (2) faulty assumptions that exist (and are often promulgated by vendors and consultants) when it comes to stress and well-being, (3) how various non-work factors (e.g., financial stress, home life) can affect work-related stress and well-being (and how organizations might address that), (4) workplace trends and anticipated challenges that employers will need to respond to in the future, and (5) ways to promote better collaboration between researchers and practitioners in these areas.

The session will include the following panelist expertise: (1) an academic researcher, (2) an external consultant, and (3) an internal organizational change agent from an organization that has received national recognition for their psychologically healthy workplace practices. Each panelist will focus on adding unique insights to the questions posed by the moderator of the panel. The session will be structured as follows. First, the session chair will provide an overview of the session and introduce audience members to the Psychologically Healthy Workplace framework and its key components. He will then provide a brief introduction of the panelists and allow each panelist to offer an initial statement regarding their perspectives on a psychologically healthy workplace. He will then pose some initial questions to the panel and moderate the discussion that follows. Audience questions will be taken throughout the session.

6:00–6:30 p.m.
Philadelphia Ballroom South

Society for Occupational Health Psychology Business Meeting

Open to All Conference Attendees

6:30–8:30 p.m.
Philadelphia Ballroom North

SOHP-Hosted Reception

Open to All Conference Attendees

NOVEMBER 9

SATURDAY

8:00–9:00 a.m.
Liberty Ballroom B

Poster Session 3

National and International Initiatives, Laws, Regulations, Policies and Collaborations; Global Standards

A-1

Temporal trends in the prevalence of cardiovascular disease and that of leisure-time physical inactivity among older US workers: The National Health Interview Survey 2004-2017

Penelope Allison (NIOSH)

Statement of the Problem: In modern industrial society, a sedentary lifestyle is a serious problem. Physical inactivity increases the risk of coronary and cerebrovascular disease, hypertension, diabetes, cancer, and being overweight. According to a study using the Behavioral Risk Factor Surveillance System (BRFSS) data, the prevalence of self-reported physical inactivity ranged from 19% to 34% among US adults in 2017. Most employees in industrialized countries work in offices and other sedentary work environments. A recent study reported that the prevalence of physical inactivity among US workers has rapidly decreased over the past decade from 36% in 2005 to 25% in 2014. The prevalence of physical inactivity among older workers (aged 50 years or older) is unknown. It is plausible that older workers be less active as compared to younger workers due to fragility or existing disease. Therefore, our objectives of the present study were to 1) investigate temporal trends (2004-2017) of the prevalence of leisure-time physical inactivity (LTPIA) and cardiovascular disease (CVD) among US workers and, 2) compare temporal trends in the prevalence of LTPIA with that of CVD.

Procedures. Annual data were obtained for adults from the National Health Interview Survey (NHIS) 2004-2017. The total initial sample size for those persons interviewed in the NHIS Sample Adults survey (aged 18 years or older) in 2004–2017 was 419,326. For analysis of older US workers, we excluded adults who were less than 50 years old and who were not working during the week prior to their interview such as students, housekeepers, the unemployed, and the retired. The final sample size used in our analyses of older workers was 76,120. Leisure-time physical inactivity was defined by the 2008 Physical Activity Guidelines for Americans as leisure-time aerobic activity that was none or less than 10 minutes per week. CVD was defined as having one of the following outcomes that was diagnosed by a doctor or health professional: coronary heart disease, angina, heart attack, or stroke.

Analyses. Prevalence estimates were age-adjusted and were computed by the direct method by applying age-specific rates in the 2010 US workers population to a standardized age distribution. Age was classified into five groups: 50-54, 55-59, 60-64, 65-69, and 70+ years, and the 2010 US workers standard population was provided by US Bureau of Labor Statistics. Temporal trends in LTPIA and CVD were derived from a weighted regression fitted to the design-adjusted prevalence. LTPIA and CVD trends were compared by visual inspection and by Spearman's correlation coefficients (ρ). To attain unbiased estimates from the NHIS data, all analyses were weighted to account for the complex survey design and survey non-response using SAS-callable SUDAAN v11.0 software. The statistical significance was set at p-values less than 0.05.

Results. Among US male workers, the prevalence of LTPIA decreased from 37.2% in 2004 to 23.3% in 2017 (slope = -1.10% per year, p-value for trend < 0.0001). The pattern was similar among female workers (slope = -1.09%, p-value < 0.0001). The prevalence of CVD decreased from 16.4% in 2004 to 13.9% in 2017 (Slope = -0.24%, p-value = 0.0003) among male workers, while it decreased from 11.5% in 2004 to 9.9% in 2017 (Slope = -0.11%, p-value = 0.0349) among female workers. The decline in LTPIA was positively and highly correlated to the decline in CVD among male workers (ρ = 0.631, p-value = 0.0156), and was moderately correlated among female workers (ρ = 0.516, p-value = 0.0586).

Practical implications. Reducing the prevalence of LTPIA among older workers could provide many health benefits for workers and employers, including increased productivity in worksite and decreased healthcare costs.

Conclusion. The prevalence of both LTPIA and CVD declined dramatically among older US workers over the 14 years study periods. The correlation between LTPIA and CVD was stronger among male workers than female workers. The authors speculate that the low prevalence of CVD and slow decline trend of CVD among female workers might be the reasons that the correlation between LTPIA and CVD was not significant. Additional years of data on LTPIA and CVD are needed to improve our ability to understand these temporal trends and their correlations.

A-2

An Indentured Servant: The Impact of Green Card Waiting time on the Life of Highly Skilled Indian Immigrants in the United States of America

Christopher Cunningham (The University of Tennessee at Chattanooga)

The present study demonstrates for the first time the work and nonwork impacts of the archaic immigration system in the United States of America (US). Specifically, we studied how green card waiting time impact Indian immigrants in the US at work and outside of work, in their families and communities. A "green card" is a permanent resident card that grants permanent work and living rights to immigrants who are otherwise employed on a temporary work visa (e.g., H-1B visa issued to foreign workers working for US employer in a specialty occupation). Despite massive changes in the globalization of work, overall strengthening of the US economy, and growth of populations worldwide, the American government has not updated its quota-based system for legal immigration since 1990 (Migration Policy Institute, 2016).

The current equal quota system poses major challenges and creates strong feelings of unfairness and injustice among immigrants from more (vs less) populous countries. As one example, Indian immigrants (from a highly populous country) experience extremely restrictive per-country immigration limits compared to immigrants for less populous countries, resulting in absurdly long waiting times for green

card (permanent residency) processing. As of April 2018, there were 632,219 Indian immigrants (including their spouses and minor children, and 306,400 working Indian immigrants) waiting for a green card and the current waiting time is 151 years for the EB-2 (Advanced degree) category (CATO Institute, 2018). Most highly skilled Indian immigrants to the US fall within the EB2 category. In short, these immigrants may never receive their green card in their lifetime and this presents substantial work and nonwork health and well-being complications for these individuals. Indian immigrants to America face a dire situation due to the current US immigration system and its policies.

The present study is timely (given the current American and global political climate) and was conducted in September 2018. Qualitative and quantitative data were gathered from 1042 Indian immigrants (i.e., individuals born in India, who expatriated to the US as adults) working within the US. Our findings show that 93.4% of our participants are very concerned about current green card waiting times in the US. In addition, 70% of our respondents reported seriously thinking about emigrating to a more visa-friendly country (e.g., Canada); 30% of respondents had already applied for permanent residency in a visa-friendly country and 9% of respondents had already obtained permanent residency in a more visa-friendly country. Furthermore, our quantitative results and qualitative (using Nvivo 12 software) results show that delays in receiving a green card is causing work-related issues (e.g., job insecurity, wage stagnation, lack of promotion opportunities, business travel issues and inability to pursue entrepreneurial opportunities) and nonwork-related issues (e.g., financial insecurities, personal travel issues, and health issues such as stress, fear of unknown, frustration and chronic health issues).

These figures essentially constitute a form of "country turnover intention" that we estimate (given the overall population of Indian immigrants in the US) could lead to potential direct costs to American organizations of between $19,303,200,000 and $54,261,724,160. These are costs that could be avoided with thoughtful and careful revision to US immigration policies. The identified work and personal or family issues caused due to green card waiting time could also result in indirect losses to organizations. Emigration of these skilled immigrants to a more visa-friendly country creates brain drain and loss of talent (e.g., Bloomberg Businessweek, 2018). Burnout within this population is also a potential consequence associated with the chronic nature of immigration-related uncertainty (Bakker, Van Emmerik, & Van Riet, 2008). Further, burnout has been positively associated with stress, health problems and negatively associated with job satisfaction and performance (Blix, Cruise, Mitchell, & Blix, 1994). For example, among health professionals, burnout has been positively associated with medical errors (Shanafelt, Bradley, Wipf, & Back, 2002), sleep deprivation (Vela-Bueno et al., 2008), poor quality of care (Shirom, Nirel, & Vinokur, 2006) and low ratings of patient satisfaction (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004). The implications here, therefore, are that even if these immigrants remain employed in the US, the stress associated with their immigration-related experiences may lead to burnout-like symptoms and have negative effects on the overall performance and productivity of these individuals and their employing organizations.

The present findings are important for policy makers and organizational leaders who are struggling with immigration-related policy making and system management. For the past 28 years, major decisions regarding the American immigration system have been in periodic limbo that needs to be resolved soon (Migration Policy Institute, 2016). This period of static immigration policies is detrimental to the future economic vitality and competitiveness of the US and the global economy. Our present findings illustrate many serious implications associated with the current green card delays and other proposed visa-related policy changes on immigrants and their spouses, families, and communities.

Interventions in the Workplace

B-1

Understanding Barriers and Enablers of Safety Behaviour in the Rail Industry Using a Theoretical Domains Framework (TDF) Questionnaire

Michael Steer (Leeds Beckett University)

In the UK rail industry, there is a widely held view that an 'accident plateau' exists, where traditional health and safety measures have exhausted their value and are unable to drive continued improvements (Morgan and Webster-Spriggs, 2015). Statistics reveal that non-fatal or lost-time accidents remain consistent despite continued safety management efforts (Office of Rail and Road, 2018). The development of safety initiatives aimed at improving safety behaviour are hampered because behavioural antecedents are usually unknown. While there have been significant efforts, it is argued that research and interventions, particularly those that are behavioural-focused, are plagued by a lack of theory, poor methodology and inappropriate conceptualisations of constructs (Christian, Bradley, Wallace and Burke, 2009). To address this and consistent with the Safety II paradigm of exploring work-as-done (Holnagel, 2014), our paper will propose a best-practice approach for understanding and addressing individual and contextual factors that may influence safety behaviour.

Once safety behaviour(s) of concern have been identified, this approach initially involves developing a comprehensive questionnaire to measure individual and contextual factors that may influence safety behaviour. The developed questionnaire has a strong theoretical and empirical basis, being based on the Behaviour Change Wheel (BCW), underpinning COM-B model and Theoretical Domains Framework (TDF), which draw on 33 behaviour and behaviour change theories to identify 14 influential factors that may act as enablers or barriers of behaviour (Cane, Connor and Michie, 2012; Michie et al., 2005; Michie, Atkins and West, 2014). Here, behaviour is seen as the result of an individuals' capability, opportunity and motivation; with these being underpinned by specific factors such as 'Knowledge', 'Beliefs about Capabilities' and 'Environmental Context and Resources'. To promote safety behaviour, particularly influential barriers identified using the TDF-based questionnaire should be addressed using established taxonomies of behaviour change techniques and interventions (Cane, Richardson, Johnston, Ladha, and Michie, 2014; Michie et al., 2013; Michie et al., 2016). Significant employee consultation should continue throughout the process, from questionnaire development, questionnaire completion, discussion of barriers, and specific design and implementation of interventions. It is argued that intervention efficacy is likely to be greater due to this theoretical, participative, evidence-based approach that directly targets barriers to safety.

While originally used in the Health Psychology domain, the BCW approach, COM-B model and TDF Framework are frequently being used to understand factors influencing various behaviours. For example TDF-based questionnaires are reported to be particularly effective in collecting data to understand enablers and barriers to behaviours relevant to physical activity (Taylor, Lawton and Conner, 2013; McParlin, Bell, Robson, Muirhead, and Araújo-Soares, 2017), procedures

promoting patient safety (Huijg et al., 2014b; Isenor et al., 2018), and workplace recycling (Gainforth, Sheals, Atkins, Jackson and Michie, 2016). To date however, TDF/COM-B based questionnaires have not been used to understand workplace safety behaviour, despite claims that this would be beneficial (Chadwick, 2018; Michie et al., 2014).

Our paper describes the application of a TDF-based questionnaire to understand safety behaviour in the UK rail industry. This structured approach is preferential compared with the limited number of existing informal methods that rely on exploring potential barriers through safety conversations. We propose a best practice approach involving a number of steps. The initial step involves identifying safety behaviours of concern, these should be in need of improvement to ensure that this approach is of evident and practical value. For example, we identified five safety behaviours of concern by analysing how they can relate to outcomes differing in severity and their applicability/relevance across the business. It is proposed that a best practice approach will involve mass collection of data and analysis to identify the strongest enablers and barriers to safety behaviour, within and across business functions. Following this, to address specific barriers, proposed behavioural and policy/business interventions in the BCW and established taxonomies should be referred to (Cane et al., 2014; Michie et al., 2013; Michie et al., 2016). Once potential intervention functions and behavioural change techniques have been identified, involvement from workers should be encouraged to gather further thoughts/perceptions on identified barriers and potential interventions. We have begun to establish this best-practice approach through the development and use of a 'generic' TDF-based questionnaire that can be adapted to understand various safety behaviours in the UK rail industry (and likely beyond). Items were heavily inspired by existing TDF-based questionnaires and interview questions (e.g. Huijg, Gebhardt, Crone, Dusseldorp, and Presseau, 2014a; Huijg et al., 2014b; Michie et al., 2005; Taylor et al., 2013). The questionnaire has since been administered to over 350 workers within a rail construction and maintenance organisation, to identify enablers and barriers of the five safety behaviours previously mentioned. Immediate next steps will now involve conducting analyses to determine the factor structure of the questionnaire, validity testing, and identification of enablers and barriers. Following this, we intend to follow the proposed best practice approach outlined above.

B-2

The impact of scheduled performance evaluation on psychosocial and biological employee energy markers: An organizational intervention

Ingrid Anderzén (Dept. of Public Health and Caring Sciences)

Background. Organizations increasingly use more detailed and diverse performance information in scheduled performance evaluations (SPE) to energize employees and motivate them to work more efficiently (e.g. van Veen-Dirks, 2010; Put & Bouckaert, 2011). Research suggests that scheduled (SPE) impact energy mobilization in employees.

Aim: This study examine whether and how a one-year, structured SPE intervention program impact energy mobilization in employees, measured both subjectively and biologically. The study also examined whether SPE frequency was causally related to energy mobilization.

Methods. In an organization using a set number but unscheduled performance evaluation, healthy women were randomized into two groups that completed a scheduled, one-year performance evaluation intervention. One group (n = 36) was treated with a 48% lower evaluation frequency, i.e. half the number of evaluations, whilst the other group (n = 37) maintained the pre-study evaluation frequency. Three variables reflecting three dimensions of energy mobilization were assessed at baseline and after 6 and 12 months of intervention, respectively: mental energy (self-rated psychosocial energy mobilization), testosterone (anabolic energy mobilization, or energy recovery), and thyroid-stimulating hormone (catabolic energy mobilization, or energy release).

Analyses. Based on Ordinary Least Squares estimation, analyses were performed using SPSS for a mixed-model analysis of variance (ANOVA) with time point as a within-participant variable and group as a between-participant variable. Differences in demographics, health behaviours, and energy variables at baseline were analyzed using independent-sample t-tests or chi-square tests. Paired-sample t-tests were used to test for energy variable changes within participants between time points. Univariate analysis of covariance (ANCOVA) tested for differences between participants in the two groups at the 6-month and 12-month time points, adjusted for baseline values. Significance was set at alpha < .05, 2-sided.

Results. There were significant improvements across groups in testosterone. Participants treated with lower evaluation frequency showed a lagged decrease in mental energy scores and a prolonged lead increase in thyroid-stimulating hormone levels, indicating a prolonged increase in central nervous system activation

Discussion and practical implications. This is the first study that examines effects of scheduled performance evaluation on biological and psychosocial energy mobilization and the results suggest that, regardless of frequency, scheduled performance evaluation has positive health effects via anabolic energy mobilization, and negative health effects via catabolic energy mobilization when evaluation frequency is significantly lower. This study also shed new light of the importance of both assessing self-reported and more biological outcomes, in addition to production demands, when assessing the impact on efficiency and health from different performance evaluation schemes, (Anderzén & Arnetz, 2005).

B-3

How Daily Barriers and Facilitators Affect Healthy Choices, Performance, and Stress: A Daily Diary Study

Joseph Mazzola (Meredith College)

Obesity rates have steadily grown in the United States with approximately 69% of the U.S. population being classified as overweight or obese (National Institute for Health, 2017; Ogden, Carroll, Kit, & Flegal, 2012). Furthermore, the global prevalence of those classified as overweight or obese has increased by 27.5% for adults and an alarming 47.1% for children since 1980 (Ng et al., 2014). Proper health behavior involves a limited but sustainable number of calories with the correct nutrients (Ard, Miller, & Kahan, 2016), as well as attaining physical activity that counterbalances those calories consumed and strengthens the body (Delany, Kelley, Hames, Jakicic, & Goodpaster, 2014). It should be noted that there is a direct and linear relationship between physical activity and health status, and physical activity serves as buffer against many chronic diseases (Warburton, Nicol, & Bredin, 2006). In order to achieve better employee health, the barriers and facilitators present in the workplace could be targeted to increase the chance of success for organizational health promotion efforts.

Barriers are factors/characteristics that prevent or inhibit an individual from making a healthy decision in the workplace, while facilitators are those that promote or facilitate an individual to make such decisions. Underlying many of these barriers/facilitators is the Theory of Planned Behavior (Ajzen, 1991), which states that attitudes toward a behavior, subjective norms, and perceived control over behaviors lead to intentions to do something, and as long as nothing prevents someone from enacting his or her intentions, those intentions ultimately lead to actual behaviors. The main mechanism by which barriers act in this model is to prevent someone who might have the intention to eat healthy or exercise from actually completing the behavior. Mazzola and colleagues (Mazzola, Moore, & Alexander, 2017) found that the number of workplace barriers to healthy nutrition/exercise behaviors on a given day was related to their respective health behaviors on that day. Furthermore, the number of workplace facilitators reported was even more strongly related to the healthy behaviors on the day they occurred. That same study found that barriers were presented on 80% of workdays. This translates to barriers occurring on four out of five days of the traditional workweek! Thus, this is something that employees face and must overcome on a nearly daily basis if they wish to live a healthy lifestyle.

For this study, 200 working professionals will be recruited to report on the barriers and facilitators present, their health-related choices, their self-reported performance, and their levels of stress for five separate days across a two-week period. Participants will receive an email link on each day that they will be asked to report on their daily experiences. Online administration will allow for the researchers to recruit a larger sample that is more representative of the population of working professionals in the United States. By recruiting from a variety of organizations, the conclusions and inferences that can be made from the results of this study will be more likely to generalize to a wide range of settings (e.g., industries, organizations, etc.) than if this study did not recruit from a variety of participants, industries, and backgrounds. Data collection is planned for May-July 2019, with data analysis to follow closely after.

This study aims to identify how barriers and facilitators effect working professionals' health related choices at work, work performance, and health outcomes. It is anticipated that the results of this research will identify practical ways for organizations and individuals to implement facilitators and reduce or eliminate barriers in daily workplace life. For instance, the results of this research will be vital for helping organizations: a) better understand how barriers to making healthy choices negatively impact working professionals' performance and health, b) better understand how facilitators to making healthy choices positively impact working professionals' performance and health, and c) to be better equipped to choose between potential workplace wellness programs.

B-4

A Qualitative Examination of Determinants of Intervention Choice

Kristin Horan (University of Central Florida)

Researchers and practitioners in occupational health psychology (OHP) have dedicated effort to promoting the translation of research to practice through the use of interventions, or systematic efforts to produce a desirable effect in the workplace (Schaufeli, 2004; Spector & Pindek, 2016). While published evaluations of workplace interventions often feature a tailored focus on a single intervention, it is possible that in practice employees are faced with multiple options. Especially in a context in which OHP interventions are delivered in a workplace health promotion department or managed through an external vendor, participants may be faced with a "menu of options" (Goetzel, 2005). Understanding factors that influence participant choice of intervention may help researchers and practitioners develop programs that are more attractive to participants and more effective in addressing their needs.

Little research has been performed examining influencers of intervention choice. In fact, no research has been performed within the context of workplace health and safety interventions that the authors are aware of. Within a clinical context, some research has been devoted to developing models of predictors of participant intervention preference, but these models tend to be targeted toward a specific presenting problem (i.e. predictors of preference for clinical interventions for depression, Thornett, 2001). There is a need for a broader understanding of participant intervention choice that could be applied to multiple outcomes and in non-clinical contexts. Thus, the current project aims to use qualitative methods to identify predictors of intervention choice when participants are presented with multiple options for OHP interventions.

Methods . Participants were 164 employed individuals from a variety of industries (M age = 36.04, SD age = 9.46, 54.3% female) who were randomly assigned to the experimental condition of a larger study that aimed to examine the role of participant preference in intervention experience. Participants were recruited to participate in an online job stress management intervention through Amazon's Mechanical Turk. They were presented with one of two online job stress management programs. The interventions could be considered low-dose, as they took approximately 20 minutes to complete.

The two programs that participants were able to choose from were Cognitive Behavioral Therapy for Stress Management and Skills Training for Stress Management. The interventions were adapted from an in-person intervention developed by a clinical health psychologist (Collins, 2004) and the intervention creator reviewed all materials to ensure that they preserved the concepts and quality of the original intervention. Participants were given an advertisement that described the approach of each program and asked to select their desired program. Participants viewed an educational video on job stress management techniques, completed reflection questions, and received handouts to download on major concepts. Immediately after selecting their chosen program, participants were asked an open-ended question ("Please describe why you chose this program"). The author content coded for major themes using a qualitative analysis software, QDA Miner Lite.

Results. Results revealed that participants reported their intervention choices being guided by multiple factors. Frequencies can be found in Table 1. Participants' choice was often informed by beliefs, such as the beliefs about the cause of stress (22%), or beliefs about the possibility of the changes promised by the program (8.5%). Choice was also informed by a specific desired outcome, such as the promotion of a positive outcome (14%) or the avoidance of a negative outcome (8.5%) and the implicit expectation that one program was more inherently linked to that outcome.

Participants reported a degree of subjective liking, such as the appeal of the intervention's approach (11%), or certain perceptions, such as perceived helpfulness or practicality (9.1% and 3.0% respectively), that guided choice. Participants described choosing based on their envisioned use of the material in a certain environment (7.9%) or the level of fit with their life, such as fit with their desires (6.1%) and

needs (3.0%). Finally, participants reported using their knowledge and experiences to guide choice, such as seeking out a new skill when they already have the alternative skill taught in the other program (4.9%).

Discussion. Results revealed that when participants were given a choice between two stress management interventions, they reported that beliefs, desired outcomes, subjective liking, perceptions, envisioned use, level of fit, and knowledge and experience informed their intervention choice. This study performs initial work necessary to understand factors that may influence participant choice, which can guide future qualitative examinations and model building efforts.

B-5

"Activating" EMU Wellness: Challenges in Development and Implementation of a University Workplace Wellness Program.

John Sonnega (Eastern Michigan University)

Many Universities are investing in workplace health promotion programs to address unhealthy behaviors. The public health case for developing and maintaining comprehensive workplace wellness programs (CWWP) is well documented. These programs are complex and challenging for the health professional to implement. This can be even more trying when the workplace is experiencing budgetary stress, such as is the case at Eastern Michigan. This presentation will describe the challenges in the development and implementation of a workplace wellness program at a mid-sized Public University.

The Eastern Michigan University (EMU) Employee Wellness Program was conceptually started in the beginning months of 2017, with approval from HR administration. The initial goal was to organize resources on campus and bring together stakeholders. A wellness committee was formed in April 2017 made up of stakeholders from Human Resources, Campus Unions, Faculty, Staff, and Students. During this time the University was experiencing budget difficulties and few resources were available. In this environment the program stalled. The program was reinvigorated in early 2018 and the committee expanded to include faculty from Public Health, Psychology and other disciplines.

Committee members, including other health professionals, are often unfamiliar with each disciplines credentials and competencies. An important goal for each member is to advocate for their profession and communicate relevant research. One of the hurdles facing the health professional in workplace wellness is a shared understanding of what is best practice and what is evidence based. With multiple stakeholders, including Human Resource superiors, it is sometimes problematic to communicate a shared vision. One overlooked barrier in workplace wellness is competing messaging from opinion based rather than research based sources. Members may go to the popular press for information. Some of these sources may provide summaries of valid research, or they may not. Communicating and advocating for a professional framework of workplace wellness is an important first step in establishing a program. Within this dynamic tensions may arise over which level of prevention should be the primary focus. Counselors may emphasize tertiary prevention efforts by enhancing employee assistance programs, while public health professionals place importance on primary prevention (Keeping the well well). Similarly, stakeholders varied in which health topic was of importance. Without solid needs assessment data (and even with data), workplace wellness efforts often devolve in to a rotation of topics by month (a wellness wheel). Keeping the committee focused on outcomes rather than "easy PR wins" is another challenge.

Comprehensive workplace wellness programs can lead to change at individual, social, and organizational levels (CDC, 2018). This is the hope of the EMU wellness program, but also may be perceived as undesired change. With few resources at hand, it is important to continually engage all stakeholders. Difficulties in maintaining momentum in development and implementation arise in a low resource environment. A challenge is to expand the coalition and pool available resources. EMU has developed an Office of Health Promotion within the University to facilitate cohesion between faculty, staff, and students concerning wellness efforts.

The EMU Wellness program has produced a mission statement and program goals. Preliminary needs assessment has taken place and a variety of classes have been offered. Many facets to a successful workplace health promotion program are being explored, including leadership support, wellness champions, business partnerships, and engagement with the local community. A variety of challenges exist in developing and implementing a comprehensive workplace wellness program: 1) the tendency to focus on individual level skills and training that may not be as effective on a population level for health improvement; 2) The institutional level preference for process evaluation rather than impact or outcome; 3) The tension between a business model and a public health approach. A justification of the program largely in financial terms; 3) the question of the scale of the program. Coalition building is difficult; 4) Lack of independence in decision making. Organizational hierarchy is challenging; 5) Multiple views on what constitutes evidence based quality research; and 6) Maintaining organization and momentum is a low resource environment. By exploring implementation barriers and successes this presentation hopes to improve workplace wellness practice.

Work-Life-Family

C-1

The resilient spouse: Understanding factors associated with dispositional resilience among military spouses

Robert Sinclair (Clemson University)

Resilience encompasses both the potential capacity one has to be resilient and the actual demonstration "positive adaptation in the face of significant adversity" (Britt, Sinclair, & McFadden, 2013, p. 6). Military organizations in particular have engaged in efforts to enhance resilience of both soldiers and their spouses. Army spouses face including frequent moves, distance from kin networks, threat of harm to soldiers, soldiers' long duty hours, and family separations due to training and deployments (Bowen, et al., 2013; Palmer, 2008). Relatively little research has examined characteristics associated with military spouses' resilience. Accordingly, we investigated trait resilience as a contributing factor to spouses' well-being outcomes as well as several antecedents of dispositional resilience to understand what factors contribute to resilience.

We investigated four outcomes reflecting adaption in response to demanding events: general psychological distress, self-reported psychological health, sleep disturbance, and overall relationship functioning. We expected that higher levels of resilience would be associated with better relationship functioning and higher levels of psychological health, lower psychological distress and less frequent sleep disturbance.

Conservation of Resources theory (Hobfoll 1989; 2002) suggests that antecedents of trait resilience are personal or situational factors

that influence a spouse's sense of their coping ability. We investigated several resource-related variables as potential antecedents including spouse demographic characteristics such as age, race, education, and employment status, soldier characteristics such as rank and deployment experiences, as well as psychosocial demands and resources including the spouse's reports of their own adverse childhood experiences as well as their perceptions of support from their soldier, and the soldier's mental health status.

Methods. The Army spouse data for this study consisted of 333 spouses (all women). Most were white (74.5%), unemployed (70.1%), married to enlisted soldiers (78.6%), and had children living at home (63.4%). About half were aged 30 or greater (48.3%), while 18.3% were aged 18-24. About 1/3 (33.4%) had a bachelor's degree or higher while 16.9% reported having a high school degree/GED; the rest having some college or a two-year degree (49.7%).

Measures. We measured trait resilience with the six item (alpha = .88) Brief Resilience Scale (Smith et al., 2008). We assessed Psychological distress with measures of Depression (PHQ-9: Kroenke & Spitzer, 2002), Anxiety (GAD-7: Spitzer, et al., 2006) and PTSD (PCL; Weathers, et al., 1993), averaging standardized scores on these measures to create a composite general distress measure (alpha = .90). Sleep disturbance was assessed with three items (alpha = .85) from the Insomnia Severity Index (Bastien, Vallieres, & Morin, 2001). Self-rated health was a single item based on Ware, et al. (2001). We assessed relationship functioning with the 10 item (alpha = .89) scale Marital Taxon Screen (Whisman, et al., 2009).

For predictors of resilience, we assessed Adverse childhood experiences (ACEs) using a modified seven item (alpha = .76) version of the scale from Felitti et al. (1998), social support with three items (alpha = .89) from the MOS Social Support Survey (Sherbourne & Steward, 1991), work-family conflict using a five-item (alpha = .93) scale adapted from Netemeyer, et al. (1996) and soldier's current mental health status with one item asking whether spouses thought their soldiers needed mental health treatment. Demographic measures included the soldiers' rank (officer versus enlisted) and deployment history (how often soldier had deployed for 30 days or more since September 11, 2001) as well as the spouse's age, non-minority status (i.e., non-minority or not), employment status, number of children, church membership, and education.

Results. As a set, the predictors (Table 1) explained a fairly large proportion of the variance in resilience ($R2 = .20$, $p < .01$). The standardized regression weights revealed five predictors accounting for significant variance in trait resilience: non-minority status, social support, work-family conflict, number of children, and the soldier's mental health symptoms.

Table 2 shows the regression results for resilience as a predictor of health and well-being outcomes. After adjusting for the other variables, resilience explained unique variance in all four outcomes with change in R2 ranging from .02 to .07. Higher levels of trait resilience were associated with better well-being outcomes.

Discussion. Although trait resilience is a potentially important influence on military spouses' well-being, it has received little attention in prior military research. We showed that several demographic and psychosocial factors predict spouses' trait resilience and demonstrated that resilience predicts several well-being outcomes. These findings extend prior research on trait resilience, showing both how resilience can contribute to spouses' mental health outcomes and identifying work and individual difference factors that contribute to resilience. Given that prior research shows that family-related stressors impact soldiers' health and job performance (Erbes, 2011; J-MHAT-7, 2011; Warner et al., 2009), interventions to promote spousal resilience represent an important component of efforts to promote soldiers' occupational health.

C-2

Challenge-Hindrance Stressor Framework and Work-Family Outcomes: The Moderating Effects of Individual Learning Goal Orientation

Danielle Cremeans (University of Washington)

Stressful conditions at work can create high cost to both organizations and employees. According to Pfeffer (2018), organizations spend around $46 billion in excess healthcare costs that are associated with high job demands alone. However, the costs of stress are not only due to demands in the workplace. Pfeffer (2018) also found that organizations spend around $24 billion due to work-family conflict (WFC). Therefore, it is clear that stress and work-family constructs play a vital role in both practice and research (Allen et al., 2000; Frone et al., 1992).

Our research focuses on challenge and hindrance stressors and their influence on work-family enrichment (WFE) and WFC. Challenge stressors are known to promote motivation and engagement (i.e., positive stressors). Stressors that have been labeled as challenging include an impending deadline, more responsibility, time stressors, and job complexity (Cavanaugh et al., 2000). Hindrance stressors are often compared to challenge stressors and are seen as obstacles to successful performance (i.e., negative stressors). Stressors that have been labeled as hindering include role overload and role ambiguity (Cavanaugh et al., 2000). While the influence challenge and hindrance stressors on job performance have been researched in the past decade (e.g., LePine et al., 2005; Peng et al., 2018), their influence on work-family outcomes has attracted limited research attention.

WFE has been defined as the extent to which experiences in one role (e.g., work) improve the quality of life in another role (e.g., family; Greenhaus & Powell, 2006). The WFE construct in general is underrepresented in the research, but specifically lacks research regarding stressor antecedents. WFC can occur when an individual is faced with incompatible demands between work and family roles (Greenhaus & Beutell, 1985). Even though challenge stressors are seen as positive, both challenge and hindrance stressors are seen to induce strain (Lepine et al., 2005).

Hypotheses for the current study first examine main relationships between challenge and hindrance stressors with work-family outcomes. Specifically, we hypothesize that individuals who experience challenge stressors will report greater WFE; and that individuals exposed to challenge stressors will report greater family-work enrichment (FWE). Our third hypothesis predicts that individuals who experience both hindrance and challenge stressors will report more WFC. To extend our current understanding of how individual differences influence relationships between workplace stressors and work-family outcomes, we examine learning goal orientation (LGO) as a moderator.

LGO refers to individuals' preference for developing competence through mastering challenging situations (Dweck, 1986). Individuals high in LGO approach tasks with the intention of developing their skills and abilities. The main focus of this research concerns LGO as a buffer to the relationships between challenge/hindrance stressors and work-family outcomes. There has been a call from the challenge and hindrance stressors' literature to look upon this construct (Lepine et al., 2005) and the influence of this construct in the work-family

literature has not been heavily explored. Additionally, we hypothesize that individuals who hold a high LGO will label ambiguous stressors as challenge-related.

All measures are drawn from published research. Predictors and criteria will be assessed a day apart to help reduce common method bias (cf. Podsakoff et al., 2003). Surveys will be administered on Amazon's online platform, MTurk. To be eligible for the surveys, participants must be employed and have at least one child under the age of 18 years old currently living at home. Participants must also pass two out of the three quality check questions throughout each survey. Quality check questions will consist of clearly correct answers to help identify careless responding. Funding is in place and data collection is set to begin by February 2019. Therefore, we are confident in having data in-hand and analyzed to present in time for the conference.

Multiple regression analyses will be used to test the main effects between challenge stressors and WFE, challenge stressors and WFC, hindrance stressors and WFC, as well as the interaction effects of LGO. Data and analyses will be collected and analyzed before March 1st.

The present study aims to make several research and applied contributions. First, it aims to contribute to the gap in literature by identifying the importance of applying the challenge-hindrance stressor framework to work-family outcomes. Second, it builds upon literature examining dispositional variables and their impact on WFC by answering calls for research considering positive work-family outcomes as well as person-by-situation interactions (Allen et al., 2012). Finally, there is a longstanding need for research on work-family outcomes to be more practically relevant (e.g., Kossek et al., 2011); and we believe that incorporating challenge and hindrance stressors as well as LGO will help this need.

C-3

Family Supportive Supervision for Working Moms: The Relationship Between Supervision and Health Behavior

Joseph Regina (University of South Florida)

Based on a sample of working mothers, we examined the associations between family supportive supervision (FSS), mother health behaviors, and mother support for their child's health behaviors across two time periods. FSS is a work-related resource that may facilitate positive personal and family health behaviors. Research shows that providing FSS training can improve health outcomes (Hammer et al., 2011); our study builds on this finding by examining the relationship between FSS and mother health behaviors, as these behaviors can precede health outcomes (Michie et al., 2005). Additionally, it expands the study of work and family to explore the relationship between supervision and mother-child interactions related to support for child health. Notably, adult health behaviors are predicted by one's childhood health behaviors (Hancox, Milne, & Poulton, 2004), so findings have implications for the long-term health of the children with working mothers. The results of our study are intended to guide organizations who value employee well-being and extend the literature on FSS and its relationship with health.

As defined by Ganster and Thomas (1995), FSS occurs when one has a supervisor "who empathizes with the employee's desire to seek balance between work and family responsibilities." This support for family can consist of emotional support, role modeling, instrumental support, and/or creative work-family management (Hammer et al., 2009), and it has been causally related to improved health for subordinates (Hammer et al., 2011). While the impact of FSS on health has been supported, research regarding relationships between FSS and potential mediators to health, as well as the associations between FSS and child health monitoring, have been largely unexamined.

One pathway that may help explain why FSS can improve health is the relationship between FSS and health behaviors, which is supported by resource theory. As stated by Edwards and Rothbard (2000), resources such as time, energy, or attention used in one domain cannot be used in another; accordingly, employees must allocate resources to best satisfy both their work and family roles. Supervisors who are family-supportive may enable effective resource allocation. For instance, family-supportive supervisors may allow working mothers to adjust their schedules in a way that permits them to avoid traffic and maximize their time resource. Additionally, social support research has demonstrated that interpersonal support improves health behaviors, such as cigarette cessation (Murray et al., 1995). Following role theory, it is hypothesized that FSS will be positively related to employee physical activity (H1), employee fruit and vegetable consumption (H2), support for child physical activity (H3), and monitoring of child diet (H4).

Methods and Results. Participants were 177 employed mothers (mean age in years = 37.6) who worked 20 hours or more a week and had an 8-11-year-old child who lived at home. Participants responded to items at two timepoints related to family supportive supervision (Thomas & Ganster, 1995; T1 α = .88; T2 α = .88), support for child physical activity (Trost et al., 2003; T1 α = .83; T2 α = .82), and monitoring of child diet (Birch et al., 2001; T1 α = .93; T2 α = .93). Additionally, participants provided information on their physical activity and fruit and vegetable consumption at both timepoints. Relating to physical activity, measures from Godin and Shepherd (1997) were used with participants reporting how many times on an average week they did strenuous, moderate and mild exercise for more than 15 minutes. Responses were weighted [strenuous (x 9), moderate (x 6), and light (x 3)] and then summed. Relating to healthful eating, participants reported on a 5-point scale how often they ate fruits and/or vegetables for breakfast, lunch, dinner, or as a snack; responses were then averaged. Both the physical activity and healthful eating responses are formative constructs, and, thus, internal consistency is not applicable.

Correlations are presented in Table 1. At Time 1, FSS was significantly related to support for child physical activity ($r = .19$, $p = .01$), supporting H3. None of the other expected relationships were significant. Following analysis of the Time 1 correlations, the relationships between FSS at Time 1 and the outcome variables at Time 2 were examined. These results were not significant ($p > .05$). Thus, we found no support to indicate FSS is a lagged predictor of family health behaviors. Given these findings, FSS may have utility as a method to increase family health behaviors, but that effect may not persist over time. It may be that other aspects of the work environment not captured in the current study (e.g., flexible work arrangements) work in concert with flexible supervision in promoting family-related health behaviors.

C-4

Copreneurial Commitment and Well-being in New Venture Development

Sheila K. Hanson (university of North Dakota)

The longitudinal study purpose is to examine individual and relational contributions to an entrepreneur's perception of their spouse's

commitment to a new business venture both at start-up and one year after the launch of the venture. The theoretical grounding for the study is Hobfoll's Conservation of Resources theory of stress. Whether a spouse was involved in the new venture prior to its launching, whether the spouse perceived the new venture to be a positive influence on their couple relationship, and an entrepreneur's positive global affect one year after the launch predicted the entrepreneur's perception of spousal commitment to the new venture one year after its launch. Spousal involvement had the strongest influence on entrepreneur's perception of spousal commitment followed by spousal expectation of the business on their couple relationship and entrepreneur's global affect. Research implications as well as practical implications for consultants and clinicians working with family businesses and couples is also offered.

C-5

Patient and Provider Communication about Cancer-Work Management among Recently Diagnosed Employed Breast Cancer Survivors

Jennifer E. Swanberg (Providence College)

Background. Cancer treatment can result in a range of physical and psychosocial symptoms that limit the ability to work during and after treatment (Feuerstein, et al., 2010). Yet, many cancer survivors may need or decide to continue to work during treatment (Vanderpool, et al., 2013; Swanberg, et al., 2017). Emerging research conducted on cancer-work management indicates that survivors use many strategies to maintain work during treatment (Sandberg, et al., 2014; Swanberg, et al., 2017), including discussing cancer-work management with health care providers (Nichols, et al., 2017). National estimates indicate that among cancer survivors employed at diagnosis about 70% had a conversation about with a health care provider about employment (Demoor, 2018). Yet, limited research has explored employed survivors' experiences discussing employment and cancer-work management issues with health care providers (Nichols, et al., 2017). To address this gap, this study uses data from the EMPOWER Study to describe patient-provider communication (PPC) related to managing cancer and work.

Methods. The EMployment and Potential and Outcomes of Working through cancER` (EMPOWER) Study is a prospective longitudinal, mixed methods (qualitative and quantitative) pilot study designed to evaluate how employment influences treatment decisions among women diagnosed with breast cancer. Participants were enrolled between July 2017 and October 2018 and completed visits at baseline, 3, 6, 9, and 12 months. Eligibility criteria included: (1) age 18 to 65, (2) primary diagnosis of new breast cancer within three months of enrollment, and (3) working 20 or more hours a week at diagnosis. Participants were identified through the University of Maryland Medical Center and the University of Maryland St. Joseph's Medical Center's electronic medical records and screened for eligibility. Trained personnel collected demographic information, medical history and health status, social history, employment data, cancer-related data, psychosocial adjustment, and financial well-being at baseline, and a semi-structured qualitative interview was administered at the three-month visit to assess cancer-work decisions. Interviews were digitally recorded and transcribed for coding and analysis. Participants were

compensated with $20 cash or a gift card. Data Analysis Strategy. Transcripts were uploaded to ATLAS.ti and coded by trained research assistants. A constant comparative method was used to analyze data. Trained coders read the transcripts and collectively generated thematic codes. The objective of coding was to characterize patient-provider communication about managing work and cancer treatment. Interviews were coded by at least two coders to assure inter-rater reliability. To further strengthen inter-rater reliability, the coders discussed areas that generated the most discrepancy, until there was 100% agreement. Codes were analyzed for key themes and organized into six key domains, featuring themes and subthemes within each domain.

Results. Fifty breast cancer survivors were enrolled in the EMPOWER Study. Mean age at enrollment was 51(SD=10.3); 38% were black, 54% were white, and 8% identified their race/ethnicity as other. Nearly all were employed full-time at diagnosis, and 47% were hourly wage workers. Of those enrolled, 48 (96%) completed the three-month qualitative interview. The majority of women (83%) reported PPC about managing work and treatment. Thirty-two percent (n=13) discussed the survivor's unique circumstances, and 68% (n=27) had PPC discussions about cancer-work management that were more transactional in nature (i.e., conversations that were brief and purposeful). The majority of the time (42%) the conversations were initiated by a member of the care team; only 23% (n=9) of PPC were initiated by the women. Patient-initiated conversations were more likely to be in-depth discussions related to the survivor's cancer treatment in relation to work responsibilities. The majority of women received some type of assistance from a provider in making the management of cancer treatment and work easier. For instance, offering to be flexible with the scheduling of medical treatment, providing assistance with Family Medical Leave Act paperwork, or offering a treatment location closer to the survivors' place of employment. Overall, 75% (n=30) of the women received some type of specific recommendation to help the women with cancer-work management (e.g. recommend length of time off, when to return to work). Ultimately, women decided whether or not to follow the provider's recommendation.

Conclusion & Implications. Increasingly, employed cancer survivors continue to work during treatment. Although emerging research indicates that employers, managers and co-workers can ease the strain associated with managing cancer treatment and work, cancer care teams can also play a role in patient's cancer-management plans. Similar to national trends, a large majority of breast cancer patients in this study had a conversation with their treatment provider about cancer-work management. Yet, conversations initiated by providers were brief and recommendations were offered, that the patient would decide to follow. In contrast, patient-initiated conversations were in-depth and resulted in tangible support. Further research is needed to better understand the content and quality of PPC about cancer-work management and the immediate and long-term effects on a survivor's overall well-being.

C-6

Intimate Partner Aggression and Victims' Withdrawal from Work: The Roles of Supportive Supervision and Partner Interference with Work

Carlo Isola (University of Calgary)

Over 150,000 married or common-law partnered women in Canada over the age of 25 experienced physical and/or sexual aggression at the hands of their partners in 2014 (Burczycka, 2016). The negative effects of such psychological and physical abuse are well documented and

include higher rates of anxiety, worse physical health, higher psychological distress, and higher rates of post-traumatic stress disorder (Langdon, Armour & Stringer, 2014). By comparison, the effects of intimate partner aggression (IPA) on victims' work-related outcomes are not well known (LeBlanc, Barling, & Turner, 2014) and studies that have examined the IPA-work outcome relationship have shown mixed findings. For example, Wettersten et al. (2004) and Swanberg and Logan (2005) found that physical IPA is related to more frequent absenteeism, higher partial absenteeism, and greater intentions to turnover, while Reeves and O'Leary-Kelly (2007) found victims of physical IPA do not report any more absenteeism or partial absenteeism than non-victims do. Moderators may explain these inconsistent results, and the purpose of our study was to examine the moderating effects of supervisor support and partner interference in work on the IPA-work withdrawal relationship.

Hypotheses. First, we predicted that supervisor support would buffer the negative relationship between IPA and work withdrawal (hypothesis 1). Swanberg, Logan, and Macke (2007) found that employees who told someone at work about their victimization and received social support were more likely to be employed than women who did not disclose their victimization. Paired with the potential of supervisors to maintain resource levels for an IPA victim (Hobfoll, 1989) and their ability to adjust a victim's schedule to help them manage their IPA (e.g., allowing them to seek social services on work time), we hypothesized that supervisor support would moderate the relationship between IPA and victims' work withdrawal.

Second, we predicted that partner interference in work would exacerbate the negative relationship between IPA and work withdrawal (hypothesis 2). Between 36% to 75% of victims experiencing IPA also report that their partners have interfered with their employment (Swanberg, Logan, Macke, 2006), so knowing whether partner interference in work exacerbates the IPA-work withdrawal relationship becomes important. Some abusers make it difficult for their partners to maintain employment (Tolman & Raphael, 2000), and the number of ways an abuser sabotages a victim's ability to get to work is related to poor general health, mental health, and overall quality of life (Wathen, MacGregor, & MacQuarrie, 2018). Partner interference in work may also indirectly affect employment by increasing the likelihood that the victim will have mental health problems (e.g., depression), and physical issues (e.g., chronic pain), making it more difficult for victims to find and maintain employment (Riger & Staggs, 2004; Tolman & Rosen, 2001; Tolman & Wang, 2005).

Finally, we predicted a three-way interaction between a victim's experience of IPA, supervisor support, and partner interference in work on a victim's work withdrawal relationship (hypothesis 3). Specifically, under conditions of low supervisor support but not high supervisor support, we hypothesized that partner interference in work would even further exacerbate the IPA-work withdrawal relationship.

Method. We conducted a secondary analysis of community data used in LeBlanc, Barling, and Turner (2014) gathered through StudyResponse ($n = 249$). The measures of work withdrawal we used were partial absenteeism (e.g., taking longer than expected breaks), absence frequency, and turnover intentions. We analyzed our data with six hierarchical moderated regressions, two for each of three criterion variables (e.g., psychological IPA, supervisor support, partner interference, the 2-way interaction of psychological IPA and each of supervisor support and partner interference with work, and 3-way interaction among psychological IPA, supervisor support, and partner interference with work—on each of absenteeism frequency, partial absenteeism, and turnover intentions). Psychological and physical IPA were each examined as focal predictor variables, controlling for the non-focal form of IPA in each regression

Results. Our first hypothesis was not supported: supervisor support did not moderate the relationship between IPA and any of the work withdrawal outcomes ($ps > .05$). Hypothesis 2 was partially supported: partner interference in work moderated the relationship between psychological IPA ($b = 1.61$, $p < .01$) and physical IPA ($b = .88$, $p < .001$) and absence frequency. Hypothesis 3 was partially supported: a significant 3-way interaction was found for physical IPA, supervisor support, and partner interference with work, but not in the predicted direction. Under conditions of high supervisor support and at least mean levels of partner inference with work, victims reported less frequent absence from work as physical IPA became more severe, in support of the notion that work can serve as a refuge. Under conditions of low supervisor support and at least mean level of partner interference with work, victims reported the same level of absence regardless of the severity of physical IPA.

C-7

Psychological Detachment from Home at Work for Well-being: The Role of Boundary Integration

Kahlil King (Hofstra University)

Psychological detachment from work is defined as psychologically disengaging from work during nonwork time (Sonnentag & Bayer, 2005). Gaining a psychological distance from ones' work has been identified as a key contributor to recovery from work, which "can be seen as a process opposite to the strain process" (Sonnentag & Fritz, 2007, p. 205). The relationship between psychological detachment from work and employee strain are strong (Sonnentag & Fritz, 2014), most likely because failure to psychologically detach from work presents continued exposure to job stressors.

There is lively discussion of psychological detachment from work at home, however, a similar but under-examined twist is if and how individuals psychologically detach home at work. Job demands are not the only catalysts for stress. Stressors can also be found in the home domain and individuals will possibly seek similar respite. To our best knowledge, only one study investigates possible consequences of psychological detachment from home (Sanz-Vergel, Demerouti, Bakker, & Moreno-Jiménez, 2011), therefore, there is limited information about its antecedents, outcomes and moderators. The workplace may provide a haven for people where they can psychologically detach from home stressors. While at work, these individuals may be able to take advantage of the time away from home and see work as a solace or escape.

We conducted two studies to examine the nature and the effect of psychological detachment from home at work. The purpose of Study 1 is to identify outcomes of psychological detachment from home and test a boundary condition that may have an impact on consequences. We hypothesized psychological detachment from home will result in decreased burnout at home and increased well-being, and that this relationship will be moderated by boundary integration.

Two-hundred and forty two participants, recruited from the general population via mTurk, completed the following scales: Psychological Detachment from Home (an adapted version the Recovery Questionnaire developed by Sonnentag and Fritz, 2003), Psychological Well-being (Ryff & Keyes, 1995), Burnout at home (an adapted version of The Burnout Measure, Short Version by Maslach-Pines, 2005),

and boundary integration behaviors (four items from the Boundary Management scale; Kossek, Ruderman, Braddy, & Hannum, 2012).

Contrary to our hypothesis, psychological detachment from home was found to be positively related to burnout at home. Burnout at home was negatively related to overall well-being and its sub-dimensions (autonomy, mastery, growth, relations with others, purpose, and acceptance). Boundary integration moderated the relationship between psychological detachment from home and burnout at home, in that the positive relationship was stronger for employees with low boundary integration than for employees with high boundary integration. Lastly, boundary integration moderated the indirect effect of detachment from home on well-being via burnout at home, in that the indirect effect was stronger for employees low in boundary integration than for employees high in integration.

Using a qualitative approach in Study 2, our goal was to understand the nature of psychological detachment from home while at work and explore the possible reasons for the unexpected findings in Study 1. We asked the participants if there are any aspects of home/family they are more interested in putting out of their mind while at work. Eighty-three responses were content analyzed and we found that employees tended to put away home demands due to personal problems (e.g., financial issues or loneliness), other people (e.g., family members including spouses and children), and home responsibilities (e.g., errands and chores).

Taken together, the results suggest that psychologically detaching from home might only provide a temporary cognitive relief from home stressors (e.g., financial issues, family member-related problems, errands); however, ignoring these home demands will cause them to linger or even become worse once the individual returns home. The significant interaction between detachment from home and burnout at home is consistent with this speculation. That is, when high psychological detachment from home paired with low boundary integrating behaviors, employees experienced highest burnout at home. There might be a difference in cognitive detachment and detaching behaviors; boundary integrating behaviors allow employees to reduce the amount of home demands when they return home, thus, decrease burnout at home. Burnout at home played a critical role in predicting employees' overall well-being, as well as the well-being sub-factors, such as autonomy, mastery, growth, relations with others, purpose, and acceptance.

This study explores the consequences of psychological detachment from home at work. If psychological detachment is a necessary step for recovery, then it we must understand what variables may aid or impede the process. Understanding how psychological detachment from home occurs can give employers insight to how employees can manage their stress while at work. Future research should examine the antecedents of detaching from home, personalities differences, and the availability of resources such as supervisor support. Also, longitudinal methodology can observe changes over time and variations in detachment depending on fluctuating stress levels or environmental factors.

C-8

Work-Health Conflict and Intent to Turnover due to Health: The Role of Schedule Control for Breast Cancer Survivors

Ragan Decker (University of Connecticut)

In the United States, approximately 3.5 million women are living with a history of breast cancer (Miller et al., 2016). Significant advancements in diagnostics and treatment have improved breast cancer prognosis, such that the overall 5-year relative survival rate for female breast cancer patients is now 90% (Siegel, 2012). Therefore, many survivors are able to resume their everyday life during or following treatment (Pryce, 2007). In fact, 72% of women with breast cancer returned to work 3 months after diagnosis (Satariano & DeLorenze 1996). However, these numbers are misleading as survivors still experience difficulties managing their work due to physical or cognitive side-effects (Maunsell, Brisson, Dubois, Lauzier & Fraser, 1999). Researchers have yet to examine role conflict due to incompatible work and health demands, thus the current study aims to fill this gap by examining work-to-health conflict and health-to-work conflict with a sample of breast cancer survivors.

According to Conservation of Resources theory (Hobfoll, 1989), individuals possess a limited pool of resources that can be allocated to different domains of life. Stoddart (2014) proposed that in comparison to healthy workers, individuals with a chronic illness such as breast cancer have diminished resources; therefore the demands of managing an illness and one's job duties is likely to create a conflict between work and health.

Greenhaus, Parasuraman and Collins (2001) proposed that experiences of role conflict, specifically work-family conflict will lead employees to withdraw from work in an attempt to eliminate conflict and numerous studies support this proposition (Boyar, Maertz, Pearson & Keough, 2003). The current study aims to extend these findings by examining the relationships between a new form of role conflict, work-health conflict, specifically the relationship between work-health conflict and health-work conflict with intent to turnover due to health.

Hypotheses 1 & 2: Work-health conflict (and health-work conflict) will be positively associated with intent to turnover due to health.

Schedule control has been investigated as a key mechanism for managing multiple roles. Schedule control is an employees' sense of control regarding the timing and location of their work, as well as the number of hours they work (Kelly, Moen, & Tranby 2011). Previous research has demonstrated a negative relationship between schedule control and work-family conflict (Galinsky, Bond & Frideman, 1996). Schedule control may be especially important for breast cancer survivors with high health demands, as control allows them to alter their work schedules to attend to their health needs, thus reducing work-health conflict and health-work conflict.

Hypotheses 3 & 4: Schedule control will moderate the relationship between work-health conflict (and health-work conflict) and intent to turnover due to health, such that the relationship will be weaker for individual with high schedule control.

Method. Breast cancer survivors were recruited to participate in an online survey. Eligible participants were at least 18 years of age, able to speak and read English, ended active primary treatment for breast cancer sometime within the past 36 months, were employed at the time of their breast cancer diagnosis (>20 hrs/week), and were employed (>20 hrs/week) at time of screening.

One hundred and forty-nine breast cancer survivors completed the survey. The sample was mostly female (97.4%), with survivors ranging in age from 24 to 78 years old. The average job tenure was 12.3 years and survivors worked a mean of 41.4 hours per week. Work-health conflict and health-work conflict were assessed with an unpublished measure created by Stoddart (2014) as part of a master's thesis. Intent to leave due to health was assessed with a single-item, "I am likely to leave this job in the next 2 years because of my health" and schedule control was assessed with a single-item, "I have control over my work schedule". Both items were on a 5-point Likert scale (strongly disagree to strongly agree).

Results. We used conditional process modeling to test for moderation using the PROCESS macro (Hayes, 2018). Work-health conflict was positively associated with intent to leave due to health (β = .51, p <.001). Health-work conflict was positively associated with intent to leave due to health (β = .44, p <.001). Work-health conflict interacted significantly with schedule control to predict intent to leave due to health (β = -.12, p =.03, Figure 2), such that high schedule control buffered the relationship. Health-work conflict interacted significantly with schedule control to predict intent to leave due to health (β = -17, p =.02, Figure 3), such that high schedule control buffered the relationship. Therefore, Hypotheses 1 through 4 were supported.

Conclusion. As the number of cancer survivors continues to rise, it is important for scholars and practitioners to study work-health and health-work conflict, as it may lead to turnover. Organizations should consider increasing schedule control to help their employees manage incompatible work and health demands, and to improve worker retention.

C-9

Evil or Angel? Work-related Phone Use and Sleep: Mediating Effect of Psychological Detachment and Moderating Effect of Boundary Control

Wen Zhang (Beijing Normal University)

In modern society, it is widespread to apply technology into work. Some smartphone users even consider phone as part of their bodies and self. However, the development and popularity of technology, especially the application of smartphone, has changed people's life and work styles dramatically. It enables people to communicate and work beyond the limits of time and space and blurs the boundary between work and life. Work-related smartphone, by playing the role of bridge, means efficiency and convenience for some workers, but for others, it means to bring work pressure home, which will hinder workers' recovery experience, interfere with workers' sleep, bring in emotional exhaustion, and finally result in reducing work engagement. Previous researches demonstrate that the negative effect overshadows the positive aspect. Based on effort-recovery, and boundary theories, this research explores two aspects, first is the psychological detachment as the mechanism of the negative effect of work-related phone use after work on sleep; and the second is as following: under which condition would work-related phone use buffer the negative effect of work-related phone use on recovery experiences: Specifically, psychological detachment and sleep. In other words, this research tries to prove that employees' work-related phone use after work would affluence workers' psychological detachment, and thus bringing in negative effect on workers' sleep; nevertheless, the negative influence is not absolute. For employees with higher sense of boundary control will mitigate the negative effect of work-related phone use on both psychological detachment and sleep.

This research adopts diary method, keeping tracking 10 workdays' data. With the analysis of M-Plus, results support the hypothesis that psychological detachment will play as mediator in work related phone use after work and sleep, which means that more work-related phone use after work may influence workers' sleep through making it harder for employees to get detached from work;

while boundary control cannot moderate the mediating effect of psychological detachment, but it can moderate the effect of work related phone use on sleep, referring that for employees with higher boundary control, the negative effect of work related phone use on sleep can be cushioned.

C-10

Crossover of work outcomes within dual income couples

Mihyang An (University of Wisconsin Stout)

Since a crossover model between two individuals has suggested (Westman 2011), researchers have examined it. Many have focused on the crossover of negative outcomes (e.g., Bakker, 2009; Demerouti et al., 2005). Studies of "crossover" of positive outcomes are rare (e.g., Demerouti, 2012; Neff, Sonnetag, Nieseen, & Unger, 20012;). Studies examining the crossover of negative and positive outcomes within a single study are even rarer. Based upon these research needs, this study suggests examining the crossover of negative and positive outcomes between dual income couples within a single study (Figure 1).

Current study. Work-family research show individuals have experienced their work interferes their family life due to the multiple roles and limited resource such as time or energy (i.e., work-to-family conflict; e.g., Greenhaus & Beutell, 1985). But other studies suggest that performing multiple roles are beneficial and work enhances family life (i.e., work-to-family enrichment; e.g., Greenhaus & Powell, 2006). Many studies have dealt them as mediators and few studies have examined both within a single study. This current study suggests them as main predictors of work outcomes (i.e., emotional exhaustion, job satisfaction, and organizational commitment).

H1: Work-to-family conflict and enrichment related to focal individual's work outcomes (i.e., emotional exhaustion, job satisfaction, and organizational commitment).

Couples, sharing a family domain, experience one partner's physical and psychological outcomes transferred (crossover; Westman, 2001). Up to know, relatively few studies examined individuals' positive and negative outcome transferring to their partner's outcomes within a single study.

H2: Employees' work outcomes directly relate to their spouse's work outcomes (crossover).

Methods. Participants and Procedure. The author recruited dual income couples from Korea using her personal network. They, heterosexual, married, dual-income couples, asked to answer questionnaires separately from their spouses. After incomplete responses and unmatched pairs were excluded, 271 couples were available for analyses and demographic information was found in Table 1.

Measures

Pre-existing questionnaire measures of work-to-family conflict (WFC; Carlson et al., 2000), work-to-family enrichment (WFE; Carlson et al., 2006), job satisfaction (Cammann, Fichman, Jenkins, & Klesh, 1983), organizational commitment (Mowday et al., 1982), and emotional exhaustion (Demerouti, 1999; Demerouti & Nachreiner, 1998) were used.

Data analyses. Due to data interdependence, the Actor-Partner Interdependence Model (Kenny et al., 2006) was used to analyze the dyadic data using the structural equation modeling program, LISREL 8.8 (Jöreskog & Sörbom, 2006).

Results. Descriptive analyses, reliabilities, paired- t tests, and correlations among the variables are in Tables 2 - 5. After investigating the goodness-of-fit indices of the research models (Table 6), hypotheses were tested by examining path coefficients (Figures 2, 4, and 5). Research models for all three outcome variables showed good fit to

the data overall. Testing models by outcome variables show different hypotheses testing results. In the job satisfaction model, the paths from WFE to job satisfaction were significant, but the paths between couples' job satisfaction were not significant (crossover), indicating partial support of hypothesis 1. In the organizational commitment model, the paths from WFC and WFE to organizational commitment were significant and the paths between couples' organizational commitment were significant as well (crossover), indicating full support of hypotheses 1 and 2. However, the directions of crossover between spouse were opposite. Lastly, in the emotional exhaustion model, the paths from WFC and WFE to emotional exhaustion were significant and the path between husband's emotional exhaustion to wife's emotional exhaustion was only significant (crossover), indicating full support of hypothesis 1 and partial support of hypothesis 2.

Discussion. This study demonstrated two types of work-family spillovers (WFC and WFE) was related to individual work outcomes and the crossover between wives and husbands depended on the outcomes.

Crossover of organizational commitment was found in both ways, but different directions (i.e., negative for wives to husbands and positive for husbands to wives). The different directionality of the crossover of organizational commitment between spouses may be due to gender-role socialization for example, women are still expected to spend more time working at home than men, even when both are employed (Pleck, 1977). Wives are expected to spend more time working at home than men but psychologically attached to the work organization have less time for doing home chores, therefore husbands may be spending more time taking care of home and may be less likely to attach to their own organization (ten Brummelhuis et al., 2011). Another finding, emotional exhaustion crossed-over only from husband-to-wife, is aligned with previous studies showing women may be more interpersonally sensitive than men, so that the well-being of others affects them more (Haviland & Malatesta, 1981).

Hazardous Work Environments and Safety

D-1

Physical stress among law enforcement: A 21-year trend analysis of frequency and rate of duty related deaths. 1997-2017

John Violanti (SUNY Buffalo)

Introduction: Part of the danger often not mentioned in law enforcement is the effect on the health and well-being of officers. Both physical and psychological stress are a part of police work and could serve as triggers for cardiovascular related and other types of death. For example, continuous exposure to physical stress has been associated with an increase in the risk of cardiovascular death (Zimmerman, 2012; Varvarigou, et al., 2014; Albert et al. 2000). It is important to look at the frequency and national rate of deaths associated with physical stress to better inform prevention efforts.

Objective: The current study examines the national trend in both the frequency and rate of types of death among law enforcement officers over a twenty-one year period (1997-2017) who died in the line of duty because of physical stress.

Methodology: The National Law Enforcement Officers Memorial Fund (NLEMF), a non-profit organization founded in 1984, tracks and maintains a comprehensive database on law enforcement officers who died in the line of duty in United States. Information collected by the memorial includes, among other things, the age, gender, years of service, date of incident, date of death, cause of death (shooting, auto accident, physical stress, terrorism, etc.), and circumstances of death (accidental or felonious). The NLEMF defines on-duty death due to physical stress as death directly caused by a specific on-duty incident (e.g., heart attack, fall, etc.). In order to be considered, an officer's death due to a heart attack must be preceded by a specific stressful response within a 24-hour period. The deaths for each year were summed to get total annual count (frequency). To compute the rate of deaths, we obtained data on the total number of police officers employed (and therefore at risk), 1997-2017, from Occupational Employment Statistics (OES) survey conducted by Bureau of Labor Statistics (BLS). The annual rate of death was then computed as follows: rate = (frequency/population at risk) × 100,000. The yearly trend in deaths due to physical stress was examined using two approaches. The first approach (i.e., frequency analyses) utilized the raw annual count of death as input to examine overall trend (this is unadjusted analyses that does not take into account the entire population of law enforcement in the United States). The second approach (i.e. rate analyses), annual count of deaths were adjusted by incorporating all law enforcement at risk of death in the U.S. and computing rates of deaths per 100,000 officers (adjusted analyses). Linear regression was fitted to examine the overall trend over the 21-year period by computing the standardized regression coefficients and associated p-values.

Results. Overall, there were 535 on-duty deaths attributed to physical stress during the 21-year period; 96% of the deceased were men. Half (50%) of the deaths were due to heart attack while the remaining half were due to other causes (e.g., seizure, fall, physical attack, exposure to toxic chemicals). Two-third (66%) of the deaths were described as accidental while the remaining 34% were felonious. The deceased officers ranged from age 21 to 74 years, with the majority (72%) being in the age group 40 to 60 years. At the time of their death, the deceased officers served between 1 to 42 years with most (63%) serving at least 15 years on the job. The results of trend analyses from both approaches indicated that there was a strong and significant increase (upward trend) in on-duty police fatality during the 21-year period spanning from 1997 to 2017 (frequency Analyses. $\beta = 0.75$, p-value <0.0001; rate Analyses. $\beta = 0.63$, p-value $=0.002$). From the 2000's (2000 – 2009) to 2010's (2010 -2017), there was a 57% increase in average death count and a 46% increase in death rate per year.

Limitations: There were deaths rejected for inclusion because they did not meet the requirements of the NLEMF. There are no official death records included in this database. The data are descriptive, do not estimate risk, and should be interpreted cautiously.

Conclusion. Using data from the NLEMF database, we found that the national frequency and rate of physical stress related deaths among law enforcement personnel showed a significant increase over the time period 1997-2017. These results suggest significantly increasing trend of deaths when confronted with physical stress over this period of time, with 50% of these deaths related to cardiovascular events. This appeared to be especially prevalent among males and those in the 40-50 years of age category. Police organizations need to place an increased emphasis on physical fitness and healthy lifestyle behaviors among officers in order to help reduce the risk of deaths associated with physically stressful incidents.

D-2

Adversity Provides Opportunities for Posttraumatic Growth: The Role of Specific Military Experiences

Jenna Beltramo (University of Central Florida)

Individuals in the United States Military are exposed to many adversities. Some adversities can be categorized into work-related (e.g. lack of sleep/autonomy, training, long hours; Adler et al., 2017; Tucker, Sinclair, & Thomas, 2005), death (e.g. witnessing/dealing with the death of a friend/comrade, handling remains; Currier & Holland, 2012; Fox et al., 2016), social issues (e.g. interpersonal conflicts, challenges with leadership, discrimination; Tucker et al., 2005), caring for others (e.g. concern/care for others who are injured/in harm's way; Currier & Holland, 2012) combat exposure (Fox et al., 2016; Stein, 2012), and non-combat related hazards (e.g. accidents involving equipment, vehicles, etc.; Dolan & Adler, 2006).

While many military adversities lead to negative outcomes (see e.g. Jex et al., 2013) some may also prompt Posttraumatic Growth (PTG). PTG is the positive psychological changes some individuals may experience after struggling with a highly stressful/traumatic event (Tedeschi & Calhoun, 1996). PTG occurs in one or more of five domains: Appreciation of Life encompasses a greater appreciation for the value of life, Relating to Others involves a deeper sense of closeness with others, Personal Strength involves increased recognition of one's strengths, New Possibilities involves recognizing new opportunities as a result of the adversity, and Spiritual/Existential Change includes a change in one's beliefs, or deepened sense of spirituality (Tedeschi & Calhoun, 1996; Tedeschi et al., 2017).

Different adversities have been linked to specific PTG domains (Taku, 2013). For example, bereavement is associated with greater endorsement of Appreciation of Life and Spiritual/Existential change (Calhoun et al., 2010). However, researchers have yet to examine the impact of military-specific adversities on the experience of PTG domains. Such information has the potential to advance theory and inform PTG interventions to help service members experience positive change in the aftermath of stress and trauma (e.g. Schonfeld & Mazzola, 2013). The purpose of the present study was to examine how different military-specific adversities relate to PTG domains. We hypothesize that (1) Military experiences involving death will lead to greater growth in the Appreciation of Life and Spiritual/Existential Change domains (2) Experiences involving a high-degree of self-reliance, such as work-related stressors and combat exposure, will lead to greater growth in the Personal Strength domain, and (3) Social issues and caring for others will lead to greater growth in the Relating to Others domain, as compared to other adversities. No specific group is predicted to uniquely relate to New Possibilities.

United States Military personnel (N=193) were recruited to complete an online survey. Participants were asked to write about their most stressful or traumatic military experience, and, if they did not feel comfortable writing about their most stressful/traumatic experience, to please write about a stressful experience they had in the military. Participants completed the expanded Posttraumatic Growth Inventory (PTGI-X; Tedeschi et al., 2017; Cronbach's alpha=.82-.92) with this event in mind. Six groups were selected to test the hypotheses, including those who reported (1) work-related adversity (n=25), (2) death (n=57), (3) social issues (n=25), (4) combat exposure (n=27), (5) caring for others (n=24), and (6) non-combat related hazards (n=35). For participant demographics see Table 1.

A series of one-way ANOVAs were utilized to test the hypotheses, results are presented in Table 2 with means and standard deviations provided in Table 3. Consistent with previous literature (Calhoun et al., 2010; Taku, 2013), experiences involving death were associated with greater growth in the Appreciation of Life and Spiritual/Existential Change domains. Interestingly, combat exposure was associated with greater growth in the Appreciation of Life, but not the Spiritual/Existential Change domain. One possible explanation is that life-threatening combat situations may result in greater appreciation for the value of life, but may not prompt a change in beliefs, or deepened sense of spirituality to the same degree as death itself. In sum, hypothesis 1 was mostly supported. In support of hypothesis 2, work, combat, and death were associated with greater growth in the Personal Strength domain. High-stress combat situations often require service members to remain calm and carry out their roles, exemplified by the First Infantry Division motto, "No mission too difficult, no sacrifice too great, duty first." Living through a combat situation and performing one's duty under demanding circumstances may help one to recognize their personal strength. Similarly, work-related adversities often require a high degree of self-reliance. Being pushed to one's limits may provide an opportunity for the recognition of one's strength. Finally, hypothesis 3 regarding Relating to Others was not supported (to be discussed in poster).

These findings expand existing literature by providing insight into the connection between military adversities and specific PTG domains. Findings may be useful to clinicians and military leadership seeking to help service members recover and experience positive change after military-related adversity. Future research should explore differences between types of death-related experiences, as well as other stressors such as sexual assault and substance abuse.

D-3

Resilience and Personality in U.S. Military Personnel: Implications for Selection and Training

Jenna Beltramo (University of Central Florida)

Recent conflicts in Iraq and Afghanistan have led to the deployment of more than 2.7 million U.S. service members, with many returning home with significant mental health challenges (Ramchand et al., 2015; Wenger, O'Connell, & Cottrell, 2018). In response, the U.S. Military has incorporated personality assessments in selection procedures (Baccman, Sjoberg, & Almqvist, 2015; Stark et al., 2014) and developed interventions and training programs in order to combat the negative impacts of stressors, minimize stress responses, and encourage resilience in the face of adversity (Meredith et al., 2011). However, research is needed in order to examine which mechanism (personality or resilience) has the strongest implications in preventing negative outcomes of adversity. Such research could have implications for selection and training in the military by informing future efforts, attention, and funding.

While the construct of resilience has been defined in many different ways throughout the literature, resilience has historically been conceptualized as a personality trait that enables individuals to recover from adversity (Richardson, 2002; Werner, 1989). Some of the earliest studies conducted from a trait perspective of resilience highlighted resilient traits which served as protective factors against negative outcomes (Richardson, 2002; Werner, 1989). In this way, the trait perspective of resilience examines resilience as inherent and pre-existing within individuals and would thus lend itself to a selection, rather than an intervention-focus. Recently, however, researchers have recommended examining resilience as a dynamic process.

The King and Rothstein (2010) model of resiliency was developed in order to provide a comprehensive approach to the understanding of resilience encompassing personal characteristics and self-regulatory processes, which fit into affective, behavioral, and cognitive domains.

In addition to acknowledging the importance of pre-existing traits, this model highlights the mechanisms by which resilience may be fostered through alterable processes of self-regulation, which can be learned through interventions.

In response to this holistic approach, McLarnon and Rothstein (2013) developed the Workplace Resiliency Inventory (WRI). Specifically, affective personal characteristics include traits such as self-esteem, whereas the affective self-regulation component deals with strategies to understand and control emotions. Behavioral personal characteristics include self-efficacy, discipline, diligence, and more, whereas behavioral self-regulation involves efforts to understand and control behaviors (e.g. controlling impulses). Cognitive personal characteristics include being open-minded, attentive, curious, and more, and cognitive self-regulation deals with cognitive strategies to understand and control thoughts (e.g. reducing intrusive thoughts). Personality traits have been more broadly conceptualized in terms of the "Big Five" or Five-Factor Model of Personality which includes extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience (e.g. Gosling, Rentfrow, & Swann, 2003).

This research aimed to examine incremental validity of resilience over personality in the prediction of a high-priority issue in the military—PTSD. More specifically, it is hypothesized that the resilience self-regulatory processes will demonstrate incremental validity in the prediction of PTSD symptomology over and above the Big Five personality traits and resilience personal characteristics.

Method

U.S. Military personnel (N=276) completed the WRI (McLarnon & Rothstein, 2013; Cronbach's alpha=.77-.79), Ten-Item Personality Inventory (Gosling et al., 2003; Cronbach's alpha=.29-.67), and PTSD Checklist for the DSM-V (Blevins et al., 2015; Cronbach's alpha=.97). For participant demographics see Table 1.

Results & Discussion. Table 2 presents descriptive statistics and correlations. A hierarchical multiple regression analysis was conducted to test the hypothesis. Results are reported in Table 3. Importantly, none of the variance inflation factors exceeded 2.51, which suggests little bias of the regression parameters or their standard errors due to multicollinearity (e.g. Hair et al., 2014). At Step 1, the personality traits accounted for 28% of the variance in PTSD symptomology, $F(5, 270)=20.58$, $p<.001$, with emotional stability serving as a significant predictor, $\beta=-3.53$, $p<.001$. At Step 2, introducing the personal characteristics of resilience explained an additional 8.7% of the variance, $F(3, 267)=19.00$, $p<.001$, with affective personal characteristics serving as a significant predictor, $\beta=-10.10$, $p<.001$. Finally, the inclusion of the resilience self-regulatory processes explained an additional 7.6% of the variance, $F(3, 264)=18.74$, $p<.001$, with both affective and cognitive self-regulatory processes serving as significant predictors, $\beta=-5.80$, $p=.001$, and $\beta=-14.27$, $p<.001$, respectively.

While personality, particularly emotional stability, was negatively related to PTSD symptomology, resilience personal characteristics demonstrated incremental validity. However, the resilience self-regulatory processes, particularly affective and cognitive, demonstrated further incremental validity, above what was accounted for by personality traits and personal characteristics. Not only do such findings support a more holistic approach to resilience, but also highlight the role of alterable processes in the avoidance of negative outcomes of adversity. More specifically, such findings support current work in the military through the use of personality in selection, and resilience training, but go beyond that to highlight potential areas for improvement. This study provides evidence of the potential benefits of incorporating resilience personal characteristics in selection, and cognitive self-regulation training, in addition to emotion-regulation training already being done in the military (e.g. Comprehensive Soldier Fitness program; Cornum et al., 2011).

D-4

Occupational Hazards and Stress Among Minnesota Cosmetologists, Estheticians and Nail Technicians

Jennifer Saunders (University of Minnesota)

Cosmetologists, estheticians and nail technicians, collectively known as Beauty Salon Professionals (BSPs), experience various types of exposures—chemical, ergonomic, and psychosocial—while performing a variety of services ranging from hair dyeing and bleaching to artificial nail application and hair removal (Norlien et al., 2017). BSPs may experience adverse health conditions associated with their occupational exposures, such as asthma and respiratory symptoms, skin sensitivities, musculoskeletal disorders and psychological stress (Quach et al., 2011; Tsigonia et al., 2009; Halliday-Bell, Gissler, & Jaakkola, 2009; Hill & Bradley, 2010). BSPs are also likely to have low wages, and lack employer-sponsored health insurance or coverage under workers' compensation insurance, which constrains their use of preventive health care and access to medical treatment or services (James, 2014). BSPs may be hired as independent contractors, rent a chair in a salon, or work in a private residence, and thus may fall outside the regulatory safety net.

The BSP industry—approximately 673,700 workers in the United States (U.S.)—emphasizes training in consumer protections to prevent the spread of disease or injuries to clients, but occupational health and safety education is comparatively lacking (Norlien et al., 2017; U.S. Bueau of Labor Statistics, 2015). Although some efforts have been made to understand the occupational exposures and the potential health consequences faced by BSPs, substantially less is known about workers' knowledge about the products they use and the potential health effects from workplace exposures, the measures they take to minimize exposures, their attitudes about occupational health and safety, and their need or desire for occupational health and safety training. In addition, although BSPs experience barriers to health care access and lack access to a safety net, the potential influence of their occupation on health disparities is not well known.

This project will address a critical gap in understanding by assessing Minnesota BSPs' knowledge, attitudes, and beliefs regarding occupational health and safety, which is essential for developing effective hazard communication strategies to protect BSPs from potential exposures, and to mitigate any associated poor health outcomes. The study also aims to characterize the workers' experience of occupation-related health conditions and access and barriers to health care.

A cross-sectional survey will be conducted of the approximately 32,000 professionals licensed by the Minnesota Board of Cosmetology to operate as cosmetologists, estheticians or manicurists (C. Maitrose, personal communication, April 17, 2018). The survey questions will ask respondents about their work activities and job tasks; work schedules and shifts; product usage; potential exposure patterns; health (e.g., respiratory symptoms, dermal sensitivities, musculoskeletal disorders, and psychosocial health); attitudes, beliefs and concerns about safety (e.g., perceived susceptibility, benefits and barriers to preventing or minimizing exposure, readiness to use protective equipment, self-efficacy or confidence in protecting oneself from exposures); sources of information about occupational health and safety; willingness to

complete occupational trainings; access to health care; and sociodemographic characteristics (e.g., age, race/ethnicity, parent status, urban/rural residence). Survey questions related to knowledge, attitudes, and beliefs about occupational health and safety behaviors will be guided by the Health Belief Model, which focuses on the relationship between attitudes and beliefs and health behaviors (Shockey, Zach & Sussell, 2017; Andersen, 1995; Babitsch, Gohl, & von Lengerke, 2012). The survey will be translated into Vietnamese and Thai to facilitate and encourage participation by manicurists, who are primarily non-native English speakers (72%) (Norlien et al., 2017; Integrated Public Use Microdata Series, 2015). The survey was developed and informed by the results of focus groups with BSPs, and was pilot tested by a small group of BSPs to assess reading comprehension and content validity, and to ensure that the time required for survey completion is acceptable.

Descriptive analysis and associations will be produced using the self-reported survey data. This analysis will provide a rich description of workers' job tasks and job structure; product usage and exposure patterns; experience of occupation-related health outcomes; concerns about job safety; their sources of information about occupational health and safety; their occupational trainings needs; access and barriers to health care; and sociodemographic characteristics. Inferential statistics (e.g., multivariate regression models) will be used to examine the relationship between individual and occupational characteristics and occupational safety behaviors, as well as consistency with the Health Belief Model.

The results will provide important information on the relationship between the beauty professional occupation and health disparities, and characterize the health care needs of this workforce. These findings have direct, practical applications and can be used by community stakeholders to inform the development of continuing education curriculum. These findings may also provide useful context for researchers, such as Industrial Hygienists, who wish to measure occupational exposures, measure exposure patterns, and evaluate the feasibility of protective measures.

D-5

Key Predictors of Work Fatigue in the Royal Canadian Air Force: A Dominance Analysis

Caitlin Comeau (The Department of National Defence and the Canadian Armed Forces)

Work fatigue is an experience representing "extreme tiredness and reduced functional capacity that is experienced during and at the end of the workday" (Frone & Tidwell 2015, p. 274). Fatigue is a pervasive and prevalent phenomenon in the aviation community (Goode, 2003), and given its association with aviation accidents and injuries (Nahrgang, Morgeson, & Hofmann, 2011; Patterson et al., 2012), it has emerged as a top concern for flight safety. Job stress (Hazzard et al., 2013), role overload (Garrick et al., 2014), drug and alcohol use during non-work hours (Johnson & Breslau, 2001; Vitiello, 1997), shift work (Akerstedt & Wright, 2009), quality and hours of sleep (Rupp, Wesensten, Bliese, & Balkin, 2009), daytime sleepiness (McDonald, Cope & David, 1993), and reduced physical activity (Sliter & Sliter, 2014) are all well-established predictors of general work fatigue.

While there is a strong foundation linking antecedents to global measures of fatigue, aviation research has overlooked how these variables may differentially relate to the three facets of fatigue: emotional (expression and regulation of emotion), mental (cognitive processing) and physical (muscular movement; Frone and Tidewell, 2015). Assessing the three types of work fatigue is important because previous research has established that each dimension displays unique patterns of relationships across predictors. Thus, to address fatigue in the aviation community, research must strive for a more nuanced perspective of the relationships between predictors and outcomes to develop appropriate risk mitigation strategies.

In addition to our limited knowledge of the facets of fatigue, there remains uncertainty around the relative importance of established predictors of fatigue. One reason for this ambiguity is that most studies have not comprehensively assessed all relevant antecedents. Another possible reason for this uncertainty stems from the type of analysis used to examine the relative contribution of predictors of fatigue. For example, multiple regression analysis maximizes the prediction of an outcome variable by assigning weights to predictors (Pedhazur & Kerlinger 1973), however, because several factors influence regression weights, the relative importance of predictors cannot be reliably ranked (Azen & Budescu, 2003). Given this, previous fatigue models may have over or under estimated the roles of predictors. In order to overcome these limitations, the current study used dominance analysis (DA; Azen & Budescu, 2003; Budescu, 1993) to reliably rank the importance of several fatigue predictors. As such, the aim of the current research was to explore the relative importance of the aforementioned antecedents in the prediction of emotional, mental, and physical fatigue.

Method. The study utilized data drawn from a stratified random sample of 2,059 Royal Canadian Air Force personnel who completed the Flight Safety addition to the Defence Workplace Well-Being Survey between May and August 2018. We used the Three-Dimensional Work Fatigue Inventory (Frone & Tidwell, 2015), Concise Physical Activity Questionnaire (Sliter & Sliter, 2004), CAGE – Adapted to Include Drugs (Brown & Saunders, 1991), Epworth Sleepiness Scale (Johns, 1991), Role Overload Scale (Thiagarajan, Chakrabarty, & Taylor, 2006), and Stress in General Scale (Stanton, Balzer, Smith, Para, & Ironson, 2001) to measure emotional, mental, and physical fatigue, physical activity, drug and alcohol use, daytime sleepiness, role overload, and job stress, respectively. We relied on single-item measures to assess the occurrence of napping, average length of daily commute, quality and hours of sleep, and type of work shift (straight or variable).

Results. The results of the DA identified the following five top predictors of emotional fatigue: quality of sleep (sr = .22), role overload (sr = .17), job stress (sr = .16), daytime sleepiness (sr = .13), and drug and alcohol use (sr = .09). The importance of the first four predictors showed a very similar ordering for mental fatigue (role overload [sr = .25], quality of sleep [sr = .18], job stress [sr = .14], daytime sleepiness [sr = .14], and physical activity [sr = -.09]), as well as for physical fatigue (role overload [sr = .21], quality of sleep [sr = .18], daytime sleepiness [sr = .15], job stress [sr = .13], and physical activity [sr = -.14]), yet the fifth predictor varied slightly across the types of fatigue, supporting a more nuanced perspective of the relationships between predictors and outcomes.

Discussion. Reducing risks to flight safety is critical to preserve costly aviation resources and prevent accidents and fatalities (Knight, Blais, & Huebner, 2017). Given that organizations, such as the RCAF, are interested in directing their limited resources towards areas with the largest return on investment (World Health Organization, 2003), it then becomes pertinent to identify the factors with the largest influence on fatigue. By identifying role overload, quality of sleep, job stress, and daytime sleepiness as key predictors of fatigue in the RCAF, we

provide a starting point for the development of evidence-based strategies pertaining to risk mitigation and management of aviation resources in this community.

D-6

Precarious Employment and Community Health in a High Hardship Community: Data from the Greater Lawndale Healthy Work Survey

Kathleen Rospenda (University of Illinois at Chicago)

Problem Statement. The Greater Lawndale Healthy Work (GLHW) Project is a community-based participatory research study (Israel et al., 1998; Wallerstein & Duran, 2003) being conducted under the aegis of the University of Illinois at Chicago Center for Healthy Work, a NIOSH-funded Center of Excellence in Total Worker Health®. The GLHW Project team developed a community health survey centered on work to better characterize the nature of work and health for two neighborhoods in Chicago that experience high socio-economic hardship: Little Village and North Lawndale (together constituting Greater Lawndale). The survey is one component of a data-gathering process with the ultimate goal of informing the development of community-based interventions to promote healthy work in the community.

Precarious employment is characterized by uncertain and unpredictable terms of employment and risky conditions (Kalleberg, 2009), resulting in social and economic vulnerability for workers (Tompa et al., 2007). Precarious employment is increasingly common in many countries including the U.S. (Koranyi et al., 2018; Seixas et al., 2015) and is recognized as a work-related social determinant of health that contributes to health inequalities (Benach et al., 2014), suggesting a rising need for occupational safety and community health research in this area, a need that gave impetus to the GLHW Project.

Of note, Little Village residents are primarily Latinx immigrants, and North Lawndale residents are primarily African-American. We suspected that precarious employment is a particularly significant issue for these neighborhoods, because unfair social, political and economic policies and systems produce disparities in neighborhood resources (schools, work, environments) so that racial minorities have suboptimal options for work This results in workers engaged in precarious employment being predominantly racial/ethnic minorities and foreign-born, with less education, more stress, and working conditions contributing to increased risk of occupational injury/illness, as well as facing issues of low or irregular income which further contributes to economic and health disparities (CDC, 2013; Quinlan et al., 2001). In this poster/presentation, we will present results from the GLHW Project Survey. focusing on the nature of work, the most prevalent barriers and pathways to work, and the association of employment precarity with health-related outcomes such as self-reported mental and physical health and occupational illness/injury in these two neighborhoods.

Procedures. The GLHW Project Survey was developed in collaboration with Community Researchers (CRs; members of our research team who live and/or work in Greater Lawndale). Drawing from pre-existing survey tools and our own research (interviews with key informants knowledgeable about the two neighborhoods, focus groups with neighborhood residents engaged in precarious work, and a concept mapping exercise with residents to characterize perceptions about how work impacts health in the community), we developed a 116-item community health survey in English and Spanish focused on seven main topic areas: 1) Employment Status, Nature and Type; 2) Precarious Work; 3) Barriers to and Facilitators of Work; 4) Commuting; 5) Working Conditions and Workplace Rights; 6) Stress and Health; and 7) Positive Impact of Work. CRs targeted recruitment of 500 survey participants from the community (250 per neighborhood) meeting the following criteria: 1) Little Village or North Lawndale resident; 2) age 18+; 3) worked for pay at some point in the past 2 years; 4) believed that this work was precarious, and 5) fluent in English or Spanish. Participants were recruited from 12 geographic areas of similar size in the community to ensure residents from all areas of the community were represented. CRs administered surveys face-to-face or in small groups. Data collection began in August 2018 and will be complete by April 2019.

Analyses will be conducted by the first author and co-authors with input and guidance from CRs. An Employment Precarity Index (EPI) will be computed based on items drawn from the PEPSO Employment Precarity Index. We will use descriptive statistics (prevalence of sources of precarity and barriers and pathways to work), chi-square tests of association (prevalence of barriers/pathways by neighborhood by gender) to examine the nature of employment precarity, and multivariate regression analyses (EPI predicting health outcomes, controlling for relevant demographics and testing differences by gender and neighborhood) to examine the relationship between employment precarity and health outcomes.

Results. 250 surveys are complete in Little Village (100% of goal) and 180 in North Lawndale (72% of goal); in our sample currently, 49% of respondents identify as women; 77% are Latinx; mean age 42. Data collection will be complete by April 2019 and analysis will be complete by October 2019.

Practical Implications and Conclusions are pending, but the results of this project will be used to characterize the nature of work in Greater Lawndale, particularly the nature of precarious work and its impact on health. The data from the survey will be used to inform interventions to be developed and implemented in the two neighborhoods, in collaboration with our community partners.

D-7

Firefighter Attitudes and Burnout Related to Service to Opioid Overdose Response in Vancouver, BC

Michelle Pennington (Baylor Scott & White Health)

In 2003 the first North American supervised injection facility (SIF) for opioid users opened in Vancouver, Canada. This facility is based on the harm-reduction model of care and was intended to decrease overdose deaths, prevent transmission of infectious diseases, encourage the marginalized to access health services, and reduce public drug use (Vancouver Coastal Health, n.d.). Since 2003, over 3.6 million injection drug users have visited the SIF; in 2017 alone, 2,151 overdose interventions occurred at the facility (Vancouver Coastal Health, 2018). Because firefighters and paramedics are often called to these overdoses, this can put a strain on fire department resources.

High rates of overdose-related deaths recently have resulted in many first responders feeling burnt out (News, 2017). Occupational stressors related to overdose calls such as exposure to potentially hazardous materials, sleep disturbances, and fears of personal injury have been linked to behavioral health problems (Beaton et al., 1996; Del Ben, Scotti, Chen, & Fortson, 2006; Lourel, Abdellaoui, Chevaleyre, Paltrier, & Gana, 2008). However, to our knowledge, no studies have investigated the effects of community drug use on the firefighters who serve these communities.

Because of the relative successes of SIFs in other countries and the rising rates of opioid-related deaths, cities in the US have begun to consider SIFs in an effort to combat overdose deaths—as many as 70,000 in 2017 alone (Hedegaard, Miniño, & Warner, 2018). Thus, the need exists to evaluate the impact of these sites on the first responders that serve them. To our knowledge, the present study is the first to examine first responder attitudes and burnout related to being stationed in a community with a SIF.

The aim of this study was to identify what aspects of being stationed near SIFs are important to first responders. We hypothesized that firefighters with more negative attitudes toward being stationed near SIFs would be more likely to experience burnout and secondary traumatic stress and less likely to report compassion satisfaction.

Firefighters and paramedics from Vancouver Fire and Rescue Services were recruited via an email from their local fire service Union to take an online questionnaire via Qualtrics. Online survey data was collected from 101 firefighters/paramedics, of which 57 provided complete responses. The Professional Quality of Life Scale: Compassion Satisfaction and Fatigue Version 5 (Stamm, 2010) was used to measure compassion satisfaction, burnout, and secondary traumatic stress. One free-response question was queried respondents' feelings about being assigned to the closest station to the SIF.

Content analysis was performed on 57 responses to the free-response question. The coding system was developed by examining the first half of the responses collected to reflect themes in the responses. Two of the authors coded all responses independently and had substantial to perfect agreement. Overall sentiment ("negative," "positive," or "neutral/mixed") was also coded for the same 57 responses. Independent ratings by two of the authors showed near-perfect agreement.

Four main content themes were identified: (1) positive effects, which contained four sub-themes: bonding/comradery of the crew, an exciting/stimulating work environment, gaining valuable experience, and making a positive difference; (2) negative effects, which contained 5 sub-themes: stress/strain, sleep difficulties, negative effects on families, numbing, and drug stigmatization.; (3) time-related, which contained 2 sub-themes: the time limit as a plus and suggesting changes to time limit/qualifications; and (4) sense of duty, which contained 2 sub-themes: fairness/duty and volunteering.

One-way between-groups analysis of variance (ANOVA) tests were conducted to explore the impact of sentiment regarding stationing at the Fire Hall near Vancouver's SIF on compassion satisfaction, burnout, and secondary traumatic stress. There was a statistically significant difference in compassion satisfaction [$F(2,54) = 8.75$, $p = .001$, $\eta 2 = .24$], burnout [$F(2,54) = 11.68$, $p < .001$, $\eta 2 = .30$], and secondary traumatic stress [$F(2,54) = 8.66$, $p = .001$, $\eta 2 = .24$] scores between groups. Post-hoc comparisons using Scheffe's test indicated that compassion satisfaction, burnout, and secondary traumatic stress scores were all significantly lower among those with negative sentiment compared to those with positive sentiment (all p values = .001) or neutral/mixed sentiment (p values ranged from <.001 to .022).

These results summarize qualitative themes from open-ended responses, an important step toward developing useful assessments for first responders. These results also have important implications for developing programs to enhance health and well-being of first responders. Programs may benefit from decreasing stigma around addiction. These results are highly relevant to this public safety occupational group as well as to clinical populations in general.

This study is a preliminary look at how attitudes regarding SIFs relate to burnout among first responders who serve these facilities. These results highlight the need for more research into the effects of community drug use on first responders. Future research should seek to compare data to cities with less drug use.

D-8

Work factors and health outcomes among Latino immigrant cattle feedyard workers in the Central States region

Athena Ramos (University of Nebraska Health Center)

Background. Latino/as are the largest ethnic minority group in the United States, and the population continues to grow rapidly (Carlo et al., 2014), particularly in rural areas (Ramos, 2016). Many of these Latino/as are employed in agriculture as farmworkers in crop and livestock production. Previous research has explored physical and psychological health and well-being among migrant farmworkers (Ramos, 2017; Ramos, Carlo, Grant, Trinidad, & Correa, 2016); however, no research has addressed immigrant workers in the cattle feeding industry. Such immigrant workers are critical to the agricultural economy in Nebraska and Kansas, but little is known regarding their health and well-being. Previous occupational research has demonstrated that control (decision latitude) can buffer stress from work-related demands, and high demands and low control creates a high-strain, stressful environment (Karasek, 1979). Work safety climate has been shown to positively affect worker health and safety (Fogarty & Shaw, 2010) and is a leading indicator of organizational safety (Zohar, 2010). The primary purpose of the present study was to test the relationship between work-related variables (decision latitude, workplace demands, safety climate), work fatigue, and health outcomes (depression, anxiety, life satisfaction, and physical health) among immigrant cattle feedyard workers in the Central States region.

Methods. The current sample included 110 cattle feedyard workers (88% male; M age= 37.66 years, SD=10.51). Participants had been in the US an average of 13.92 years (SD = 9.12), and were primarily from Mexico (65.5%), though other countries of origin included Guatemala (16.4%), El Salvador (9.1%), Cuba (5.5%), among others (3.6%). Data are part of the ongoing study "Health and Safety among Immigrant Cattle Feedyard Workers in the Central States Region." Study eligibility criteria include being a Latino immigrant who is employed on a cattle feedyard in Nebraska or Kansas and being at least the age of majority in state of enrollment (18 in Kansas or 19 in Nebraska). They received a $25 gift card for study participation (one-hour interview). Participants completed a battery of measures, including demographic questions, decision latitude, workplace demands (Job Content Questionnaire), work safety climate (Perceived Safety Climate Scale), work fatigue (Need for Recovery scale), depression (CES-D-10), anxiety (GAD-7), life satisfaction (Satisfaction with Life Scale), and a general self-rated physical health item. Pearson's correlations and a series of mediation models were used to explore the relationships among the variables using Mplus 8.0. Participant age, sex, and educational level were included as control variables.

Results. Decision latitude was significantly positively associated with safety climate and life satisfaction and significantly negatively correlated with work fatigue and anxiety. In the decision latitude model, indirect effects were found among decision latitude, work fatigue, and depression (95% CI: -.18, -.03), anxiety (95% CI: -.12,-.03), life satisfaction (95% CI: .05, .28), and physical health (95% CI:

.04, .32). Workplace demands was significantly positively associated with work fatigue and depression and significantly negatively associated with safety climate. In the workplace demands model, indirect effects were found among workplace demands, work fatigue, and depression (95% CI: .02, .13), anxiety (95% CI: .04, .11), life satisfaction (95% CI: -.37, -.07), and physical health (95% CI: -.32, -.06). Safety climate was significantly positively associated with decision latitude and life satisfaction and significantly negatively correlated with workplace demands and work fatigue. In the safety climate model, indirect effects were found among safety climate, work fatigue, and depression (95% CI: -.14, -.01), anxiety (95% CI: -.10, -.01), life satisfaction (95% CI: .03, .29), and physical health (95% CI: .03, .29). The direct effects among the work-related variables and all outcomes were not statistically significant.

Discussion: Overall, the findings suggest that there are important relationships between work-related variables and health outcomes among this worker population. Greater workplace demands predicted more work fatigue, which in turn, predicted less life satisfaction and physical health, and more depression and anxiety. Stronger safety climate and more greater decision latitude were linked to less work fatigue, which in turn, predicted more life satisfaction and physical health, and less depression and anxiety. The findings demonstrate the importance of providing feedyard workers with greater control, fewer demands at work, and a safer work environment to enhance health and well-being—though their effects were indirect. Work fatigue, the need for recovery, was consistently related to more mental health problems, less physical health and less life satisfaction. Given the exposure of work and non-work (e.g., poverty, discrimination) related stressors of Latino immigrant cattle feedyard workers, these findings suggest that these workers are at high-risk for health and social problems. Programs and policies that improve safety, reduce stress, and increase worker's control over their environment may therefore likely reduce work fatigue and improve the health of immigrant cattle feedyard workers.

D-9

Adaptation strategies of shift workers of various industries in the Arctic

Yana Korneeva (Northern Arctic Federal University)

Objectives/Scope: 80% of all Arctic oil and almost all gas are concentrated in the Russian Far North, and 20% of diamonds are mined here. A major role in the development of the Arctic is played by the attraction and preservation of the able-bodied population to these remote regions. It is the extreme conditions of professional activity that require an employee to attain a higher level of selfmanagement, to activate more complex mechanisms. In our case, the environment is so aggressive that in order to adapt to it, it is necessary to begin with a change in knowledge and perceptions about it, and therefore, from its own subject position. Following a change in the subjective position and optimization of working conditions, optimal adaptation strategies are formed, ensuring homeostasis at all levels of the integral individuality. The purpose of the proposed project is to identify the features of the prevailing types of adaptation strategies and ways of coping with the stress of workers in the oil and gas production, diamond mining production and builders of gas pipelines during shift work in the Far North and the Arctic. Methods, Procedures, Process: As a result of the work on the project, it is planned to survey 70 employees of the three types of production being studied: diamond mining, oil and gas producing and construction of gas pipelines under shift labor organization in the Arctic. Research Methods. questioning, observation of the workflow, psychological testing, as well as statistical methods for processing and analyzing data. Results, Observations, Conclusions. As a result of the implementation of the proposed project will be:- revealed the prevailing types of adaptation strategies of workers of oil and gas production, diamond mining production and builders of main gas pipelines under shift labor organization in the Arctic; the features of ways of coping with the stress of oil and gas production, features of adaptation strategies and ways of coping with stressworkers of various professional groups in the Arctic; a comparative analysis of adaptation strategies and ways of coping with the stress of oil and gas production workers of various professional groups. Novel/Additive Information: The scientific novelty consists in clarifying the classification of adaptation strategies of shift workers in the oil and gas and diamond producing industries. For the first time, a classification of adaptation strategies will be developed for the builders of main gas pipelines in the Arctic. Identifying features of coping with stress in oil and gas, diamond mining and gas pipeline construction workers under rotational labor organization in the Far North and the Arctic will make a significant contribution to the development of workforce psychology as a science.

Organization- and Job-Level Environments and Practices

E-1

Frequent Exertion and Frequent Standing at Work, by Industry and Occupation Group – United States, 2015

Taylor Shockey (NIOSH)

Ergonomic hazards are physical factors in the surrounding environment that negatively affect a person's health. These hazards are common in workplaces and include repetitive movements, awkward or non-neutral postures, manual handling, stationary positions, and vibration. Ergonomic hazards are risk factors that can lead to injuries while workers are on the job. Musculoskeletal disorders (MSDs) are one of the most prevalent categories of ergonomic-related injuries. (1). Between 2011 and 2015, there were over 1.8 million musculoskeletal disorder (MSD) cases that involved days away from work; approximately 32% of those MSD cases were related to an event that involved work-related overexertion in lifting or lowering (2). In addition to bending and twisting, occupational standing is associated with low back, lower extremity, and upper extremity musculoskeletal symptoms (3). A recent meta-analysis on occupational standing found that substantial standing (> 4 hours per workday) led to an increased risk of low-back symptoms with a pooled odds ratio of 1.31 (95% CI: 1.10-1.56) (3).

We used data from the National Health Interview Survey (NHIS), which is an annual, in-person household interview survey conducted by the U.S. Census Bureau and administered to the noninstitutionalized, civilian U.S. population. The NHIS covers a wide range of health-related topics in order to evaluate the status of health in the U.S. and to determine if national health objectives are being met. In 2015, CDC's National Institute for Occupational Safety and Health (NIOSH) sponsored an Occupational Health Supplement (OHS) to collect information on work-related health conditions and occupational exposures, both physical and psychological. Our project used the data from the two ergonomic questions on the OHS: (1) "How often does your job involved repeated lifting, pushing, pulling, or bending? (2) "How often does your

job involve standing or walking around?" Responses to these questions were dichotomized into Often/Always and Never/Seldom/Sometimes to indicate frequent or infrequent exertion or standing, respectively. Additionally, our project used the occupation and industry questions in order to examine the ergonomic exposures by standardized occupation and industry groups.

We hypothesized that currently employed workers in occupations or industries that are physically demanding such as production, healthcare support, and construction would have higher prevalences of frequent exertion and frequent standing compared to those workers in jobs that are traditionally office-based and require little physical work such as legal, management, and life, physical, and social science. We used SAS to perform analyses that account for NHIS's complex survey design and use of respondent sampling weights. We calculated prevalence estimates and their respective 95% confidence intervals (95% CI) for the two ergonomic exposures by occupation and industry groups.

The results show that large differences among occupation and industry groups exist in relation to prevalence of frequent exertion, frequent standing, and both frequent exertion and standing. The agriculture, forestry, fishing, and hunting industry group had the highest prevalence for combined frequent exertion and frequent standing at work (70.9%) and the highest prevalence for frequent exertion at work (75.2%). The construction and extraction occupation group had the highest prevalence for combined frequent exertion and frequent standing at work (76.9%) and the highest prevalence for frequent exertion (80.4%). The accommodation and food services industry group (92.5%) and the food preparation and serving related occupation group (97.2%) had the highest prevalence for frequent standing at work. The finance and insurance industry group (5.0%) and the computer and mathematical occupation group (4.6%) had the lowest prevalence for combined frequent exertion and frequent standing at work.

To our knowledge, this is the first CDC report to evaluate frequent exertion and frequent standing at work among currently employed U.S. adults in all occupations and industries. The study indicates that there are occupation and industry groups with high prevalences of frequent exertion and frequent standing at work, which are likely in need of interventions to reduce exposure and training on safe movement/lifting. Workers in the agricultural industries were found to have the highest prevalence of frequent exertion and frequent standing at work, and a separate study found these workers also had high prevalences of low back pain and upper extremity pain, which could be related to ergonomic factors (4). Nearly two thirds of all workers reported frequent standing at work and many of the occupation and industry groups that reported a high prevalence of frequent exertion also reported a high prevalence of frequent standing, indicating that these two exposure may commonly co-occur. Very limited research exists that examines frequent exertion and standing at work among occupation and industry groups at the national level, and more research is needed to understand these ergonomic variables and possible associated health effects more fully.

E-2

You can not change sanitary pads at work if you work alone: A study of female cosmetics sales workers in South Korea.

Bokyoung Choi (Korea University)

Problem: Inadequate staffing is one of the major problems in occupational health and safety. A growing literature has shown that inadequate staffing was associated with poor physical health(Kim et al., 2014) and mental health of workers(Toh, Ang, & Devi, 2012). A previous study demonstrated that inadequate staffing might increase the risk for occupational injury and illness among care workers(Clarke, Rockett, Sloane, & Aiken, 2002). Furthermore, workers experienced inadequate staffing were interfered with their regular restroom breaks during working(Xu et al., 2016).

In South Korea, it has been one of the social problems that cosmetics sales workers were not guaranteed the freedom to go to a restroom at any time due to inadequate staffing(Lee, Kim, Chung, Jung, & Kim, 2011). Longer working hours alone at work could be regarded as an indicator of inadequate staffing. Workers who can not use restroom might have poor reproductive health including the inability to change sanitary pads during menstruation at work. Therefore, this study aims to examine that hours of working alone were associated with having been unable to change sanitary pads at work and having the related dermatopathy over the past 6 months among female cosmetics sales workers in South Korea.

Procedures and Analyses. Our research team conducted a company-wide survey of cosmetics sales workers in conjunction with the Korean Federation of Service Workers' Unions in September 2018. The target population was selected 933 female cosmetics sales workers working in the department store in South Korea. Demographic information, socioeconomic status, psychosocial work environment, physical work environment, health behaviors, and health status were investigated. The survey was paper-based and was sent to all cosmetics sales workers (N=933) through the company's internal mail system. About 94.5% (N=882) workers completed the survey. We excluded 15 workers who did not consent to academic use of data, and "Not applicable" for menstruation (N=56). Also, workers who did not fully provide answers for exposure variable (N=13), outcome variable (N=13), or potential confounders (N=46). Total 739 cosmetics sales workers were included in this study.

Exposure variable, hours of working alone in a day were assessed by asking, "how many hours do you work alone in a day?". Responses were classified into four groups: less than 1 hour, 1-2 hours, 2-3 hours, more than 3 hours in a day. Outcome variables, having been unable to change sanitary pads and experience of dermatopathy were measured with following two questions, "Over the past 6months, have you ever 1) been unable to change sanitary pads during menstruation at work, 2) experienced the related dermatopathy due to not being able to change the sanitary pads at work.". Respondents could answer yes, no, or not applicable for each question.

We first estimated the prevalence of having been unable to change sanitary pads over the past 6 months among Korean female cosmetics sales workers by key covariates. Modified Poisson regression model was used to estimate the association between hours of working alone in a day and having been unable to change sanitary pads over the past 6 months after adjusting for potential confounders including socio-demographic variables (age, marital status, and educational level), and work-related variables (annual income, working year, working hours per week, job position, the number of team member, and cosmetics brand).

Results. 42.0% (N=310) of female workers could not change their sanitary pads during menstruation period at work and 18.5% (N=137) experienced a related dermatopathy over the past 6 months. Compared to the "less than 1 hour" group, long hours of working alone were associated with having been unable to change their sanitary pads during

menstruation period at work ("1-2 hours" PR: 1.20, 95% CI: 0.92-1.57; "2-3 hours" PR: 1.39, 95% CI: 1.02-1.90; "more than 3 hours" PR: 1.80, 95% CI: 1.34-2.43). Also, workers who worked alone more than 3 hours in a day were more likely to have the related dermatopathy compared to those who worked alone less than 1 hours after adjusting for potential confounders (PR: 2.31, 95% CI: 1.36-3.93).

Practical implications and conclusions: Female cosmetics sales workers who worked alone for long hours were not able to change their sanitary pads at work and experienced related dermatopathy in South Korea. The results of this study suggest that interventions are needed to address the inadequate staffing for cosmetics sales workers and workers' right to access restroom at the cosmetics sales workplace in South Korea.

E-3

Manager's use of information and communication technologies: resources or demands?

Julie Dextras-Gauthier (Laval University)

Problem. Working in the digital economy involves constant connectivity, immediacy and unclear work-family boundaries (Atanasoff and Venable, 2017; Derks et al. 2015; Ragsdale and Hoover, 2016). This context is likely to make workers vulnerable to a new form of stress called workplace telepressure. (Barber and Santuzzi, 2015). Some authors found that workplace telepressure harms the well-being of workers; it reduces psychological detachment and it increases the risks of physical and cognitive exhaustion (Santuzzi and Barber, 2018). However, Grawitch et al. (2018) showed that the workplace telepressure had no significant effect on emotional exhaustion, psychological detachment and satisfaction with work-family balance when personality traits and workaholism are controlled. According to them, the negative effect of workplace telepressure on worker well-being mostly result from the worker's predisposition towards workaholism. These findings lead them to argue that this new form of stress is often self-imposed rather than imposed by the organization. Still very little is known about this new phenomena and organizational norms and practices around technology use that might contribute to psychological state like workplace telepressure.

Procedures. The aim of this study is to identify the aspects of information and communication technologies (ICT) that are seen as a job resources and those in which they are perceived as job demands. In the digital economy, a growing number of organizations have implemented New Ways of Working (NWW) to enhance workplace flexibility. These NWW are enabled by ICTs, such as emails, text messages, instant messaging and smartphones, which provide greater autonomy for employee to choose when and where they work (Rosen et al., 2019). Atanasoff and Venable (2017) indicated that the use of ICTs in organizations can be a double-edged sword because on the one hand, it enhance workplace productivity and flexibility, but on the other hand, it can cause stress and harm employees' well-being. The use of ICTs increase workers' perception of control over the time and location of work schedule (Barber and Santuzzi, 2015). But, ICTs use on private hours to manage work-related issues contributes to the blurring of boundaries between personal and professional lives. (Barber and Santuzzi, 2015; Derks et al. 2015; Ragsdale and Hoover, 2016). The contrasting results of ICTs use on well-being and work-life balance highlight the relevance of examining the factors maximizing the positive effects as well as those minimizing the negative effects of using ICTs.

Method: Our sample is composed of executive, intermediate and first level managers from a hospital in the province of Quebec, in Canada. It is composed of 73% female managers and the average age is 45. Also, the average seniority in a management position is between 6 and 10 years. A total of 75 semi-structured interviews were conducted in 2017. A qualitative approach was chosen to give a voice to the managers and to document the different aspects of their use of ICT. The interviews were recorded and transcribed for a posteriori analysis. A tree of codes was realized by the researchers and the coding of the interviews was done by a professor in Human Resource Management. Code sequences analysis were performed using the QDA Miner software.

Results. Exploratory results show that the volume of communication and the expectations of constant connectivity are two important elements of manager's work environment. But, the obsolescence of technological tools, in the public sector in Canada, reduce the risk of constant connectivity expectations and, thereby, contribute to the decline of workplace telepressure. On the contrary, the large influx of e-mails affect the daily work behaviors of managers. When managers are dealing with email overload, they don' have the time and the energy for other important workplace behaviors such as providing feedback to employees or share their knowledge and expertise with their teams. Emails demands also spillover to the family domain as managers choose to work outside work hours to avoid the feeling of falling behind.

Practical implications. Our results suggest that email demands impact not only on managers' own behaviors but could also affect their employees since managers don't have the time and energy to perform their roles effectively. Since managers and especially transformational leadership are important for any given organizations, email demands should be minimized. Organizations should addresses this problem by developing workplace policies around ICT use and responsiveness.

Conclusions. This study enriches our understanding of the experience of managers in healthcare institutions. This study also identifies resources and demands that can influence the psychological health of managers but also their ability to perform effectively their roles as leader. Our results indicate the necessity for any organization to manage the use of ICTs to ensure that technology-mediated communications yield their positive effects of improving manager's autonomy, well-being and performance.

E-4

Personal Values and Well-being: The Role of Job Crafting

Carol Wong (George Mason University)

Problem. Values reflects the guiding principles about what is desirable to an individual, operating as broad motivational goals (Schwartz, 1992). Sagiv, Roccas, and Hazan (2004) proposed three perspectives that examine how values are linked to well-being. Particularly, the "goal-attainment" perspective suggests that well-being is influenced by the extent to which people are able to attain values that are important to them. Holding a value does not imply that one can attain it, as circumstances might not allow them to fulfil such a value. Empirical evidence supports that when people perceived that they were able to attain personally important goals, their well-being improved (Oishi, Diener, Sue, & Lucas, 1999; Oppenheim-Weller, Roccas, & Kurman, 2014).

Since people spend considerable amount of time at their workplaces, choosing to act in accordance with their values at work can

be one way for employees to express their values (Bardi & Schwartz, 2003), which might, in turn, improve their well-being. One example is to engage in job crafting. Job crafting refers to employee-initiated effort targeted at seeking structural (i.e. pursuing professional development) and social resources (i.e., building better relationships with supervisors), increasing challenges (i.e., volunteering for more responsibilities), and reducing demands (i.e., avoid stressful customers; Tims, Bakker, & Derks, 2012). Job crafting allows employees to shape their jobs, namely job demands and resources, to fulfill their values.

Because people differ substantially in the relative importance they attribute to different values (Schwartz, 2012), their value hierarchy may serve as standards for choosing their crafting behaviors. By altering job demands and resources based on their values through job crafting, it can enrich employees' experience and promote well-being (Tims, Bakker, & Derks, 2013). The current study specifically examines work engagement and burnout as outcomes of job crafting, as they are important indicators of occupational well-being. Given that the job crafting definition centers around employees' intentions behind their behaviors, it is surprising that no research has examined how individual values influence job crafting, and, in turn, well-being.

Values, as identified by Schwartz (1994), form a circumplex structure of motivation, which is organized in two bipolar dimensions: self-enhancement versus self-transcendence, and openness to change versus conservation. Individuals who value openness to change pursue independent self-expression of thought and action (Schwartz, 1992, 1994). By seizing opportunities to alter their own roles and relationships at work, workers can exert control and express their personal values of welcoming changes through job crafting. In contrast, conservation refers to an individual's need for security and desire to follow social norms (Schwartz, 1992, 1994). Job descriptions are boundaries set by organizations. Altering job tasks and resources through crafting may be considered as violations of the norms set by authority figures (i.e. managers and the organizations). While crafting may not always be noticed by others, it can elicit ambiguity (Grant & Rothbard, 2013). Because they prioritize structure and are more prone to interpret ambiguity as threatening, employees with strong conservation values may not see a reason to job craft.

Self-enhancement, on the other hand, focuses on the pursuit of self-interest (Schwartz, 1992, 1994). Job crafting may allow employees to stand out within the workgroup, leading to potential personal benefits. For instance, seeking coaching from managers might gain employees additional information that promotes performance (Lam, Peng, Wong, & Lau, 2017). Fostering favorable work relationships can increase employees' influence at work (Thompson, 2005). Self-transcendence dimension of values reflects a primary interest in enhancing others' well-being (Schwartz, 1992). At work, such employees will be more likely to prioritize the welfare of the workgroup over that of themselves. For instance, volunteering for challenging tasks can enrich employees' own experience while helping others (Berg, Wrzesniewski, & Dutton, 2010), which might promote overall productivity. Employees with strong self-transcendence values may job craft to create better circumstances for others. Through job crafting in ways that align with their values, we propose that employees' well-being would be improved. Figure 1 depicts the conceptual model of the study.

Procedures and anticipated analyses. Full-time and part-time working students were recruited at a public university, and 306 participants were included in the final sample. Data will be analyzed in two steps with structural equation modeling (SEM) analyses using the R package "lavaan" (Rosseel, 2012).

Practical implications. Prior research has primarily examined personality as individual antecedents of job crafting (Rudolph, Katz, Lavigne, & Zacher, 2017). As values describe the intentions people pursue behind their behaviors, they might provide additional information for organizations to better understand which employees are likely to job craft. Such insight might enable them to provide crafting opportunities that can maximize positive effects on employees' well-being.

E-5

The Job Demands-Resources Model: Understanding the Impact of Job Characteristics on Healthcare Leaders

Nastassia Savage (Virginia Commonwealth University School of Medicine)

Problem Statement. The job demands-resources (JD-R) model is extremely popular in occupational health psychology and has been used across a multitude of occupations. Originally developed to understand the processes by which burnout occurs (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) through the categorization of job characteristics into demands and resources (Lee & Ashforth, 1996), it has been expanded and applied in a variety of contexts. Specifically, many of the recent applications of the JD-R model include some sort of outcomes (e.g., performance; Bakker, Demerouti, & Verbeke, 2004) and some also clarifies demands into those that are challenges (i.e., obstacles that, once overcome, are rewarding and worth the expended effort) and hindrances (i.e., obstacles that cannot be overcome, limiting the ability to do job tasks and draining energy; Cavanaugh, Boswell, Roehling, & Boudreau, 2000). These changes have provided a better understanding of how job characteristics impact an individual's affective states (e.g., burnout, engagement) and their effects on meaningful outcomes (e.g., mental and physical health, performance; Schaufeli & Taris, 2014).

Although this model has been used to better understand these processes in healthcare, it has focused on those on the front lines such as nurses and physicians, overlooking a key population in this area—the leaders. As such, this study applied the JD-R framework to understand how challenge and hindrance demands as well as job resources impact the affective states of healthcare leaders and the extent to which these states influence the leader's perception of their unit's performance. However, this study also adapts the model in the following ways. First, the unit's perception of their teamwork was used as a resource as better teamwork would encourage additional back-up behaviors from the team (Marks, Mathieu, & Zaccaro, 2001), potentially reducing the workload of the leader. Secondly, the JD-R has traditionally centered on emotional exhaustion and engagement as the primary affective states; this study considers the role of meaningful work rather than engagement as it is more relevant to healthcare workers (Leape et al., 2009) as healthcare is centered around patient care, which often provides employees in this environment with the feeling that their work is meaningful, making it a more suitable affective state for this context. Finally, this study uses the leader's rating of their unit's performance as its primary outcome as it may be influenced by the leader's behavioral modeling and emotional contagion as well as through mood-congruent bias. For the specific hypotheses proposed and hypothesized model, see Table 1 and Figure 1 respectively.

Procedures. To test the hypotheses, two sets of survey data were analyzed: an employee engagement survey of all system employees and a leadership survey of healthcare leaders. Job resources was assessed

by items identified by subject matter experts as reflecting the unit's perception of their teamwork and was collected via the engagement survey; all other measures were collected within the leader survey via validated scales. There was sufficient support for aggregation of the unit's perception of teamwork (i.e., the resource) and the datasets were merged. To ensure the results reflected the impacts of job characteristics on leaders' affective states and minimized the effects of individual differences, leaders' resilience was included as a control.

Results. The correlations among study variables, their means, standard deviations, and Cronbach's alphas are included in Table 2. The MPlus path analysis results are shown in Figure 2 and the final model in Figure 3.

Practical Implications. The study results provide the first glimpse into understanding how job characteristics impact the emotional exhaustion and meaningful work that healthcare leaders experience, allowing for the development of targeted interventions. Specifically, by focusing on reducing both the hindrance and challenge demands that leaders experience, organizations may be able to reduce their emotional exhaustion directly and indirectly through perceptions of meaningful work. These results also suggest that supplemental training to improve individual resilience may further bolster these effects and improve leaders' emotional exhaustion and meaningful work. Additionally, the use of the unit's perception of their teamwork may be a less impactful resource for leaders and more salient resources ought to be assessed in both research and practice.

Conclusions. Overall, this study provides an important insight in the impact of job characteristics on the affective states of healthcare leaders, an oft-overlooked and important population. It also expands the JD-R model by using a unit-level variable (i.e., perception of teamwork) as a leader's resource and using meaningful work, rather than engagement, given its importance in healthcare. This study also considers how leaders' affective states (i.e., emotional exhaustion, meaningful work) impact their perception of their unit's performance, a particularly relevant outcome for both leaders and the healthcare environment as it often involves patient care. These results provide direction for interventions (i.e., reducing hindrance and challenge demands, supplemented with resilience training) and are a first step into understanding these processes in healthcare leaders.

E-6

Using the Health Belief Model to Predict Employee Wellness Participation

Adam Butler (University of Northern Iowa)

Employee wellness programs are commonly implemented in the workplace to improve employee health and reduce employee health risks. However, participation rates in these programs can be low (Mattke et al., 2013; Robroek et al., 2009). The goal of the present study was to examine relevant employee beliefs, as specified in the health belief model (Champion & Skinner, 2008), as predictors of participation in an employee wellness program.

The health belief model is a well-supported model for predicting health-related behavior (Champion & Skinner, 2008). The model specifies a number of factors that predict health behavior, including perceived health problem severity, susceptibility to health problems, benefits and barriers to engaging in the health behavior, self-efficacy, and action cues. Prior occupational health research has found that model components predict participation in healthy behaviors or programs (e.g., Schwetschenau et al., 2008; Sloan & Gruman, 1998). We predicted that perceived threats (i.e., severity and susceptibility), perceived benefits, and perceived barriers would predict past and planned future participation in an employee wellness program.

Method. Sample. Participants (N=556) were recruited through an employee email listserv at a public university in the U.S and responded to a web-based survey. The response rate is estimated at 32%. The average age of participants was 46.8 years and 68% were women.

Measures. Controls. Age, gender, and overall health were used as control variables.

Wellness participation. Participants rated single items regarding their past participation and planned future participation in the wellness program.

Perceived threat. Three questions (a = .79) targeted perceived threat, including if participants worried about their health, believed their health should improve, and believed there would be consequences if health did not improve.

Perceived benefits. Three questions (a = .84) targeted perceived benefits including if participants saw the benefit of participation, if they believed the programs would improve their health, and if they believed there were positive outcomes associated with participation.

Perceived barriers. Three questions (a = .76) asked participants to rate their agreement to statements related to lack of time to participate, being too busy to participate, and not knowing enough about the wellness programs to use them.

Results. Past participation and planned future participation were found to be positively correlated (r = .61) indicating that if individuals had already taken part in the employee wellness program, they were more likely to plan to do so again. Perceived benefits and perceived threat were positively correlated (r = .23) which may suggest that as belief in susceptibility and severity of health threats increases, employee beliefs in wellness program benefits also increase. Finally, perceived benefits and barriers were negatively correlated (r = -.34) indicating that as belief in the effectiveness of wellness programs decreases, the perceived barriers to participation increase.

Hypotheses were tested using multiple regression analyses with age, gender, and overall health entered as controls, followed by the health belief model factors. Consistent with the model, perceived threat was positively related to past participation (B = .12, p < .01) and planned future participation (B = .16, p < .001). Perceived benefits were positively related to past participation (B = .34, p < .001) and planned future participation (B = .45, p < .001). Finally, perceived barriers were negatively related to past participation (B = -.33, p < .001) and planned future participation (B = -.24, p < .001). The health belief factors explained an additional (over controls) 31% of the variance in past and 37% of the variance in planned participation.

Discussion. The principle finding of this study is that the health belief model is a good predictor of participation and planned participation in an employee wellness program. Specifically, an employee's perception of health threats, as well as perceived benefits and barriers to the wellness program, predict the employee's past and planned future participation. Organizations wishing to increase employee wellness participation may try highlighting the benefits of the program while eliminating barriers; these two factors would make good targets for an intervention experiment designed to increase wellness participation.

E-7

Workplace Physical Activity and Cognitive Performance: A Review and Recommendations

James Kunz (Colorado State University)

Physical activity (PA), defined as "any bodily movement by skeletal muscles requiring energy expenditure" has been found to improve physical and psychological health outcomes (World Health Organization, 2019; Sagar et al., 2015; Rebar et al., 2015). Additionally, sedentary behavior, such as prolonged sitting at work, is associated with negative health outcomes such as cardiovascular disease and diabetes (Wilmot et al., 2012). Therefore, active workstations may be efficacious in increasing PA and consequently improving employees' health and well-being. In fact, active workstations such as treadmill desks have been shown to improve both physical outcomes such as weight (Torbeyns, Bailey, Bos & Meeusen, 2014) and psychological outcomes such as task satisfaction (Sliter & Yuan, 2015).

In addition to benefiting employees, active workstations may be beneficial for employers as employee PA is inversely related to absenteeism (Van den Heuvel et al., 2005; Laaksonen, Piha, Martikainen, Rahkonen & Lahelma, 2009). PA is also associated with improved cognitive performance, which may mutually benefit employees and employers (Northey, Cherbuin, Pumpa, Smee, & Rattray, 2018). Although it is clear that the use of active workstations increases physical activity, and despite the well-established cognitive benefits of physical activity, the evidence regarding cognitive benefits of active workstation use remains mixed. (Ohlinger, Horn, Berg, & Cox, 2011; Labonté-LeMoyne et al., 2015).

The present paper aims to review findings regarding the beneficial and detrimental effects of active workstations on cognitive variables within different contexts (e.g., during active workstation use or after). It is essential to have a thorough understanding of the efficacy of active workstations in improving cognitive performance variables so employees can reap the maximal benefits from such workstations and avoid potential negative effects of active workstations on productivity. Similarly, it is important for employers to know the effects of active workstations on cognitive variables in different contexts so they can invest their resources in the most appropriate types of workstations for their employees' well-being and performance.

Consequently, though there are prior reviews of the effects of active workstations on cognitive performance variables, such reviews have not outlined all of the relevant contextual variables related to the effects of active workstations on cognitive performance variables (Neuhaus et al., 2014; Benatti & Ried-Larsen, 2015; Ojo, Bailey, Chater, & Hewson, 2018). Thus, the present paper will attempt to delineate the relevant contextual variables (e.g., type of equipment such as treadmill desk or pedal desk) from prior research, especially considering when cognitive performance variables are measured in research studies. For example, measurements of cognitive variables may be conducted while participants are utilizing active workstations, immediately after using active workstations, or after a delay following use of active workstations. For instance, the time at which attention is measured such as while using an active workstation or afterward is especially important for interpreting the effects of active workstations on attention (Commissaris et al., 2014; Labonté-LeMoyne, 2015).

Most studies have found no change in cognitive variables in either direction resulting from the use of active workstations (Neuhaus et al., 2014; Ojo et al., 2018). However, researchers have rarely contrasted the simultaneous effects of active workstation use on cognitive performance variables with the delayed effects (e.g., 10 minutes after) of using an active workstation on cognitive variables (Neuhaus et al., 2014; Ojo et al., 2018). Research testing for a spontaneous effect of active workstation use on cognitive performance has failed to find a difference (John, Bassett, Thompson, Fairbrother & Baldwin, 2009) though other research testing for a delayed effect did find an improvement (Labonté-LeMoyne et al., 2015). Our presentation will also present recommendations for future research such as the effects of active workstations on new cognitive variables.

E-8

Free and Fair: Autonomy and Justice Perceptions of Traditional vs. Contract Workers

Xue Lei (George Mason University)

Gig, nonstandard, or contract workers have become an increasingly large class of workers in both the United States and worldwide (e.g., BLS, 2017; Manyika et al., 2016). While there has been research suggesting job satisfaction of such workers is similar or slightly higher than standard full-time workers (Wilkin, 2012), the focus of such research has been generally on job insecurity and income level (De Cuyper, Notelaers, & De Witte, 2009; Jahn, 2015). Following others that have suggested the importance of work characteristics for contract workers (Rockmann & Ballinger, 2017), we extend our understanding of how such characteristics impact job satisfaction by comparing autonomy perceptions among contract and traditional workers. We further add to our understanding by exploring how organizational justice is perceived among contract and traditional workers. We argue that contract workers conceive of their jobs and their work differently than traditional workers. Because of those differences they are in some ways more, but in other ways less, susceptible to factors that impact job satisfaction. Building upon relevant theories, we develop two hypotheses below.

Self-determination theory states that autonomy is a major and common psychological need for individuals and should be important to both types of workers (Ryan & Deci, 2000). However, as "autonomy", "flexibility", "be one's own boss", are the top reasons cited in the literature regarding why independent contractors chose such kind of work arrangement (e.g., IBM, 2014; Manyika et al., 2016), autonomy should have a greater impact on independent contractors' rather than traditional employees' job satisfaction.

Hypothesis 1: Autonomy-related factors will be more important to predicting job satisfaction in independent contractors than in employees.

Three types of organizational justice have been proposed in the literature, i.e., procedural (whether the decision-making process is fair and free of bias), distributive (whether the outcome of distribution is fair), and interactional (interpersonal interaction is fair) (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). All of these have been shown to impact important organizational outcomes including job satisfaction (Colquitt et al., 2001). To compare the importance of these justice factors to job satisfaction between employees and independent contractors, social comparison (Festinger, 1954) and psychological contract theory (Rousseau, 1989) can be applied. On one hand, organizational factors traditional employees are exposed to are broader and more far-reaching than those that contractors are exposed to, thus traditional employees are more susceptible to perceiving these three types of injustice. It is the traditional, not contract, employees who have coworkers and long-lasting relationships that invite such fairness comparisons.

Further, traditional employees are nested within organizational systems and layers of management that can be seen as unfair; a problem that contract workers are less likely to face. This is supported by the notion that the psychological contracts of contingent workers are more transactional in nature and contain less social-emotional aspects (McLean Parks, Kidder, & Gallagher, 1998; Connelly & Gallagher 2004). Thus, traditional workers are likely to form higher expectations regarding the level and scope of justice they should receive compared to contract workers.

Hypothesis 2: Organizational justice-related factors will be more important to predicting job satisfaction in employees than in independent contractors.

Method. We used data from the General Social Survey (Smith, Davern, Freese, & Hout, 2016) in year 2002, 2006, 2010, 2014 with information on work arrangements and job satisfaction. A total of 4542 standard/traditional workers (classified as "regular, permanent employee") and 717 independent contractors (classified as "Independent contractor/consultant/freelancer") were included in the analysis. The importance of these factors was compared using subset hierarchical regressions in SPSS 21. Collinearity statistics were examined to ensure no severe multicollinearity problems exist.

Results. Although not hypothesized, we found that job satisfaction is higher in independent contractors (employees: Mean = 1.69, SD = 0.75; contractors: Mean = 1.46 , SD = 0.65; $t = 8.92$, $p < .01$; See Note 1). Contrary to Hypothesis 1, autonomy-related variables predicted additional variance in job satisfaction for traditional employees, not contractors (see Table 1). Supporting Hypothesis 2, justice-related factors predicted additional variance in job satisfaction for traditional employees as compared to independent contractors (see Table 2 and Note 2).

Discussion. The results suggest that employees and independent contractors conceptualize work differently, may have different comparison processes and referents, and form different expectations of organizations' obligations, which combine to influence their work attitudes. The unexpected finding that autonomy seems to be more important to traditional employees may be due to the fact that employees often lack the autonomy to change their work schedule or when and where they can perform the job, thus, their autonomy needs are less fulfilled.

For future research, the specific content of comparison process and referents for contractors and other types of nonstandard workers could be further examined. Potential moderators may also exist in the relationship, such as the length of projects/tasks and frequency of interactions between employees and contractors.

E-9

An investigation into primary care providers' adherence to NICE breast cancer guidelines during shared decision-making consultations

John Galvin (Birmingham City University)

The aim of this project is to investigate Primary Care Providers (PCPs) adherence to NICE clinical guidelines during shared decision-making consultations for breast cancer screening. To achieve this, the specific aims of the project include:

1)Identification of the factors associated with adherence to NICE clinical guidelines for breast cancer screening

2)To measure levels of adherence

3)Identification of the facilitators/barriers to the implementation of the guidelines

4)To assess the most effective intervention(s) for behaviour change. Factors affecting shared decision-making during breast screening consultations. A challenge for healthcare providers is to know the most suitable way to present information about screening in a clear and understandable way. This is particularly the case when considering diverse populations, with patients of differing ages, ethnicities, cultures, socioeconomic backgrounds, group memberships, beliefs and values. Recent research has investigated many of these factors (e.g. Keating & Pace, 2018; Mathioudakis et al. 2019; Pashayan et al., 2018; Schrager & Burnside, 2019) and this can help PCPs in their benefit/cost risk assessment and shared decision-making.

However, the focus should not solely be on individual patient factors. It is equally important to consider the PCPs practices during the shared decision-making process. This has been demonstrated in research showing that a recommendation from a PCP is one of the most influential factors affecting the patient's decision (Calvoressi et al., 2004; Lee, Lim & Park, 2010), and greater interaction with PCPs is associated with increased participation in screening mammography (Flores et al., 2019). Therefore, the PCPs practices are important, because they are highly influential to the patient's decision.

PCPs practices during the shared decision-making process. In the UK, PCPs non-adherence to NICE clinical guidelines has been reported in a variety of medical settings such as mental health (Howes et al. 2012), GP practices (Wathen & Dean, 2014), and fertility clinics (Kim, Child, & Farquhar, 2015). Investigating what underpins non-adherence to NICE guidelines is a necessary step in understanding shared decision-making practices, because consideration can then be given to certain practices which might need to be changed, and how best to change them.

The study of shared decision-making practices for breast cancer screening is also of international relevance. Studies in the US have shown poor implementation of, and a lack of, shared decision-making. In Fowler's (2013) study it was found that clinicians rarely discussed the pros and cons of screening with their patients, and many patients reported that they did not realise they had a choice in the matter. Hoffman (2014) reported similar findings, with most shared decision-making discussions appropriately addressing the pros of screening but very few addressing the cons, and only between 27-38% of participants reported shared decision-making.

Applying COM-B to adherence to NICE clinical guidelines for breast screening . An increasingly popular behaviour change framework is the COM-B model (Michie et al., 2011). In this model, it is proposed that behaviours (B) are determined by an individual's capability (C), opportunity (O) and motivation (M). Our depiction of the model as it relates to adherence to NICE guidelines on Breast Cancer Screening is shown in figure 1.

The COM-B model is central to the Behaviour Change Wheel (BCW; Michie et al., 2011), a systematic method which focuses on understanding the nature of the behaviour to be changed. It is described in figure 2.

The BCW proposes that behaviour change is achieved through various intervention functions (i.e. education, training, restrictions, persuasion, incentivisation, coercion, enablement, modelling and environmental restructuring) and policy initiatives (i.e. guidelines, environmental/social planning, communication/marketing, legislation, service provision, regulation and fiscal measures).

Plan of investigation. Stage one of the research will involve conducting a Cochrane systematic review. The objective of the review will be to identify the factors associated with PCP non-adherence to NICE guidelines. Identified factors will be assigned to the COM-B categories; Capability, Opportunity, and Motivation (while recognising that some factors will have specific effects on different categories, and other factors may not easily fit within the existing categories).

Stage two of the project will involve the student conducting a qualitative study exploring PCPs lived experience of delivering NICE guidance during breast cancer screening consultations. This can help to further identify capability, opportunity and motivation factors specific to breast cancer screening consultations, in an attempt to refine the themes identified in stage one of the project and identify further barriers and facilitators specific to breast cancer screening.

Stage 3 of the project builds on stages one and two through the construction and administration of a self-report questionnaire to measure adherence to NICE guidelines during breast cancer screening consultations. The construction of questions will be based on capability, opportunity and motivation factors identified in stages one and two of the project.

E-10

Differential mental health consequences of strikes and lockouts

Connie Deng (University of Calgary)

Involvement in industrial relations processes, from everyday activities such as policing the terms of a collective agreement through participating in industrial action, has implications for unions and their members, management and their organizations, and even the public. From an individual perspective, involvement in industrial action such as going on strike or being locked out by management can affect the psychological well-being of union members. However, current understanding of the potential differential psychological consequences of industrial action is limited. The purpose of this study, therefore, is to examine how the specific nature of industrial action (strikes vs. lockouts) affects members' mental health. The current study used a serendipitous design to examine how the specific type of industrial action (strike vs. lockout), with everything else being largely equal, affected union members' mental health six months after industrial action completed.

Industrial relations involvement can be a form of stressor for those involved. For example, Barling and Milligan (1987) found that negatively perceived industrial relations events predicted detrimental changes in post-strike psychological well-being two and six months later. More recently, Fowler, Gudmundsson, and Whicker (2009) investigated the relationship between psychological well-being and the individual's involvement with union activity during a strike. Specifically, strikers and non-strikers were examined, with those authors finding that that strikers reported higher levels of depression, anxiety, and irritation than non-strikers. These results demonstrated that those involved in strikes exhibit lower levels of mental health. Additionally, Bluen and Jubiler-Lurie (1990) simulated labor-management negotiations and found that those involved in the negotiations experienced greater negative changes in anxiety. While that study examined a singular event, other practices associated with industrial relations may occur over an extended period. For example, industrial action may last for a period of time such as a strike or lock-out. As such, labor disputes in which employees or management seek industrial action by taking the form of a strike or initiating a lockout can also be stressful. Going on strike—that is, when the union and its members refuse to work—often involves major role changes from employee to picketer. Similarly, in lockouts, employees are prevented from striking due to management initiating action preemptively—by literally locking employees out of the premises preventing employees from working.

In a formal strike situation, unions would first seek the support of their membership, ensure that they have the legal right to go on strike, and then withdraw their labor in an attempt to influence the direction of negotiations and collective bargaining. In contrast, in a lockout, management pre-empt the union by seizing control of the situation. While strikes can be stressful, they still offer workers an opportunity to exert control over their work situation by influencing the context in which disputes can be settled. However, felt personal or collective control is reduced dramatically during a management-imposed lockout. This is a crucial distinction, as employees who are locked out of work may well experience a sense of loss of control, as well as an increase in the degree of external threat, both of which are associated with reduced psychological well-being more generally. As such, different forms of industrial action such as strikes and lockouts may well exert different outcomes in terms of employees' psychological well-being.

In the present study, we compared the effects of a strike and a lockout on members' psychological distress 6 months after industrial action was resolved. Participants were 156 secondary school teachers. All respondents in this study were full-time teachers and members of the same union, but were employed by one of four different school boards. Six months prior to survey administration, both school boards had experienced the same industrial relations negotiation process, both had a settlement imposed on the same day by back-to-work legislation, but differed on the type of industrial action taken: members of one board went on a 4-week strike, while members of the other board were "locked out" by board management for 4 weeks. As a result, this enabled a between-subjects comparison of the mental health consequences of two different types of industrial action. Our results found that compared to members who went on strike, members locked out reported lower mental health (i.e., higher levels of context-free psychological distress) 6 months after being legislated back to work.

Given that our results suggest negative effects of imposing a lockout on employee psychological distress, practical implications include cautioning about the consequences of different types of industrial action.

Workplace Stress and Related Outcomes

F-1

Exploring the Role of Personal Resources in the Decision to Buy Time

Kristi Lavigne (Saint Louis University)

At the core of several stress and psychological resource theories is the notion that individuals' resources are limited (Gorgievski, Halbesleben, & Bakker, 2011). Conservation of Resources (COR) theory (Hobfoll, 1989) offers several postulates for how people manage these limited resources to maximize net resources and reduce stress. Leveraging COR theory, the Personal Resource Allocation (PRA) framework (Grawitch et al., 2010) typologizes resources into three basic categories: time, energy, and financial resources. Whillans and colleagues (2017) argued that buying time resources (e.g., lawn service, online shopping) with disposable financial resources may be an effective

way of managing limited resources, though little is known about this phenomenon.

We designed a study to expand the buying time concept, positioning it within the PRA framework (Grawitch et al., 2010), with the aims of (1) exploring appraisals of financial, time, and energy resources and demands (2) assessing the degree to which these appraisals relate to buying time attitudes and behaviors, and (3) determining the influence of these appraisals and buying time attitudes and behaviors on well-being.

Within the PRA framework, buying time becomes a way of expending financial resources to protect time and energy resources, and can be considered a form of instrumental support. Those who perceive more time or energy demands should be more likely to buy themselves out of time demands. Additionally, those with more financial resources available should be more capable of buying time and, thus, more likely to do so. Lastly, PRA posits that resource allocation effectiveness plays a pivotal role in well-being outcomes (Grawitch et al., 2010). Spending money to buy time and perceived control over time have been linked to reduced stress and greater subjective well-being (Whillans et al., 2017; Claessens et al., 2004). Thus, we expect buying time attitudes and behaviors to positively predict subjective well-being.

Method. Participants and Procedure. Participants at least 18 years of age were recruited from Amazon's Mechanical Turk (MTurk) to participate in an online study. A total of 495 respondents were included in the final analyses (42.9% male; Mage = 39.28; 73.6% employed full-time), with wide variability in annual income (less than $50,000 to above $100,000).

Measures. Appraisals of Demands and Resources. All respondents were asked to respond to three items relating to demands and three items related to resources. A sample item is "In general, I would evaluate the demands on my time (or energy or financial resources) as:" – with a 4-point response scale ranging from 0 (Not at all excessive) to 3 (Very excessive) for items pertaining to demands and 0 (Not at all sufficient) to 3 (Very sufficient) for items pertaining to resources.

Buying Time Attitudes and Behaviors. All respondents completed a 4-item buying time attitudes scale and a one-item general buying time behaviors measure developed by the authors. A sample item for buying time attitudes is "Spending money to protect my time/energy is well worth the cost," scored on a 5-point scale ranging from 1 (Seldom true) to 5 (Very often true). The alpha reliability of the 4-item attitudes scale was .84. The behavioral item solicited responses about the frequency of buying time (i.e., "I regularly spend money on services that protect my time/energy (such as housekeeping services, grocery delivery, online shopping, lawn mowing services)."

Stress. Stress was measured using the 10-item version of the Perceived Stress Scale as in Study 1. The alpha reliability estimate was .91.

Life Satisfaction. Life satisfaction was measured using the 5-item Satisfaction with Life Scale as in Study 1. The alpha reliability estimate was .91.

Results. Buying Time Attitudes and Behaviors. Self-reported time demands predicted buying time attitudes, whereas self-reported financial resources predicted buying time behaviors. Hierarchical regression results indicated that financial resources appraisals and buying time attitudes explained 26.7% unique variance in general buying time behaviors (Table 1).

Perceived Stress and Life Satisfaction. Demands, resources, and buying time behaviors and attitudes were examined as predictors of well-being indicators (see Table 2). Appraisals of demands and resources (time demands; energy and financial resources) explained a total of 33.5% variance in perceived stress. For life satisfaction, only appraisals of resources (25.2%; energy and financial) explained significant variance in life satisfaction. Interestingly, buying time behaviors and attitudes were not correlated with well-being indicators.

Conclusion. The study aimed to integrate the personal resource allocation (PRA) framework (Grawitch et al., 2010) with the buying time research paradigm employed by Whillans et al. (2017). Results indicated that appraisals of demand and resources, as well as time-buying attitudes and behaviors, are differentially related to well-being outcomes (i.e., perceived stress and life satisfaction). Consequently, more nuanced typologies (as afforded by the PRA framework) may provide a more in-depth account of how individuals self-regulate demands and resources and how this resource allocation influences various facets of well-being.

F-2

The Role of Leisure Interaction Partners for Job-Stress Recovery Experiences

Carolyn Winslow (University of California Berkeley)

Introduction. Daily recovery from work is essential for maintaining employee well-being. According to Sonnentag and Fritz's (2007) model, off-job leisure activities promote recovery through four central experiences: 1) psychological detachment, 2) relaxation, 3) mastery, and 4) control. Extensive research has documented the importance of these recovery experiences for well-being (Bennett, Bakker, & Field, 2018), yet the specific nonwork contextual factors that may promote these experiences remains unclear. One relevant factor may be with whom the person is spending leisure time. Although interactions with one's spouse or partner can be an important driver of recovery experiences, these same interactions during non-work time can also be a significant source of stress. Specifically, interactions with one's spouse or partner - including during leisure time - may frequently involve discussions of shared non-work responsibilities and stressors (e.g., discussing finances, childcare arrangements, and dual-career issues), making leisure time with these individuals less conducive to recovery. Indeed, per Demerouti, Bakker, and Sanz-Vergel (2014), "The view of home and family as a place of rest and recuperation might be more of a risk than a reality for many employees" (p. 230). In contrast, because friendships typically do not involve these types of shared responsibilities and stressors, interactions with friends are less likely to involve discussions of such stressors.

Therefore, in this study, we evaluated in an exploratory manner how leisure promotes recovery experiences (i.e., detachment, relaxation, mastery, and control) when people are interacting with a friend versus their spouse/partner. Generally we expected that, friends may serve a unique role in facilitating recovery experiences compared to spouses/partners because interactions with friends are not accompanied by the same non-work stressors and thus may provide a more optimal context for experiencing recovery.

Method. We used a form of Day Reconstruction Methodology (DRM; Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004) to assess and compare people's recovery experiences when engaged in leisure activities with a friend or a spouse/significant other. Participants were working adults (recruited from Amazon Mechanical Turk) who reside in the U.S., work full-time and reported engaging in leisure activities the prior day.

Those who met these inclusion criteria reconstructed their previous day into a series of episodes and indicated who they interacted with during each episode (i.e., a friend, spouse or partner, parents/relatives, coworkers, and/or children). Participants were subsequently asked to complete measures assessing the extent to which they experienced detachment, relaxation, control, and mastery in each reported leisure activity. Specifically, this portion of the DRM asked participants to indicate the extent to which they felt they "forgot about work" (psychological detachment), felt "relaxed," felt "capable" (mastery), and felt "a sense of choice and freedom" (control). To minimize concerns that results would be confounded by the type of activity a person engaged in with one's spouse or friend, we compared recovery experiences when with one's spouse/partner and a friend within similar types of leisure activities: passive leisure (i.e., watching TV) and active leisure (e.g., physical activity, creative exercises).

To address the research question, we divided the episodes into those involving watching TV versus other more active forms of leisure; and further, into those experienced with friends only and with spouses/partners only (Ns range from 85-176).

Results. We conducted t-tests to compute mean level differences across the four recovery experiences when participants were engaging in passive and active forms of leisure with a friend versus a spouse/partner. When engaging in active forms of leisure, participants reported feeling significantly more detached from work when with a friend ($M = 8.83$; $SD = 2.45$) versus when with a spouse/partner ($M = 8.08$; $SD = 3.16$), $p = .04$. Participants reported feeling significantly more capable (i.e., exhibited greater levels of mastery) when engaging in passive leisure with a friend ($M = 8.51$, $SD = 2.91$) versus when with their spouse/partner ($M = 8.16$; $SD = 2.42$), $p = .023$. Results were not significant for the other recovery experiences.

Discussion. We found that people are better able to psychologically detach from work when with a friend, particularly when engaging in relatively active forms of leisure. This finding extends existing theory and research on detachment (e.g., Sonnentag & Fritz, 2015) by highlighting that the ease of detaching from stressors may be a function of who the person is interacting with. In addition, we found that people feel more capable when engaging in passive leisure with a friend. This finding aligns with previous studies (e.g., Kahneman et al., 2004) and may point to the special role that friendship interactions, which are voluntarily chosen, play in enhancing self-esteem and the feelings of mastery/competence that self-esteem typically entails. From a practical standpoint, these results suggest that choice of leisure interaction partner may be important considerations for people seeking to cultivate job stress recovery.

F-3

Examining the Relationship between Physical Exercise, Physical Activity, Coping Mechanisms, and Stress Tolerance: Development and Validation of the Stress Tolerance Questionnaire.

Gage Ammons (Northern Kentucky University)

Occupational stress has been a focal point of academic research for decades. High levels of stress are one of the more prevalent occupational-related illnesses encountered in today's workplace. Workplace stressors can negatively impact both performance and health. Research has shown stress is associated with lower productivity, higher absenteeism, increased healthcare costs, and a reduced immune system functioning (Clark et al., 2013; Pedersen & Saltin, 2015; Sliter, Sinclair, Cheung, & McFadden, 2014).

We define stress tolerance as the variance in an individual's ability to withstand stressful situations. Stress tolerance could also be considered stress sensitivity or stress resiliency; however, we have taken an objective approach when measuring stress tolerance whereas most research is personality based (e.g., Treglown, Palaiou, Zarola, & Furnham, 2016). Those who are less tolerant of stressors are more likely to exhibit more strains, whereas those who are more tolerant are likely to exhibit less strains. Using objective stressors (i.e., life events) and subjective stressors (i.e., perception of stress caused by workplace stressors), we have created a ratio, by summing stressors and dividing by strains to produce a stress tolerance score (Bland, Melton, Bigham, & Welle, 2014).

We developed our measure after reviewing the literature, conducting cognitive interviews with multiple subject matter experts, and piloting our survey with our target demographic (i.e., working adults). Our final scale was comprised of 5 scales consisting of 165 items which measured stressful life events (44), workplace stressors (41), instances of strains (38), coping mechanisms (38), and levels of physical exercise and activity (4). Five-point Likert type response formats were used for life events, workplace stressors, strains, and coping mechanisms. Levels of physical exercise and activity were measured by taking the product of each participant's self-reported average intensity and number of days engaged in said event. Our sample was 352 working adults, who were recruited through Qualtrics, where participants were compensated for their participation based on their individual preferences (e.g., airline miles or gift cards).

Exploratory factor analysis was used to develop models for each individual scale, in which six life events (uninterpretable, 73.91% variance explained), two workplace stressors (labeled as eustress and distress, 45.90% variance explained), one strain (47.20% variance explained), and two coping mechanisms (labeled as proactive and emotional-avoidance coping, 43.28% variance explained) factors emerged. Afterwards, the newly uncovered life events, workplace stressors, and strain factors, which is the framework for the theorized stress tolerance model, were aggregated and a new exploratory factor analysis was used to determine if each subscale of stress tolerance is a unique, valid, and independent construct. This analysis resulted in four life events factors, two workplace stressors, and one strain factor. Two life event factors fell out of this model due to poor reliabilities. In other words, the final stress tolerance model (70 items, 7 factors, 56.10% variance in strains explained) included factors with acceptable reliabilities across all factors (Cronbach's alpha ranged from .703 to. 951).

Path analyses and multiple regression analyses were conducted, using item sums as factor scores, to test the theorized relationships of the stress tolerance model (i.e., life events with strains, workplace stressors with strains, and life events with workplace stressors). The significant relationships were aggregated into the stress tolerance model. The relationships of both coping styles and the different intensities and methods of physical exercise and activity with stress tolerance were added to the stress tolerance model. The final model consisted of only significant relationships and explained 57% of the variance in strain, the model included the following predictors: emotional-avoidance coping, distress, and the composite life events. The data showed no support for any mediation or moderation effects of physical exercise (i.e., aerobic, anaerobic, and flexibility/stability) or physical activity on the stress tolerance construct.

Current management practices aim to reduce distress by increasing eustress, however, our data surprisingly showed eustress to be a significant, positive predictor of distress, which is a significant, positive predictor of strain. In other words, the indirect effect of eustress on strain is 112. Although indirect through distress and weak but significant, eustress in this study predicted 5.5% of variance in strains. Additionally, emotional-avoidance focused coping significantly predicted both eustress and distress, whereas proactive coping only predicted eustress. Emotional-avoidance coping exhibited direct effects on both strain and distress, therefore, we can also infer that this relationship is partially mediated through distress.

The current study found initial support for these newly created measures. Additional research (CFA) is needed to further validate each scale and the theorized stress tolerance model (SEM). Additional research is also needed on the types of coping styles.

F-4

A Portrait of California's Workforce: Mental Health Status, Family Relationships, and Hours Worked

Ashley Parks (California Baptist University)

A variety of studies have been conducted to understand the relationship between work and stress. However, there is a need for additional research and understanding regarding the association between long hours worked and increased stress in workers and their families. A sample drawn from the 2016 California Health Interview Survey (CHIS) adult survey (n=1200) was utilized in order to investigate the differences in self-reported psychological distress across categories of employment (full time, part time, and unemployed categories) as well as self-reported hours worked. The Adult CHIS survey is an annual cross-sectional survey conducted via random digit dial telephone outreach. Self-reported psychological distress was defined using the Kessler 6 scale from several questions used to then create a calculated variable ranking psychological distress from 0-24. The utility and validity of the Kessler 6 instrument and scale have been examined thoroughly (Mitchell & Beals, 2011). Self-reported hours worked were recorded in full hour increments from a minimum of 0 to a maximum of 95 hours per week.

For this study, several research questions were addressed to identify possible associations and differences between levels of employment and self-reported serious psychological distress. A Pearson correlation illustrated a strong association (r=0.76) between hours worked (0-95/per week) and self-reported psychological distress as measured by the Kessler 6 scale (p=.01). The strong association was also clear when examining males (n=513, r=0.72) and females (n=687, r=0.81) separately. In addition to examining the strength of association between actual self-reported hours worked, a One-Way ANOVA was also utilized to compare mean differences in psychological distress (Kesler 6) scales across work categories. A statistically significant difference in self-reported levels of psychological distress across work categories was found (p=.024) with full-time workers reporting higher mean levels of psychological distress. A potential association between hours worked and family life impairment was also explored using a Pearson correlation revealing a moderate association of 0.37. The potential for family life impairment associated with increased hours worked was much greater for female respondents (r=0.49).

While the association between hours worked and serious psychological distress is not surprising, the illustration of this association in the nation's largest state-wide health survey, underscores the importance of providing employees access to resources to prevent and manage stress.

F-5

Do Associations between Psychological Distress and Salivary Cortisol Vary by Gender?

Anna Mnatsakanova (NIOSH)

Statement of the Problem: Police officers are exposed to higher rates of traumatic and non-traumatic work stressors. These trigger activation of the biological system known as the hypothalamic-pituitary-adrenal (HPA) axis, which responds to a stressor by releasing cortisol through the adrenal cortex. Dysregulated levels of cortisol may be detrimental to one's health. The relationship between psychological stress and cortisol levels has been examined extensively. Studies investigating associations between post-traumatic stress disorder (PTSD) and cortisol levels have predominantly reported lower cortisol levels among individuals experiencing PTSD (Pan et al., 2018; Meewisse et al., 2018). Research differentiating these associations by gender is limited. The aims of this cross-sectional study were to examine the associations of perceived stress, anxiety, and PTSD with salivary cortisol parameters in urban police officers, and to assess the role of gender in these associations.

Procedures. Participants were police officers from Buffalo, NY (n=320). Questionnaires were used to assess demographic characteristics, perceived stress, anxiety, and PTSD symptoms. Participants provided saliva samples (four waking samples [upon awakening, and 15, 30, and 45 minutes, thereafter], lunch, dinner and bedtime) to measure levels of cortisol secretion. The samples were used to derive the following parameters: area under the curve with respect to increase (AUCI) from the four waking samples as a measure of the cortisol awakening response, and total area under the curve (AUCG) from all seven samples as a measure of the diurnal response (Fekedulegn et al., 2007). Perceived stress was measured using the Perceived Stress Scale (Cohen, Mamarck & Mermelstine, 1983). The 14-item scale assesses global, not event-specific, stress levels. Participants rate each item on a five-point scale based on the frequency at which a particular event was experienced during the past month: 0 (never) to 4 (often). The total score is the sum of all 14 items, ranging from 0 to 56. Anxiety was assessed using the Beck Anxiety Scale (Beck & Steer, 1990), a 21-item instrument measuring self-reported anxiety symptom severity using a 4-point scale: 0 (not at all) to 3 (severely). Fourteen items measure somatic symptoms of anxiety; the remaining items measure cognitions specific to anxiety and panic, but not depression. The overall score is a sum of all 21 items, ranging from 0 to 63, with higher scores indicating more anxiety. PTSD symptoms were assessed using the PTSD Checklist—Civilian version (PCL-C). The PCL-C is a 17-item questionnaire designed to measure the self-reported severity of PTSD symptoms experienced in relation to traumatic incidents in the past month (Ruggiero, Ben, Scotti, & Rabalais, 2003). Each item is scored on a five-point scale: 1 (not at all) to 5 (extremely). A total PCL-C score was derived by summing all items, with scores ranging from 17 to 85.

Analyses. Linear regression assessed associations between psychological distress (perceived stress, anxiety, and PTSD) and the cortisol parameters (diurnal [AUCG] and awakening cortisol response [AUCI]), adjusted for age, gender, and race/ethnicity. Effect modification of these associations was assessed for gender.

Results. The mean age of the officers was 42 years, 78% were men, and 75% were married. Sixty-five percent (65%) held the rank of patrol officer. Adjusted associations of perceived stress and anxiety with AUCI were significant (β [SE] = -6.5 [2.2], and β [SE] = -5.8 [2.7], respectively, p<0.05). There were no significant associations between psychological distress and diurnal AUCG. However, after gender stratification, a significant positive association was observed between PTSD and AUCG in female officers only [β (p-trend): 87.8 (0.01)]. Significant inverse associations were observed between psychological distress and AUCI, but only among male officers [β (p-trend): -9.8 (<0.001), -8.5 (0.01), -6.3 (0.011) for perceived stress, anxiety, and PTSD, respectively]. No significant associations of AUCI with any of the distress variables were observed among females.

Practical implications. Psychological distress may have a significant impact on cortisol secretion. Dysregulation of the cortisol response may affect long-term health outcomes, such as the risk of cardiovascular disease, a specific concern in police officers, as well as anxiety and depression. Understanding a gender effect in the associations of psychological distress with cortisol secretion is important in identifying strategies to address psychological distress to minimize health risks in this occupational group.

Conclusions. The results from this study indicate strong, negative associations of AUCI with perceived stress and anxiety, but not PTSD, the condition with the highest severity among the three measures of psychological distress. Our findings suggest gender differences, where only male officers with higher levels of psychological distress exhibit significantly reduced levels of AUCI. Larger samples of female officers could benefit our understanding of the effect of gender on these associations. Future longitudinal study designs may provide an opportunity to learn more about the temporal relationship between psychological distress and cortisol response in police officers.

F-6

Does heart rate variability mediate the relationship between police stress and anxiety?

Emily Jenkins (NIOSH)

Statement of the Problem: Exposure to long-term and repeated stressors may lead to dysregulation of the parasympathetic nervous system (PNS). The PNS, a component of the autonomic nervous system (ANS), regulates levels of physiological arousal after exposure to a stressor. Heart rate variability is a noninvasive electrocardiographic method used to measure the ANS (Kim, 2018). The high frequency component of heart rate variability (HF HRV) reflects parasympathetic activity and is, therefore, considered a marker of the ability of the PNS to regulate physiological arousal (Thayer, Åhs, Fredrikson, Sollers & Wager, 2012). Previous work has shown that exposure to stress, due to lack of organizational support, is associated with reduced HF HRV among female officers only (Andrew et al., 2017). HF HRV has also been theoretically linked to anxiety, with research suggesting that anxiety disorders are associated with reduced HRV (Thayer & Lane, 2000; Friedman 2007; Chalmers, 2014). Overactivity of the ANS, as measured by HRV, has been proposed as a potential link between exposure to stressors and the development of anxiety (Thayer, Yamamoto & Brosschot, 2010). This study examines the mediating role of HF HRV on the relationship between police stressors and anxiety.

Procedures. Participants were 322 police offices (75% males) from the Buffalo Cardio-Metabolic Occupational Police Stress (BCOPS) study (2004-2009) with complete data on police stress, anxiety, and HRV. Police stress was measured using the Spielberger Police Stress Survey (Spielberger, Westberry, Grier, Greenfield, 1981). Three police stress indices were derived: 1) administrative and organizational pressure, 2) physical and psychological threat, and 3) lack of support. These indices were derived by summing the product of the frequency of occurrence in the last year and perceived stress on a scale from 0-100 for relevant items. The Beck Anxiety Inventory, a 21-item self-report instrument, was used to measure the emotional, physiological, and cognitive symptoms of anxiety but not depression (Beck et al., 1988). Participants indicated how often each anxiety symptom bothered them over the past week using a four-point scale: 0 (not at all) to 4 (severely). The total score, a sum of all 21 items, was used in the analyses. HRV was measured using standard methods from resting electrocardiogram data (Camm et al., 1996). ECG time series, obtained during a carotid ultrasound examination, were extracted, processed, and detrended. The resulting data was processed using a parametric autoregressive spectral analysis of order 16. HF HRV, defined as the area under the power spectral density from 0.15 to 0.4 Hz, was calculated for each participant.

Analysis: In order to obtain approximately normally distributed data, HRV data were log-transformed using the natural log. The continuous police stressor indices were transformed into z scores to help with interpretation. Ordinary least square (OLS) regression in mediation analysis was used to estimate direct and indirect effects of each predictor on anxiety using the PROCESS macro for SAS (Hayes, 2013). Heart rate variability (HF) was evaluated as a potential mediator between police stressors and anxiety symptoms. The mediation analysis used 10,000 bootstrap samples to estimate the 95% confidence interval (CI). All results were adjusted for age and race/ethnicity, and stratified by gender.

Results. The mean age of the officers was 41 years. The majority were Caucasian (80.2%), married (73.5%), and held the rank of police officer (71.7%). Females had significantly higher anxiety scores (8.6 vs 5.2, p<0.01) and log heart rate variability values (5.2 vs 4.9, p=0.02). The mediation analysis indicated that heart rate variability did not significantly mediate the relationship between police stress and anxiety regardless of gender. Overall, the adjusted direct effects indicate that the administrative (c′ effect=1.424, 95% CI: 0.708, 2.140, p<0.001), physical or psychological danger (c′ effect=1.446, 95% CI: 0.728, 2.164, p<0.001), and lack of support (c′ effect=2.003, 95% CI: 1.319, 2.687, p<0.001) stress indices were significant predictors of anxiety independent of the indirect pathway through heart rate variability. These adjusted direct effects remained significant for males (p<0.001). Among female officers, only the direct effect between lack of support (c′ effect=3.624, 95% CI: 1.851, 5.397, p<0.001) and anxiety was significant.

Practical implications. HRV did not explain any of the association between police stress and anxiety. Hence, it appears that police stress exposure may influence anxiety symptoms directly but not through changes in parasympathetic function. This might suggest that interventions addressing parasympathetic function may be less helpful than addressing other aspects of the stress response (e.g., cognitive).

Conclusions. Heart rate variability did not explain any of the association between police stress and anxiety. The adjusted direct effects indicate that the police stressors were significant predictors of anxiety independent of the indirect pathway through heart rate variability.

F-7

Effort-reward imbalance and fatigue in Chinese nurses: A moderated mediation model of resilience and perceived organizational support

Li Liu (China Medical University)

Purpose. Fatigue is a common problem among nurses worldwide, which undermines their well-being and work performance [1]. Siegrist's Effort Reward Imbalance (ERI) model is built upon social reciprocity, and failed reciprocity (high effort and low reward) elicits job stress. ERI has been demonstrated to positively relate to prolonged fatigue [2,3]. According to the conservation of resource (COR) theory, psychological (inherent) and contextual (external) resources help individuals cope with job stress. Resilience refers to the positive psychological capacity to bounce back from (and beyond) failure and adversity to attain success in workplaces. Many studies have supported a negative relation between resilience and fatigue [4], especially compassion fatigue among nurses [5]. Perceived organizational support (POS) is the degree to which employees believe that their organizations value their contributions and care about their well-being and fulfill socio-emotional needs. As a contextual resource, adequate organizational support could reduce fatigue among nurses [6,7]. In addition, POS is often considered as a moderator in the relations between job stress, psychological resources and work-related outcomes [8,9]. Therefore, clarifying the roles of resilience and POS on the relation between ERI and fatigue is of theoretical and practical importance. Based on the above concerns, we proposed that resilience will mediate the positive association between ERI and fatigue, and POS will moderate the direct and indirect associations between ERI and fatigue via resilience in Chinese nurses.

Methods. A cross-sectional study was conducted in Liaoning Province, China, during April to July 2018. Using a multi-stage stratified sampling method, a set of self-administered questionnaires was distributed to 1,120 nurses from ten tertiary hospitals in five cities, including the Chalder Fatigue Scale, the ERI Scale, the Connor-Davidson Resilience Scale and the Survey of POS Scale. Complete responses were obtained from 996 (88.9%) participants. Student's t-test, one-way ANOVA and Pearson's correlation were executed. The mediation and moderated mediation hypotheses were tested by regression analyses based on 5,000 bootstrapped samples using bias corrected and accelerated 95% confidence intervals (CIs) with centered variables via the PROCESS procedure [10]. Conditional direct and indirect effects (simple slopes) were estimated using the "pick-a-point" approach.

Results. As shown in Table 1, weekly working time and night shift were significantly related to fatigue score. ERI was positively correlated with fatigue. Resilience and POS were negatively correlated with fatigue, respectively (See Table 2). The total effect of ERI and fatigue was significantly and positively associated ($\beta = 0.492$, $p < 0.001$). The indirect effect (a×b) of resilience on the association between ERI and fatigue was significant ($\beta = 0.119$, 95% CIs: 0.094 to 0.146), indicating a partial mediation. The resulting model is portrayed in Fig. 1. As shown in Fig. 2, POS only moderated the direct association between resilience and fatigue ($\beta = -0.056$, $p = 0.006$). Then, a simplified moderated mediation model was tested and portrayed in Fig. 3. As shown in Table 3, the significant indirect effect from ERI to fatigue through resilience was larger for those who had higher POS (low POS: 0.073, 95% CIs: 0.044 to 0.103; moderate POS: 0.095, 95% CIs: 0.068 to 0.122; high POS: 0.116, 95% CI: 0.087 to 0.148). The conditional effects of resilience on fatigue indicated that resilience was significantly and negatively associated with fatigue at low POS ($\beta = -0.205$, $p < 0.001$), moderate POS ($\beta = -0.265$, $p < 0.001$), and high POS ($\beta = -0.325$, $p < 0.001$). We plotted the predicted fatigue against resilience for low, moderate and high levels of POS (1 SD below mean, mean, and 1 SD above mean, respectively) in Fig. 4.

Practical implications. The study contributes to the practical implications in two important ways. First, resilience partially mediated the association between ERI and fatigue in Chinese nurses. This finding led to the recommendation that a balanced social reciprocity should been established in which nurses will perceive adequate emotional support to develop resilience, reducing the possibility of high level of fatigue. Second, the moderated mediation model was able to account for POS as an important contextual resource in explaining variations in ERI associated with fatigue. Specifically, POS moderated the direct association between resilience and fatigue. It indicated that under a higher level of POS, resilience could be more effective in reducing fatigue among nurses. Policy makers and managers should improve nurses' POS by establishing fair and impartial procedures, providing good working conditions, affirming their contribution, promoting their career development, and caring about their well-being.

Conclusion. As an underlying mechanism, resilience partially mediated the positive association between ERI and fatigue. Furthermore, POS operated as a protective factor, strengthening the effect of resilience on reducing fatigue. Our findings demonstrated the utility of moderated mediation model in understanding the conditional indirect effects of ERI and fatigue via resilience under the moderation of POS and yielded nuanced implications for prevention in Chinese nurses.

F-8

Associations of occupational stress and psychological capital with fatigue among Chinese doctors: the mediating role of psychological capital

Hui Wu (China Medical University)

Purpose. Fatigue is highly prevalent among doctors worldwide and has major implications on both occupational well-being and patient safety [1]. Previous studies demonstrated that high-stress working environment had a detrimental effect on worker's mood and elevated fatigue level [2]. As one of the leading job stress models, Siegrist' s Effort-Reward Imbalance (ERI) model focuses on the reciprocity of extrinsic and intrinsic effort with reward [3]. Positive psychological capital (PsyCap) is a positive exploitable psychological state that individual performs [4], which consists of the four psychological resource capacities of self-efficacy, hope, optimism, and resilience, which can all be measured, developed, and effectively managed [5]. Some studies have reported that a negative relation between PsyCap and fatigue in a variety of professions [6-8]. Liu et al. has confirmed that PsyCap could be a positive resource significantly mediated the associations of occupational stress with depressive symptoms in Chinese physicians [9]. But, whether or not PsyCap mediates the association between occupational stress and fatigue has yet to be determined. This study aimed to explore the associations of occupational stress and PsyCap with fatigue, and to examine the mediating role of PsyCap on the association between occupational stress and fatigue among Chinese doctors.

Methods. A cross-sectional study was conducted in Liaoning, China, from April to June 2018.Using a multi-stage stratified sampling method, 1200 doctors were participated in the study totally and 1104 (92.0%) doctors responded effectively. A set of self-administered

questionnaires consisting of the Fatigue Scale (FS-14), the ERI questionnaire, Psychological Capital Questionnaire (PCQ) and items about demographic characteristics was used to measure. Student's t-test, one-way ANOVA and Pearson's correlation were executed. Hierarchical linear regression analysis was performed to explore the associations of occupational stress and PsyCap with fatigue among doctors. Asymptotic and resampling strategies were used to examine PsyCap and its components as potential mediators in the association via the PROCESS procedure [10].

Results. The mean score of fatigue was 7.96 (SD = 3.95). As shown in Table 1, after adjusting for age, gender, education level and marital status, the effort-reward ratio was positively associated with fatigue ($\beta = 0.272$, $P < 0.01$), and overcommitment was positively associated with fatigue ($\beta = 0.073$, $P < 0.01$). PsyCap ($\beta = -0.379$, $P < 0.01$), Self-efficacy ($\beta = -0.213$, $P < 0.01$) and resilience ($\beta = -0.117$, $P < 0.05$) were negatively associated with fatigue, respectively; whereas hope and optimism were not significantly associated with fatigue. As shown in Table 2, PsyCap ($a \times b = 0.134$, BCa 95% CI: 0.105, 0.164), self-efficacy ($a \times b = 0.055$, BCa 95% CI: 0.021, 0.090) and resilience ($a \times b = 0.042$, BCa 95% CI: 0.002, 0.082) significantly mediated the association between effort-reward ratio and fatigue, respectively. PsyCap ($a \times b = 0.104$, BCa 95% CI: 0.073, 0.135), Self-efficacy ($a \times b = 0.040$, BCa 95% CI: 0.013, 0.068) and resilience ($a \times b = 0.040$, BCa 95% CI: 0.008, 0.072) also significantly mediated the association between overcommitment and fatigue, respectively.

Practical implications. The study contributes to the practical implications in exploring the mechanism behind the association between occupational stress and fatigue. PsyCap and its two components, self-efficacy and resilience, partially mediated the association between occupational stress with fatigue in Chinese doctors. This finding led to the recommendation that individual positive psychological resources should been utilized and developed in doctors, reducing the possibility of high level of fatigue. Under high level of occupational stress, PsyCap development should be included in prevention and treatment strategies for fatigue targeted at Chinese doctors. Hospital managers could improve doctors' self-efficacy and resilience through positive psychology education and training to reduce the doctor's fatigue effectively.

Conclusions. Occupational stress was positively associated with fatigue. PsyCap and its two components, self-efficacy and resilience, were negatively associated with fatigue and could mediate the association between occupational stress and fatigue among Chinese doctors. Thus, the intervention strategies and measures to relieve fatigue could be focused on doctors' positive psychological capital improvement.

F-9

Employee Health and Blood Pressure Outcomes By Job Family

Jin Jun (University of Michigan)

Research objective: Hypertension (or high blood pressure) is one of the top ten costly conditions for employers. As a major risk factor for cardiovascular diseases, kidney disease, and stroke, hypertension poses a significant burden not only health-wise but also economically, with a projected cost increase to $343 billion dollars by 2030, from the reported $51.0 billion in 2009. Previous studies have demonstrated that the workplace plays an important role in individuals' health. Thus explorative and intervention studies aimed at addressing blood pressure and its management need to account for the workplace. The purpose of the study is to explore the relationship between job family and blood pressure among the employees who participated in the employer-based wellness program.

Study design: A descriptive correlational design with employer wellness program data from 2014. Descriptive statistics and multivariate linear regression were done for the analysis.

Population studied: The University of Michigan (UM) initiated a program aimed to promote employee health and well-being. All faculty and staff from the university and health care centers were invited. Health data were obtained annually from participants via self-report and biometric screening. The participants were categorized into 12 job families based on the Human Resources career path: 1) nurses, 2) house officers, 3) Healthcare Admin & Support, 4) Pt care services, 5) Research, 6) Hospitality, 7) Academic & student services, 8) Lecturer/faculty, 9) Instructional Services, 10) Office Service/Maintenance, 11) Engineering/IT, and 12) Others.

Principal findings: About 20,000 individuals participated in 2014 with an average BP of 113.86 14.38)/72.79(9.67). Service/Maintenance, Engineering/IT, and Office are the job families with the highest BP. Age of older than 40 was statistically associated with higher BP. When compared to lower wage less than $35,000 a year), all the other wage groups were statistically associated with increased BP ($p < 0.00$). Smoking, Life satisfaction and stressfulness were not statistically associated with BP. Alcohol consumption was not associated with BP, however, not drinking was associated with lower BP ($p = .01$). Diabetes and high cholesterol were statistically significant with the increased BP ($p < .00$).

Conclusions. We compared the BP between the 12 different job families. Service/Maintenance, Engineering/IT, and Office job families had the highest SBP. Age, gender, higher wage, diabetes, and high cholesterol were the strongest predictor of high BP, whereas smoking, alcohol use, stress, life satisfaction, and self-perceived health status were not associated with increased BP.

Implications for policy and practice: Employers directly absorb many of the financial costs associated with cardiovascular risk factors. The need assessment of different job families and creating interventions targeting their specific needs may be better suited in developing and maintaining programs to improve employee health and the employer return on investment.

F-10

Structural Empowerment, Burnout, and Perceived Quality of Care Among Psychiatric Registered Nurses

Rebecca Woods (University of New Brunswick)

Purpose: The purpose of this study is to examine the effects of structurally empowering work environments on burnout and subsequent quality of patient care among psychiatric registered nurses.

Statement of the Problem & Background. Burnout is a well-known phenomenon in healthcare and has been a hot topic in the literature for over 20 years. Current research on burnout in nursing has looked at this phenomenon among new graduate and experienced nurses. However, despite the unique characteristics and stressors of working in psychiatry, few studies have examined burnout in the psychiatry/mental health field, and work to date has focused on psychiatrists. Research is needed about psychiatric registered nurses, as their working environment has unique stressors that differentiate the psychiatric registered nurse's role from that of other specialty areas. These stressors often include challenging situations such as suicidality or

aggression, requiring intense one-on-one interactions with patients which can lead to emotional exhaustion. The proposed study will therefore address an important gap in knowledge about job burnout among psychiatric nurses.

Theoretical model: This research will test a theoretical model embedded within the Job Demands-Resources model. Specifically, the effects of structural empowerment (a job resource) on job burnout and subsequent perceptions of patient care quality among psychiatric nurses will be tested. Structural empowerment refers to workplace conditions that give employees the power to accomplish their work effectively. It has been consistently identified as an essential characteristic of a healthy nursing work environment and has been linked with lower levels of burnout and higher quality of patient care. It is logical to expect that psychiatric nurses who perceive their work environments to be structurally empowering experience lower levels of burnout because they have adequate resources to meet the demands of their work. Consequently, structural empowerment will also enable psychiatric nurses to deliver high quality of care to their patients. Finally, burnout is also hypothesized to mediate the effect of structural empowerment on patient care quality, such that high levels of structural empowerment lead to lower burnout, which in turn have a reduced negative effect on patient care quality.

Methods. Study Design: After obtaining REB approval (Spring 2019) a cross-sectional e-mail survey will be conducted.

Sample: Approximately 400 registered nurses currently work in psychiatry/mental health in New Brunswick. To optimize response rates, all potential participants identified by the provincial nursing regulatory body (NANB) using their registry database will be included in the study. To be eligible for the study , registered nurses must be currently registered to work in New Brunswick, have self-identified as working in psychiatry/mental health, be working in a direct patient care role, and have given NANB permission to be contacted about opportunities to participate in research.

Measures: Demographic questions and validated self-report questionnaires will be used to measure the key study variables. Structural empowerment will be assessed using the Conditions for Work Effectiveness Questionnaire-II. Burnout will be measured using the Maslach Burnout Inventory – General Survey. Perceived quality of care will be measured using a single item question.

Data Collection: A link to the survey will be e-mailed by NANB, where an explanation that completion of the survey provides consent. A reminder e-mail will be sent two weeks later.

Statistical Analysis: Once data collection has been completed (Spring-Summer, 2019), the validity and reliability of the study questionnaires will be examined using confirmatory factor analysis in Mplus and Cronbach's alpha in SPSS. Descriptive statistics and linear regression analysis using the PROCESS macro will be used to test the hypothesized mediation model in SPSS.

Anticipated Results. The results will show whether the proposed relationships in the hypothesized model are significant, and if so, to what degree.

Anticipated implications. This study will contribute to nursing research and practice in several ways. First, it will fill an important gap in our knowledge about structural empowerment, burnout, and quality of care among psychiatric registered nurses. Second, this research will add to the evidence base that formal nurse leaders in psychiatry settings can use to inform their leadership and management practices to create healthy, structurally empowering work environments, mitigate job burnout, and support high quality care. Lastly, this research will provide a foundation for further research, such as longitudinal and/or national/international studies, investigating the impact of work environment factors on psychiatric registered nurse and patient outcomes.

F-11

Associations between work-related characteristics and the frequency and intensity of anxiety feelings, along with the use of medication

Carles Muntaner (University of Toronto)

Mental health disorders, including anxiety, have been previously associated with characteristics of the work environment such as organizational control (Muntaner, Borrell, Benach, Pasarín, & Fernandez, 2003; Muntaner, Eaton, Diala, Kessler, & Sorlie, 1998), employment relations (Prins, Bates, Keyes, & Muntaner, 2015), job insecurity (Llosa-Fernández, Menéndez-Espina, Agulló-Tomás, & Rodríguez-Suárez, 2018), and employment conditions (Muntaner et al, 2010).

This poster describes the results of an analysis conducted to estimate the effects of work-related characteristics—such as labour market status, employment conditions, and employment relations—on the frequency and intensity of anxiety feelings along with the use of medication.

The data used for this analysis were collected from the open access Sample Adult Core data set containing information from the 2018 National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC). This annual survey consists of face-to-face interviews administered throughout the year to nationally representative samples of households, including 25,417 adults in 2018.

For data analysis we used Stata 15 and conducted multinomial logistic regressions. In separate regression models we tested the effect of labour market status, employment conditions, and employment relations on three outcome variables: frequency of anxiety feelings, use of medication, and intensity of anxiety feelings. With a few exceptions, all models controlled for participants' gender.

Preliminary Results. Frequency of anxiety feelings. The relative log odds of having daily anxiety vs. never having feelings of anxiety are:

- Higher by .63 (95% CI, [.44, .82], P = 0.000) for individuals who had no job the previous week but had a job in the past 12 months when compared with those who had a job the previous week.
- Higher by .22 (95% CI, [.09, .34], P = 0.001) for individuals who do not have paid sick leave when compared with those who have paid sick leave.
- Lower by .09 (95% CI, [-.22, .04], P = 0.180) for individuals who are not paid by the hour when compared with those who are paid by the hour.
- Lower by .24 (95% CI, [-.45, -.04], P = 0.019) for individuals who do not have more than one job when compared with those who do.
- Higher by .16 (95% CI, [.06, .25], P = 0.002) for individuals who do not supervise other employees as part of their job when compared with those individuals who do supervise other employees.

Use of medication. The relative log odds of taking medication for anxiety feelings vs. not taking medication for anxiety feelings are:

- Higher by .41 (95% CI, [.24, .59], P = 0.000) for individuals who had no job the previous week but had a job in the past 12 months when compared with those who had a job the previous week.

- Lower by .13 (95% CI, [-.25, -.00], P = 0.038) for individuals who do not have paid sick leave when compared with those who have paid sick leave.
- Lower by .06 (95% CI, [-.18, .05], P = 0.304) for individuals who are not paid by the hour when compared with those who are paid by the hour.
- Lower by .20 (95% CI, [-.38, -.02], P = 0.032) for individuals who do not have more than one job when compared with those who do.
- Lower by .008 (95% CI, [-.09, .08], P = 0.852) for individuals who do not supervise other employees as part of their job when compared with those individuals who do supervise other employees.

Intensity of anxiety feelings. The relative log odds of having more intense feelings when last feeling worried, nervous, or anxious vs. having less intense feelings are:

- Higher by .55 (95% CI, [.35, .76], P =0.000) for individuals who had no job the previous week but had a job in the past 12 months when compared with those who had a job the previous week.
- Lower by .09 (95% CI, [-.02, .20], P = 0.109) for individuals who do not supervise other employees as part of their job when compared with those individuals who do supervise other employees.

Emerging Issues

G-1

The Relationship Between Religious Variables and Experiences of Career Development, Health and Well-being

Alexandra J. Alayan (Colorado State University)

Introduction: In recent years, increased attention has been directed toward the role of spirituality and religion in career development and organizational behavior (Miller, 2007). Yet research examining the role of religiousness in career development remains sparse, even though a review published more than a decade ago called for more of such research (Duffy, 2006). Research has found that individuals with an active faith perspective may look to their relationship with God or a higher power for guidance during their vocational discernment process (Duffy & Lent, 2008). However, some religious individuals may rely on a passive vocational discernment strategy in which they pray for a divine revelation, then wait for a clear response before taking action (Dik & Duffy, 2015). At this point, no research has examined the unique contributions of this "pray-and-wait" strategy on one's well-being, physiological health, and career development process. Broadly, the purpose of the present study is to further understand the intersection between religiousness and career development, including this intersection's impact on well-being and health. This study also sought to examine the role of "praying-and-waiting" on career development, well-being, and health, as well as establish validity evidence for scores on the newly developed Pray and Wait Scale (PaWS).

Method: Participants were undergraduate students from a large, public, Western U.S. research university. They were recruited from introductory psychology courses and received course credit for their participation. Participants completed an online survey, which included measures of presence of and search for calling (Calling and Vocation Questionnaire [CVQ; Dik, Eldridge, Steger, & Duffy, 2012], religious commitment (RC; Religious Commitment Inventory-10; Worthington et al., 2003), and faith at work (Faith at Work scale [FWS]; Lynn, Naughton, & VanderVeen, 2009). Passive vocational discernment through "praying-and-waiting" was measured using the 4-item Pray and Wait Scale (PaWS), which included items such as: "I'm waiting for a higher power to send me a message for what career path I'm supposed to take." An initial evaluation of the PaWS supported the factor structure and construct validity of its scores with religious individuals (Alayan, Marsh, & Dik, 2019). Other religious variables were measured, including intrinsic religiosity (Intrinsic/Extrinsic-Revised [I/E-R] Scale; Gorsuch & McPherson, 1989). Career commitment (the Vocational Identity Scale; Holland, Johnson, & Asama, 1993), career confidence (the Vocational Self-Efficacy Scale; Rigotti, Schyns, & Mohr, 2008), and self-reported general health (the PERMA-profiler; Butler & Kern, 2016) were also assessed. All scales showed strong internal consistency reliability ($\alpha > .80$). The sample was limited to those who indicated they engaged in prayer at least once a month, resulting in 259 participants (71% women; 70.66% White).

Results. We conducted a series of multiple linear regression models using the Pray and Wait Scale, religious commitment, intrinsic religiosity, and faith at work as predictor variables of work, health, and well-being criterion variables. Results revealed that faith at work was the sole significant predictor of Calling—Presence ($ß = .55$, $p < .001$). The Pray and Wait scale significantly negatively predicted both career commitment ($ß = -.36$, $p < .001$) and career confidence ($ß = -.30$, $p < .001$), serving as the only significant predictor in both of those models. The pray and wait scale significantly negatively predicted living a calling ($ß = -.17$, $p < .05$), while religious commitment was the only other significant predictor in this model ($ß = .25$, $p < .05$). Likewise, our model predicting health revealed both praying and waiting ($ß = -.16$, $p < .05$) and religious commitment ($ß = .25$, $p < .01$) as the only significant predictors. A similar pattern emerged in our model predicting life satisfaction in which the Pray and Wait Scale was the lone significant negative predictor ($ß = -.27$, $p < .001$) and religious commitment was the only significant positive predictor ($ß = .26$, $p < .05$).

Conclusions and implications. When controlling for other religious variables (religious commitment, intrinsic religiosity, faith at work), "praying-and-waiting" is a negative predictor of career commitment, career confidence, living a calling, life satisfaction, and health. This shows that passive vocational discernment through "praying-and-waiting" has an important and possibly unique role in explaining how religious individuals experience their career development process, well-being, and physiological health. In particular, it seems that "praying-and-waiting" is linked to deleterious health and well-being experiences in ways that other religious variables are not. These results also provide further evidence of construct validity of PaWS scores for a university student population. One limitation of this study includes its cross-sectional design, which precludes causal inferences. Another limitation is the sample's homogeneity, given the high proportion of White, female, traditional-aged college students. Practical implications and suggestions for future research will be discussed in the poster session.

G-2

The Impact of Financial Stressors on the Well-Being of Families and Caregivers of Children Diagnosed with Congenital Heart Disease

Sharon Glazer (University of Baltimore)

Problem Statement. Congenital heart disease (CHD) is a chronic, life-threatening coronary illness most prevalent in pediatric patients (Mendis et al., 2011), affecting about 1 million children in the USA. The care required for a child with CHD can create an enormous financial and

emotional strain on caregivers and families, as they experience uncertainty of the future, lack of social support, conflicting roles, and changes in work situations or financial status (Doherty et al., 2009; Goldbeck & Melches, 2006; Lawoko, & Soares, 2002; Werner et al., 2014). Seldom is there mention in medical journals about financial stressors' implications on family well-being. Thus, the first aim of this study is to develop a measure to assess financial stressors and strains, and other specific and generic outcomes (e.g., general well-being, anxiety, and turnover intention) experienced by caregivers of children with CHD.

Additionally, aspects of a person's personality (e.g., sense of meaningfulness in life and resilience) and aspects of the environment (e.g., social support and financial resources) may serve to mitigate the effects of stressors on strains (Baumeister & Vohs, 2002; Glazer et al., 2014; Hobfoll, 1989; Lawoko & Soares, 2003, 2006; Tak & McCubbin, 2002). Thus, the second aim of the study is to relate financial stressors to financial and nonfinancial strains and moderator variables. Moreover, we compare perceptions of these stressors, strains, and moderator variables between caregivers who work full-time and those who do not work to care for the child with CHD.

Hypotheses. H1: Financial stressors (i.e., financial stability and financial stressor) will positively correlate with each other and full-time caregiver status (i.e., full-time caregivers will experience financial stressors more so than full-time workers who are also primary caregivers), as well as financial strains (i.e., financial reaction/response, financial uncertainty, and financial guilt) and other nonfinancial strains (i.e., helplessness, daily interruptions, continuance commitment to job, depression, anxiety, inability to psychologically detach from work, work-family conflict, and turnover intention).

H2: Financial stressors will not correlate with moderating variables (see Table 1 for list of moderators).

H3: Financial strains will positively correlate with (a) each other and (b) nonfinancial strains. Moreover, (c) moderating variables will negatively correlate with financial and nonfinancial strains.

Procedures. Several measures were adopted or adapted and new items were created (based on interviews with nine subject matter experts) to assess financial stressors, financial strains, nonfinancial strains, and moderators that might affect when stressors lead to strains (see Tables 1 to 3). The survey was advertised through social media platforms and outreach to communities that support families who care for children with CHD. This poster is based on 474 of 818 respondents who completed more than 75% of the survey and responded accurately to the attention check question. Most (91%) respondents were female, 98% were the primary caregivers, 39% worked 35 or more hours a week, 32% chose not to work in order to care for their child with CHD, and 95% indicated their child with CHD was living.

Analysis. All 18 constructs with three or more items were found to have strong internal consistency (alphas ranged from .72 to .95) and all but three of six constructs with only two items had strong (rs above .70) inter-item correlations. These variables were subjected to correlational analyses (see Tables 1 to 3) and t-tests (see Table 4).

Results. Supporting Hypothesis 1, financial stressors positively correlated with each other and with financial and nonfinancial strains and outcomes. Financial stressors also significantly correlated with variables associated with meaningfulness in life, resiliency, and social support, but showed weak to moderate or non-significant relationships with variables associated with work support and financial resources, partially supporting Hypothesis 2. Financial strain variables positively correlated with each other, supporting Hypothesis 3a. Most (27 out of 30 correlations) of the financial strains correlated significantly with the nonfinancial strains, as well, mostly supporting Hypothesis 3b. The majority (64 out of 90 correlations) of the moderator variables negatively correlated with financial and nonfinancial strains, thus mostly supporting Hypothesis 3c. Finally, non-working respondents experienced greater caregiver strain, more helplessness, more financial stressors, greater financial guilt, and less perceived financial stability than the respondents who work 35 hours or more per week.

Practical Implications. Findings from this study serve as preliminary, quantitative evidence for the public and CHD families about the legitimate need for a national discourse on the deleterious consequences of financial stressors associated with caring for a child with CHD and the importance of studying psychosocial implications of financial stressors and strains on quality of work and nonwork life.

Conclusions. The current study results provide affirmative statistically validated evidence that financial stressors negatively affect the well-being of caregivers of children with CHD. Further refinement of the survey is warranted if it is to be used as an indicators tool for physicians.

G-3

Perceived Work Ability: An Inductive, Qualitative Study Assessing Workers' Perspectives

Jonathan (Jack) Flinchum (University of North Carolina Charlotte)

Perceived work ability (PWA) refers to the degree to which employees perceive that they are able to continue working in their current jobs, given the job characteristics (including demands and resources) and their personal resources, including health (Ilmarinen, Gould, Järvikoski, & Järvisalo, 2008; McGonagle, Fisher, Barnes-Farrell, & Grosch, 2015). Work ability was originally conceptualized by researchers at the Finnish Institute of Occupational Health as a way to address the societal issues of early retirement and workforce exit (Ilmarinen et al., 1991a, 1991b). More recently, researchers have worked to develop and validate the construct of PWA as individuals' subjective perceptions of their work ability (e.g., Ahlstrom et al., 2010; McGonagle et al., 2015). Most work ability studies take a deductive, quantitative approach to understanding PWA, which has advanced our understanding of the construct considerably. In the current study, we take an inductive, qualitative approach, addressing questions relating to what workers perceive as hindrances to their work ability; what individual strategies workers enact to help maintain their work ability; and what workers' employers currently do and could possibly do to help promote and/or maintain their work ability. Work ability and PWA research has largely focused on aging populations, and has examined health and specific job resources (control, support as predictors; e.g., Riedel, Müller, & Ebener, 2015). A goal of the current inductive approach is to help expand our understanding of factors that may influence PWA and ways individuals and employers can support work ability maintenance and promotion. In doing so, we seek to identify additional avenues for further research and intervention.

The data used in this study were from a larger data collection on worker health and work ability. Participants (limited to individuals in the U.S. working at least 30 hours per week) were recruited through Amazon's MTurk to complete a 20-minute online survey and were paid $3.00. The questions were, "Work ability refers to your capacity to continue doing your current job, given your health and other resources, in light of your job responsibilities. Does anything currently hinder or impede your work ability (either personally or work-related)? Please describe below." "Are there any strategies that you personally use to maintain your current level of work ability? Please describe below." "Is

there anything your current employer does and/or anything about your job that allows you to maintain your work ability? Please describe below." "What could your employer possibly do to help you maintain or improve your work ability? Please describe below."

Initially, 900 employees responded to the online survey; after data cleaning and removing problematic responses, 850 participants spanning a variety of occupations remained. All four authors on this study coded these responses to the first question; only those who reported hindrances to work ability were retained for analysis of individual strategies and employer support (N = 333; Nfemale = 55.6%). Participants also responded to a four-item measure of PWA (McGonagle et al., 2015) and reported their chronic health conditions (CHCs), chronic pain, and number of dependents. Table 1 contains participant characteristics.

All authors started by open coding participants' responses. We then met and discussed results, talked through questions and discrepancies, axial coded, and created a codebook. Subsequently, we re-coded a subset of participant responses using the codebook, and met again to discuss questions, add/revise codes, and resolve discrepancies. Following this process of constant comparative analysis, we coded all participants a final time using the revised codebook and tallied response themes for reporting. Table 2 contains broad coding schemes and tallies for each question (sub-themes are omitted for space, but will be included in the poster presentation).

Health was the most commonly-reported hindrance to work ability, with chronic physical health conditions being the most reported subcategory. Demands and/or stressors from both work and home/family life were also commonly reported. Individual strategies to maintain work ability included broad themes of proactive strategies (e.g., health strategies such as diet and exercise, and efficient work strategies such as scheduling), enduring strategies (e.g., use of assistive devices and medications), and surviving strategies (e.g., "powering through"). Many participants reported that their employer did not aid in the maintenance of their work ability; of those who did, flexibility, support, and time off were common themes. When asked what employers could do, participants reported similar categories (e.g., flexibility, support, and time off).

Results elucidate additional avenues for further research and intervention. For example, sleep problems were a commonly reported hindrance. Individual strategies reported also span past traditional research topics (e.g., SOC strategies), such as taking break/relaxation periods. Responses show that there is more that employers can do to support their employees' PWA, and that there is more that employees with hindrances can do to maintain their work ability themselves. Future research and interventions should address these topics, opening new ways to support employee work ability maintenance and promotion.

G-4

Elements to Success: Perceived Employability and Retention in College Students

Guillermo Wated (Barry University)

The knowledge, skills and attributes considered necessary for an individual to make a meaningful contribution in the workplace have been conceptualized as 'employability' (Yorke, 2006; Turner, 2014). Employability is a desirable state not only for the employees themselves but also for the employing organizations. More employable workers are likely to be higher performers because they possess a variety of knowledge, skills and abilities that are required to perform the job (Acikgoz et al., 2016; Cuyper & Witte, 2011).

In the current pursuit for competitive talent, employers have emphasized the need for education systems that produce a well-educated and well-trained workforce (Jackson, 2013). However, college dropout rates in the U.S.A. are among the highest in the developed world (Organization for Economic Cooperation and Development, 2014). Therefore, it is going to be challenging to meet employer's future workforce needs unless we strive to better understand the factors that contribute towards student attrition.

There are several well-established predictors of intentions to quit school among college students such as academic hardiness, academic achievement, subjective well-being (SWB), and academic stress. Academic hardiness refers to students' ability to overcome academic failure (Benishek & Lopez, 2001; Creed et al., 2013; Maddi et al., 2009). Subjective well-being refers to the various types of evaluations, both positive and negative, that people make of their lives (Diener, 2006). Furthermore, academic stress emphasizes students' subjective appraisal of academic and personal stressors (Feldt, 2018). Nevertheless, there is little empirical evidence regarding the impact that employability may have on intention to quit above and beyond these established predictors.

Therefore, the purpose of the present study was to assess the contribution of perceived employability above and beyond GPA, academic hardiness, achievement, stress and SWB. Perceived employability (PE) refers to individuals' appraisal of their own chances of being employed in light of self-perceived skills, abilities and resources associated with employment (Fugate, Kinicki, & Ashforth 2004). It is important to examine PE since it has been proposed that behaviors, feelings and thoughts usually are affected by the perception of reality, rather than reality itself (Katz & Kahn, 1978; Lazarus & Folkman, 1984).

The hypothesized model is based on Tinto's (2015) theory of student motivation and persistence. Tinto's model suggests that students' intention to quit school is associated with the interaction between contextual factors and students' individual characteristics including motivation, students' goals, self-efficacy, sense of belonging, perceived worth and context. We propose that intentions to quit school is a dynamic process that encompasses both individual and environmental factors that affect students' resources and coping capabilities to stay in school.

Participants were 205 college students (167 women) ranging in age from 18 to 29 years (M = 20.85, SD = 2.42), and with an average GPA of 3.22 (SD = .62). In terms of ethnicity, 41% of the participants were Hispanic/Latino, 28% White/non-Hispanic, 20% African American, 5% Afro-Caribbean, 5% Asian and 2% indicated other. The sample consisted of freshmen (19%), sophomores (28%), juniors (28%), and seniors (25%). Participants were contacted via email to participate in an online survey.

Perceived employability (α = .86) was gauged by the Self-Perceived Employability Scale (Rothwell, Herbert, & Rothwell, 2007), and academic hardiness (α = .87) was measured using a scale developed by Benishek, et al. (2005). Academic stress (α = .90) and SWB (α = .82) were measured using Feldt's (2018) and Ryff's (1989, 1995) scales respectively. Finally, intention to quit (α = .74) was assessed with a scale developed by Studsrod and Bru (2009).

Hierarchical multiple regression analysis was used in order to test the study's hypothesis. An inspection of the correlation matrix revealed no significant relationships between demographic variables other than

GPA and intentions to quit, $r = -.20$, $p = .004$. GPA ($\beta = -.12$, $p = .068$), academic hardiness ($\beta = -.26$, $p = .001$), academic stress ($\beta = .07$, $p = .334$) and SWB ($\beta = -.17$, $p = .038$) were entered in step 1 and accounted for 21% of the variance, $F(4, 200) = 12.88$, $p < .001$. Adding perceptions of employability ($\beta = -.18$, $p = .008$) to the model significantly explained an additional 3% of the variance in intentions to quit, $F(1, 199) = 7.24$, $p = .008$. These findings have important implications in terms of informing the type of collaborative initiatives university staff and employers develop toward enhancing students' preparedness for the workforce.

NIOSH Centers for Excellence in Total Worker Health

H-1

The Center for Promotion of Health in the New England Workplace: A Total Worker Health® Center for Excellence

Suzanne Nobrega (University of Massachusetts Lowell)

H-2

Advancing worker safety, health and well-being through improved working conditions: Research, policy and practice from the Harvard T.H. Chan School of Public Health Center for Work, Health and Well-being

Glorian Sorensen (Center for Community-based Research, Dana-Farber Cancer Institute)

H-3

Impacting the Health of Workers in Precarious Jobs - How the Center for Healthy Work Engages in Participatory Action Research

Elizabeth Fisher, University of Illinois at Chicago

H-4

Healthier Workforce Center of the Midwest: Advancing research and practice of Total Worker Health

Diane Rohlman (University of Iowa)

H-5

A NIOSH Center for Excellence for Total Worker Health®: Advancing Health, Safety and Well-being of Workers through Research, Education and Practice

Liliana Tenney (Center for Health, Work & Environment, University of Colorado)

H-6

Oregon Healthy Workforce Center

Anjali Rameshbabu (Oregon Health & Science University)

NIOSH Programs (see Friday poster session details for program descriptions)

I-1

NIOSH—Addressing Current Needs in the Health Care and Social Assistance Industry Sector

Megan Casey (NIOSH)

I-2

NIOSH—Public Safety Sector Program

Maryann D'Alessandro (NIOSH)

I-3

NIOSH—Transportation, Warehousing, and Utilities Program

Dawn Castillo (NIOSH)

I-4

NIOSH—Wholesale and Retail Trade Program

Deborah Hornback (NIOSH)

I-5

NIOSH—Chronic Disease Cross Sector of NORA Council: Identification and Prevention of Occupational Disease

Todd Stueckle (NIOSH)

I-6

NIOSH—Development of the National Occupational Research Agenda (NORA) for the Immune, Infectious and Dermal Disease Prevention Program

Stacey Anderson (NIOSH)

I-7

NIOSH—Traumatic Injury Prevention Program

Christine Schuler (NIOSH)

I-8

NIOSH—An Overview of the NIOSH Healthy Work Design and Well-Being Cross Sector

Jeannie Nigam (NIOSH)

I-9

NIOSH—Total Worker Health® Program: Exploring New Research Horizons for Worker Well-Being

Sarah Mitchell (NIOSH)

I-10

NIOSH—Center for Motor Vehicle Safety: Keeping Workers Safe on the Road

Stephanie Pratt (NIOSH)

I-11

NIOSH—Occupational Health Equity Program

Michael Flynn (NIOSH)

I-12

NIOSH—Center for Occupational Robotics Research: Program, Goals, and Research

Hongwei Hsiao (NIOSH)

I-13

NIOSH—National Center for Productive Aging and Work

Bermang Ortiz (NIOSH)

I-14

NIOSH—Safe ▪ Skilled ▪ Ready Workforce Program

Rebecca Guerin (NIOSH)

I-15

NIOSH—Small Business Assistance Program

Brenda Jacklitsch (NIOSH)

I-16

NIOSH—Oil and Gas Extraction Program

Kyle Moller (NIOSH)

I-17

NIOSH—Surveillance Program: Healthy Work Design Priorities

Sara Luckhaupt (NIOSH)

PLENARY SESSION

9:15–10:15 A.M.
Liberty Ballroom A

Plugged In: Managing Risks and Maximizing Gains in an Era of Rapid Technological Change

Advancing technologies, including robotics, Artificial Intelligence, and machine learning, have the potential to benefit employees and organizations alike, but also carry risks. This plenary discussion will explore how technology is shaping the future of work and the implications for worker well-being and organizational functioning. From both labor and industry perspectives, panelists and audience members will discuss emerging trends and strategies for realizing the potential benefits, while mitigating the associated risks.

DAVID W. BALLARD, PsyD, MBA
American Psychological Association

SUSAN ZHU, PhD
Society for Human Resource Management

GEORGE KOHL
Communications Workers of America, Retired

SHERI FEINZIG, PhD
IBM

10:30–11:45 a.m.

Concurrent Sessions 9

Philadelphia Ballroom South

Work Stress Recovery

PAPER SESSION

An investigation into the physiological, cognitive and emotional effects of insufficient recovery from work

Olga Chelidoni (University of Surrey)

Statement of Problem. Heart Rate Variability (HRV) refers to the variability in the interval between heart beats and is known to be a reliable biomarker of how well people self-regulate their emotions and adapt to situational demands (Sternberg & Soldberg Nes, 2007; Billman, 2011). As a non-invasive biomarker, low HRV has been shown to predict mortality risk and problems with cardiovascular health (Tsuji et al., 1996; Masi, Hawkley, Rickett & Cacioppo 2007). Recent evidence suggests that employees who repetitively think about work in a negative way also show lower HRV, indicating the negative effects that preservative thinking can pose on physical health (Cropley, Plans, Morelli, Sutterlin, Inceoglu, Thomas & Chu, 2017). Studies have also shown that lower HRV is associated with poorer performance in neuropsychological cognitive tasks as indicated by slower reaction times and more commission errors (Hansen, Johnsen & Thayer, 2003). Additionally, high ruminators have also exhibited relatively more weakened cognitive abilities, specifically inhibitory control, compared to low ruminators, an executive function ability necessary for sustained attention (Brinker, Campisi, Gibbs & Izzard, 2013; Cropley, Zijlstra, Querstret & Beck, 2016). However up to date there has been minimal research investigating both cognitive performance and physiological correlates with regards to recovery from work by employing objective measures. Relative literature shows that more emotion regulatory difficulties are reported among subjects with low HRV and higher rumination tendencies (Appelhans & Luecken, 2006; Blanco-Donoso, Garrosa, Demerouti & Moreno-Jimenez, 2017). To our knowledge there is no published evidence within occupational health psychology framework to demonstrate both the negative physiological effect that insufficient recovery posits on employee's cardiovascular health and its associated cognitive deficits.

The primary objective of the present study is to assess both cognitive performance, in two neuropsychological performance-based tasks, and physiological health, as reflected on peak to peak (RR) recordings, within a sample of full time employees who will also be assessed in their ability to switch off from work. Specifically, this study aims to investigate whether perseverative negative work-related thinking affects physiological and cardiovascular health as reflected in lower HRV. Also, we aim to explore whether executive function deficits, specifically weakened inhibitory control, are found significantly more within employees who are high ruminators compared to low ruminators. Following from this aim, we draw on the following three distinct predictions:

-Employees who ruminate negatively about work will have lower HRV.

-Employees who ruminate negatively about work will perform worse in executive function tasks.

-Employees who ruminate negatively about work will have lower HRV and worse cognitive performance.

Procedures. This cross-sectional, quasi-experimental study will include 75 full-time working adults who will be recruited from the University of Surrey Campus where the study will be conducted. The inability to insufficient recovery from work will be assessed with the Work-Related Rumination Questionnaire (WRRQ), a 15-item self-reported scale that represents the construct and its three components; affective rumination, problem solving and detachment (Cropley, Michalianou, Pravettoni & Millward, 2012). Difficulties in managing emotions will be evaluated with the Difficulties in Emotion Regulation Scale (DERS) a 36-item scale capturing emotional dysregulation in 6 different areas: no acceptance of emotional responses, difficulties engaging in goal directed behaviour, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity, (Gratz & Roemer, 2004).The Polar V800 heart rate monitor will be used to capture the interbeat interval (IBI), which is a chest band that when paired with a GPS watch it exposes RR intervals and detects how long each heart beat lasts. Cognitive performance will be assessed with two performance-based computerised tasks. The CPT-X which measures sustained attention (Brinker et al., 2013) and the stop signal paradigm of Go/No Go task measuring inhibitory control (Rezvanfard, Golesorkhi, Ghasemian-Shirvan, Safaei, Eghbali, Alizadeh & Ekhtiari, 2016).

Results. All HRV data will be screened for artifacts using ARTiiFACT software (Kaufmann et al., 2011). The time-domain measure of root mean square successive difference (RMSSD), will be calculated for each participant. If normality of data is assumed, then a multiple hierarchical regression model will be developed to explore the associations between inability to switch of from work (affective rumination) and the hypothesized factors (HRV and cognitive performance). HRV values, commission errors and reaction times on the cognitive tasks will be the independent variables (predictors) and affective rumination score the outcome variable. Demographic factors will also be controlled within the model (age, gender, occupation, education).

Conclusion/ Practical Implications. With work demands rapidly increasing and 61% of U.S employees citing work as a significant source of stress (APA,2017), it is essential, if imperative, that employees can fully recover from work on a regular basis. This study's findings can help elucidate the physiological pathway through which the inability to relax after work affects cardiovascular health and impairs well-being, therefore providing insight for the design of future biofeedback interventions addressed to aid insufficiently recovered employees.

Activity Focused View of Stress, Recovery, and Allostatic Load

Raymond Hernandez (University of Southern California)

Occupational Science (OS) is the study of occupation. Within the OS context occupation does not refer to work, as it is used in the field of occupational health psychology (Leka & Houdmont, 2010). Rather, the term occupation more generally refers to the daily life activities in which people engage including rest and sleep, work, and leisure (Amini et al., 2014). This variant of the term occupation originated from the founders and early pioneers in occupational therapy (Meyer, 1922),

who believed that engagement in occupation, or activity, was a key contributing factor to health outcomes (Yerxa, 1992).

OS conducts original research to synthesize perspectives from a multitude of fields to promote understanding of activity and/or advance activity-focused interventions. This paper proposes an activity-focused theory of workplace stress and related outcomes, integrating theories from various fields including occupational psychology, neuroendocrinology, and integrative medicine.

In psychology, stress is often defined as the perception that environmental demands exceed one's ability to cope, accompanied by a negative emotional response (Cohen, Kessler, & Gordon, 1995). A more general endocrinological conceptualization of stress is utilized here, where it is defined as a state in which there is a perceived or actual threat to homeostasis, accompanied by a physiological stress response resulting in effects that include an increase in arousal and vigilance (Chrousos, 2009). Stressors in this broader view include not only psychosocial stressors, but also physical movement, high motivation tasks, and cognitive demands (Epel et al., 2018). An accountant analyzing financial data may not be stressed in the psychological sense, but she would likely be stressed in the general endocrinological sense because the cognitive challenge presented by the task is a demand that presents a threat to homeostasis.

Excessive amounts of this more general stress, as opposed to the psychological form, is believed in the neuroendocrinology literature to result in metabolic wear and tear, also known as allostatic load (AL). Greater levels of AL have been associated with symptoms typical of chronic stress such as fatigue (Rose et al., 2017) and various sleep disturbances (Chen, Redline, Shields, Williams, & Williams, 2014). Higher levels of AL have also been associated with a greater incidence of health issues (Seeman, 1997).

The Effort-Recovery model, drawn from occupational psychology literature, encapsulates these ideas of the general stress response and AL, but also places greater emphasis on the importance of recovery (Meijman & Mulder, 1998). In this model, its concept of "load reactions" may be seen as analogous to stress responses, and "load effects" to AL. The model highlights the need for adequate time for recovery, defined as ceasing of exposure to work demands resulting in a steady return of psychobiological systems to predemand levels (Meijman & Mulder, 1998) free of load reactions and/or load effects. Greater disruptions in the balance of psychobiological systems, or greater load reactions (stress responses) and/or load affects (AL), are theorized to require more extensive recovery periods (Meijman & Mulder, 1998).

While the Effort-Recovery model is more explicit about the importance of recovery, its conception of recovery as occurring when stressors in the form of work demands cease is limited, as there may be other forms. Another type of stress recovery that is important to consider may be activities that elicit the relaxation response, a term stemming from the integrative medicine literature referring to engagements such as listening to soothing music. These activities result in arousal levels lower than baseline but in a wakeful state (Benson & Proctor, 2010). Regular elicitation of the relaxation response has been associated with positive health outcomes such as changes in gene expression in genes implicated in cellular processes believed to counteract cellular damage related to chronic psychological stress (Dusek, Otu, et al., 2008). Lastly, another form of recovery relevant to the effects of stress may be sleep, as it is believed to play a role in general restoration of the body and mind (Zisapel, 2007).

To summarize, excessive exposure to workplace activities which are stressful in the endocrinological sense, with inadequate time engaging in rest and/or recovery activities, can lead to measurable physiological damage known as AL. This perspective can help to inform more activity-oriented approaches to workplace stress management including interventions. One example is interventions focused on finding ways to make stress activation as efficient as possible such as by removing unnecessary activities of activation (e.g. ensuring office equipment is functional so that stress activation does not have to be used to problem solve how to utilize a printer in addition to completing work demands). Another example is helping employees establish a routine of relaxation response elicitation with a frequency and duration dependent on presence of AL symptoms (e.g. increasing frequency/duration of relaxation response elicitation if employees report fatigue and sleep disturbances). Efficacy or lack thereof of such approaches may in the future be measurable through AL.

The Differential Effects of Recovery Experiences on Employee Well-Being: A Meta-Analysis

Claire Smith (Bowling Green State University)

Work stress has long been regarded as harmful to health (e.g., Ganster & Schaubroeck, 1991; Spector, 1987) and over recent decades has earned credibility as a threat to organizations' function and bottom line, for example, through absenteeism (Darr & Johns, 2008). Today's workers face new, stressful challenges such as longer working hours, overlapping work and personal lives, and job insecurity (Weaver, 2015; Bureau of Labor Statistics, 2017). These challenges make it increasingly important that workers use their off-job time to recover from work stress. Organizational researchers have acknowledged this important topic and developed a thorough literature examining the types of activities and experiences that contribute to recovery from work. Specifically, the Recovery Experience Questionnaire (REQ) developed by Sonnentag and Fritz (2007) has gained immense popularity and the resulting literature demonstrates that four subjective recovery experiences (i.e., psychological detachment, control, mastery, and relaxation) positively impact a variety of well-being outcomes such as affect, sleep, fatigue, work-home interference, burnout, and chronic health impairment (e.g., Derks & Bakker, 2014; Kinnunen, Feldt, Siltaloppi, & Sonnentag, 2011; Sonnentag, Binnewies, & Mojza, 2008).

Yet little direct attention has been given to the differential effects of these recovery experiences. Resource theories (e.g., Broaden and Build, Fredrickson, 1998; Conservation of Resources Theory, Hobfoll, 1998; Ego Depletion, Baumeister, Bratslavsky, Muraven, & Tice, 1998) indicate that the importance of each recovery experience in predicting well-being may depend on the specific outcome. Challenging mastery experiences, for example, may deplete energy as a result of effort exertion (Baumeister et al., 1998) but boost positive affect (Fredrickson, 1998). However, the recovery literature, despite its fast growth, is still relatively new and does not yet reflect this level of nuance. The original REQ paper suggests that one of the experiences, psychological detachment, may be the most important health and well-being (Sonnentag & Fritz, 2007), and detachment has subsequently received significantly more research attention than the other recovery experiences (e.g., Wendsche & Lohmann-Haislah, 2017). However, emerging empirical evidence suggests that psychological detachment may not always be the most important recovery experience in predicting health (e.g., Derks & Bakker, 2014; Sonnentag, Binnewies, & Mojza, 2008). Recently conceptual arguments agree that careful attention to recovery experiences beyond detachment is warranted (Fritz & Sonnentag, 2015).

In line with this purpose, this study expands upon previous efforts to synthesize the findings in the recovery literature (i.e., Bennett, Bakker, & Field, 2017; Fritz & Sonnentag, 2015; Wendsche & Lohmann-Haislah, 2017) by meta-analytically examining the relationship between all four recovery experiences and a wide variety of well-being outcomes (i.e., burnout, exhaustion, fatigue, positive affect, negative affect, and work-family conflict). A literature search of peer-reviewed articles referencing the REQ provided 891 results; only empirical studies, written or available in English, and measuring (1) at least one of the four recovery experiences and (2) at least one well-being outcome were retained. Currently, 27 independent samples have been included in the analyses (N=1040 to 2223 depending on outcome). However, over seventy additional studies have been coded and are currently undergoing quality checks to be included in the final presentation.

Preliminary results from an individually corrected simple artifacts meta-analysis (Hunter, Schmidt, & Jackson, 1982; Schmidt & Hunter, 2015) suggest that psychological detachment is not always the most influential recovery experience for employee well-being, simply the most studied (see Table 1 for preliminary results). For example, relaxation and control demonstrate negative correlations with exhaustion that are of a similar magnitude to the detachment/exhaustion correlation. Of note, likely presence of moderators was detected in some instances (see Table 1). Type of data collection (e.g., cross-sectional, diary study, longitudinal), context of recovery (e.g., evening, weekend, vacation), and geographical location of sample will be examined as moderators in the final presentation.

Overall, the findings from the preliminary analyses and planned continuation will provide more detail to the theoretical understanding of recovery experiences and guide future research questions and design. For instance, the results suggest that qualitative and time-lagged study designs that delve into why recovery experiences relate differently to well-being outcomes may be of particular value in future research. Recovery researchers should also focus on mastery experiences in the future, as they consistently demonstrated small correlations with outcomes. Examination of individual differences and contextual factors may be crucial in understanding when mastery experiences help employee well-being. Finally, the findings have practical utility in that workers may be able to target their off-job activities to certain experiences based on the outcome they would like to improve. For example, a person who finds him or herself in a bad mood after work may want to focus on psychologically detaching from work or relaxing when at home whereas a worker who is exhausted could also try to exert control over their off-job time if detachment or relaxation proves difficult for him/her to achieve.

Too much of a good thing? Exploring the Curvilinear Interaction between Work Recovery Strategies and Role Overload on Engagement

Gargi Sawhney (Auburn University)

Research in the area of recovery from work-related stressors has gained momentum over the last decade, with the majority of studies demonstrating the positive effect of recovery strategies in alleviating the negative effect of stressors on strains (Sawhney et al., 2018). Geurts and Sonnentag (2006) defined recovery as "a process of psychophysiological unwinding" that occurs in the absence of demands when the psychophysiological systems stimulated by stressors at work return to their initial baseline levels (p. 483). Much of the research on recovery has focused on recovery occurring after the workday (Kinnunen et al., 2011; Siltaloppi et al., 2009).

In recent years, studies have started investigating how engaging in recovery activities at work can allow employees to replenish their resources, thereby sustaining their energy at work. These activities can include taking short breaks, talking to peers and supervisor regarding work and work-related stress, and exercising during the workday (Fritz et al., 2011; Lee et al., 2015; Sawhney et al., 2018). Kim et al. (2017) found that on-job recovery strategies, such as relaxation and social activities, buffered the same-day relationship between work demands and negative affect.

Despite the advances in recovery research, studies have yet to explore the curvilinear effects of work recovery strategies on various outcomes of interest. The current study uses an experience sampling methodology to explore the curvilinear effect of work recovery strategies on work engagement. In addition, this study examines the moderating effect of role overload on the work recovery – work engagement relationship.

Method. A total of 130 participants who were members of Amazon's Mechanical Turk residing within the USA participated in the current study. On average, participants were 20.46 years of age (SD = 10.14) and employed for at least 30 hours a week. Over a period of ten work days, participants completed measures of role overload, work recovery strategies, and work engagement in the evening before leaving work.

Role overload was measured using five items (Spector & Jex, 1998). Three work strategies, namely, nutrition (3 items), social activities (4 items), and relaxation (7 items), were examined using items developed by Fritz et al. (2011). Work engagement was captured using Schaufeli et al.'s (2006) 9-item measure. All measures exhibited adequate reliability (i.e., .70 or higher; Nunnally & Bernstein, 1994).

Results and Discussion

Correlations among all study variables are presented in Table 1. Specifically, results indicated a positive relationship between role overload and work engagement. Additionally, relaxation, nutrition, and social activities were positively related to work engagement.

To further test the moderating effect of role overload on the relationship between recovery strategies and work engagement, we conducted multilevel regression analyses. First, we group-mean centered role overload and all three recovery strategies. Next, we squared the three centered recovery strategies. To create linear interaction terms, we multiplied centered role overload with each of the three centered recovery strategies. Lastly, we created three quadratic interaction terms by multiplying centered role overload with each of the three centered and squared recovery strategies.

The results of the multilevel regression are presented in Table 2. While nutrition and relaxation exhibited a significant positive and linear effect on work engagement, no linear relationship was found between social activities and work engagement. Additionally, nutrition exhibited a negative curvilinear effect on work engagement, suggesting that work engagement decreased as participants engaged in more nutrition activities. No curvilinear effects were found for social activities or relaxation.

With respect to interactions, our findings indicated none of the three recovery activities linearly interacted with role overload to predict work engagement. We did, however, find that social activities and relaxation exhibited a curvilinear interaction with role overload in predicting work engagement (see Figures 1 and 2). Specifically, the relationship between the two recovery strategies and work engagement were in the form of an inverted-U when role overload was low.

Much of the research on recovery suggests that recovery activities act as resources in stressor – strain relationships. Our study is the first to demonstrate that recovery activities could be an obstacle, depending on the level of stressors in the work environment. These findings have important implications for organizations. While organizations should actively monitor stress levels of employees, they can also coach employees that while recovery experiences are generally effective ways to unwind from stressors, too much recovery can also impede their motivation and work engagement. Future research should investigate the curvilinear effects of recovery strategies on other outcomes, such as job performance and employee health, as well as in the presence of other organizational stressors.

Salon 3 & 4

Approaches to Maintain Worker Health During Emergency Response

PAPER SESSION

Making the Case for Total Worker Health Approaches in the Fire Service: Detrimental Associations of Behavioral Health Impairment and Safety Behaviors

Todd Smith (Indiana University Bloomington)

Problem/Purpose: NIOSH and other safety stakeholders promote the use of Total Worker Health (TWH) approaches to improve worker safety, health and well-being. These approaches focus on integration and address both health protection (safety) and health promotion. Although research associated with TWH is advancing, more research is needed to illustrate and support why these approaches may be beneficial in improving worker safety, health and well-being. This research will support and make the case for using TWH approaches in the fire service as the results of our study illustrate the detrimental impact of behavioral health impairment on firefighter safety behaviors.

Methods. Data were collected from 724 career firefighters working at large metropolitan fire departments including one in the western United States and one in the eastern United States. Mplus was utilized to complete a path analysis that examined a model linking behavioral health impairment associated with stress and burnout to diminished safety behavior outcomes.

Results. Model fit was excellent given $X2 = 20.74$, $df = 4$, $p = 0.0004$, with a CFI of .99, a TLI of .95, a RMSEA of .08 and a SRMR of .02. The path analysis confirmed the posited relationships that work associated stress was positively associated with burnout ($B = .67$, $p<.0001$) and burnout was negatively associated with safety compliance behavior ($B = -.15$, $p<.0001$), effective use of personal protective equipment ($B = -.12$, $p<.0001$), use of safe work practices during fire service operations ($B = -.21$, $p<.0001$) and safety citizenship behavior ($B = -.08$, $p<.05$).

Conclusions. The results of this study illustrate the deleterious impact of behavioral health impairment on safety behaviors among firefighters. Burnout as a stress-related process does negatively impact safety performance. The implications of these findings support the need for TWH approaches that promote and protect the health of firefighters. In order to improve safety behaviors and safety performance, interventions and health promotion programs are needed to bolster behavioral health and well-being. As such, improvements in behavioral health should enhance safety behavior performance including complying with safety procedures and established work practices, effectively using personal protective equipment, utilizing safe work practices on the fireground and during fire service operations and exhibiting safety citizenship behaviors.

Using the AvidHrt Platform to Increase Firefighters' Access to Baseline Health and Medical Information: Technical, Social, Cultural, and Economic Barriers to Adoption

Timothy Amidon (Colorado State University)

Firefighting is among the most hazardous occupations, as workers routinely operate in high risk environments (Piha, et al., 2012; WHO, 2010; Griffin et al, 2016; Macquire et al, 2005; US DOL, 2013; Fahy, LeBlanc, & Mollis, 2016). According to the USFA (2018), between 2007-2016 there were an average of 2.92 fatal injuries for every 100,000 fires with a high of 4.84 (2014) and a low of 2.01 (2016). Longitudinal studies of occupational safety within the industry conducted by the United States Fire Administration (2018) and the National Fire Protection Agency (Fahy, LeBlanc, & Mollis, 2016) have indicated that the cumulative number of casualties has been declining over the past decade. However, NFPA researchers have cautioned that injuries continue to occur at nearly the same rate as in previous decades, when the number of injuries sustained is considered in relation to the number incidents to which firefighters respond (Haynes & Mollis, 2017). The National Institute for Standards and Technology (NIST) has approximated that firefighter injuries have an economic cost of between $2.8 and $7.8 billion annually within the United States (2004). Attending to firefighters' cardiovascular health and physiological fitness is essential element of Total Worker Health inventions that seek to improve occupational safety and health outcomes within the industry.

After receiving IRB approval to conduct human subjects research, we contacted and secured permission from the leaders of three fire departments located in rural or geographically remote areas of Colorado. On four separate dates, we visited three departments, recruiting a total of 36 firefighters of various ranks. Each subject was followed the directions provided with the monitoring device to capture an ECG recording using a personal vital signs monitoring device that pairs with a smart-phone app. Algorithms have been developed that inform an individual to seek immediate care if their recordings are reflective of a high-risk state such as Atrial Fibrillation (AFib).

After subjects took a reading using the device, we conducted focus group interviews with 5-8 subjects asking them to identify technical, social, cultural, and economic barriers that they perceived might impact whether firefighters located in rural and/or geographically remote areas of the state might be willing to use platforms such as this. In total, we conducted six focus group interviews that ranged from 30-50 minutes in length. Our discussion highlights the the social, cultural, and economic barriers that might influence whether firefighters are likely to make use of telemedicine (broadly) and smart-phone apps (specifically) in order to receive baseline information about their cardiovascular health and physiological fitness. Using a qualitative approach to coding, we utilized a set of starter codes to identify technical barriers (TB), social barriers (SB), cultural barriers (CB), and economic barriers (EB) that subjects articulated during the focus group interviews. In the future, we plan to complete a second round of coding to reveal if significant axial relationships exist between these starter categories.

Subjects identified a broad range of technical, social, cultural, and economic barriers that could adversely impact whether firefighters might utilize the platform to receive the type of baseline

cardiovascular health screening that they might receive in a CMFP such as the Firefighter Testing Program. Overall, privacy was the most common concern that participants identified. However, coding revealed that privacy manifests with a spectrum of cultural, economic, and social barriers. For instance, subjects articulated that they may not want to use the technology within a CMFP because the data could be used by a superior officer to remove them from the line if they failed to meet a particular fitness level or if their reading flagged an anomaly that might require more in-depth medical clearance. Whereas some subjects appear to consider this an economic barrier (concerns about losing income), others framed this as a social barrier (concerns about not being able to see or work with those they had developed friendships), and still others framed this as an ideological, cultural barrier (beliefs' that an employer should not have the right to access what amounts or should amount to privileged medical information).

Schall, Sesek, and Cavuto (2018) argued that privacy is the most significant barrier currently impacting whether emergent technologies like wearables are likely to adopted in occupational safety and health settings. Our findings resonate with their work and suggest that privacy is an issue that must be considered by those seeking to design or implement telemedicine or smart-phone apps within Total Worker Health interventions. Certainly, individuals harboring strong views about their right to medical confidentiality may not be easily swayed, but concerns about data breaches might dissipate if designers employ strong end-to-end encryption and concerns about being summarily dismissed from a position are allayed by department administrators who develop programs that connect employees with resources that can empower firefighters to cultivate practices that can engender healthier lifestyles.

Policy and practice initiatives to improve ambulance staff mental health and well-being in England: a national picture in a global context

Kristy Sanderson (University of East Anglia)

Statement of problem: Ambulance sector staff are at elevated risk of a range of poor health and well-being outcomes including depression, post-traumatic stress disorder, suicide, poor sleep quality, and worse physical health (Hegg-Deloye et al., 2014; Milner et al., 2017). Occupational stress and adverse work environments are an important modifiable determinant of these outcomes (e.g. Pow et al., 2017). This paper presents three studies to explore the national policy and practice initiatives underway in England to address these health inequalities, in the context of a new global initiative to embed a proactive approach to health and well-being of staff in ambulance services.

Aims: Three studies were conducted to: (i) explore the quality of the work experience amongst the English National Health Service (NHS) ambulance sector staff, and the organisational commitment to staff well-being; (ii) produce an evidence map systematic review of published and grey literature on ambulance staff health and well-being to understand the quality of the evidence base for improving health and well-being in this sector; and (iii) explore the policy and organisational supports currently in place for staff well-being across the ambulance sector in England.

Procedures. (i) Data were obtained from the most recent NHS Staff Survey for the 10 ambulance services in England (2017, N >15,000 ambulance staff), which collected data on: work environment (e.g. demands and rewards; role clarity; violence, bullying and harassment); well-being (job good for health; unwell due to work-related stress; presenteeism, musculoskeletal health) and engagement; and perceived organisational commitment to staff well-being. (ii) Systematic review methods were used to identify and synthesise the published and grey literature of the UK ambulance sector over the past 20 years for prevalence studies and health and well-being and interventions (Clark et al., 2018). (iii) A national review of policies and procedures related to health and well-being was conducted for all ambulance services in England to collate all documents relevant to staff health and well-being and rate the extent to which an integrated approach to workplace mental health (LaMontagne et al., 2014) has been implemented within each service.

Analyses. (i) Cross-sectional analyses by occupational group investigated the prevalence of psychosocial risks and association with outcomes. Given the large sample size, effect sizes were considered of greater interest than statistical significance. (ii) An evidence map was produced describing the scope and gaps of the evidence base. (iii) A content analysis was undertaken (Memish et al., 2017).

Results. Fifty-eight percent of paramedics and 50% of general managers reported feeling sick due to stress in the past 3 months, and 68% of operational staff reported sickness presenteeism. Across all staff a poor work environment, especially lower support from managers and experiencing violence, bullying or harassment, accompanied poorer well-being and engagement. The evidence map showed that most peer-reviewed literature is descriptive in nature with no intervention studies located. Policy and practice supports for staff well-being are rapidly evolving following a national roll-out of a policy toolkit to support well-being and suicide prevention.

Practical implications. More than 40,000 people work in the ambulance sector in England. Managers themselves as well as front-line staff are in need of improved support. Priority areas for action include occupational stress, presenteeism, and violence, bullying and harassment.

Conclusions. Ambulance sector work is high-risk from both exposure to trauma inherent in the work, and the quality of the organisational response to staff well-being. There is a high need for a quality and proactive organisational response to staff well-being in the ambulance sector that incorporates interventions at different levels, but a poor evidence base from which to implement solutions. A new international network has been established to advance the staff well-being agenda.

Salon 5 & 6

Interpersonal Stress Predictors and Effects

PAPER SESSION

Employee's Reactions to a Suffering Coworker - an Appraisal Approach to Understanding Witness Helping Behavior and Distress

Youjeong Huh (University of Alabama)

For individuals who constantly encounter various job stressors at work, witnessing a coworker experiencing some type of difficulty may be an unfortunate everyday event. Then, what do employees do in response to a coworker's suffering? How does coworker's suffering affect employees? Which factors may promote workplace helping? The present study aims to answer these questions.

Although previous research in workplace helping has been successful in identifying antecedents and consequences of helping (e.g., Williams & Anderson, 1991), studies often utilized social exchange

theory (Thibaut & Kelley, 1959) or the norm of reciprocity (Gouldner, 1960) as their theoretical foundations to explain why employees help at work. However, these theories do not adequately include other help motives that may explain exceptions, such as an employee who perceives high level of support from the organization but chooses to ignore a suffering coworker, or an employee who has previously received help from someone but decides not to help in return when it is needed. Many personal and situational factors are evaluated by individuals as they make their decision to help or flee, such as relationship with the sufferer, intensity of the suffering, and personal belief that they can help. The cognitive appraisal theory (Lazarus & Folkman, 1984) may explain a possible mechanism through which individuals reach the help-or-flee decision. The theory proposes that negative events themselves do not cause negative emotions in individuals; the theory proposes that what one individual considers as stressful may not be the case for others, indicating that research focus should be on understanding how individuals interpret different situations, rather than on simply examining direct associations between stressors and strains.

Using the cognitive appraisal theory as our theoretical foundation, we propose that witnessing a suffering coworker activates primary appraisal in the witness. If the witness considers the sufferer's well-being to be important and self-relevant, secondary appraisal will be triggered to assess whether the witness has available resources to help the sufferer effectively deal with the situational demands. If the witness has adequate resources to cope with the situation, he or she may feel increased sympathy towards the sufferer, and the chance of the witness helping may increase. In contrast, if the witness lacks such resources, the chance of helping decreases and the witness may experience distress. Another contribution of our study lies in our research on investigating how other's suffering triggers distress in witnesses. A number of research have investigated how one's distress affects his or her own performance and health outcomes (e.g., Guglielmi & Tatrow, 1998) but only few studies so far have examined how other's distress affects people at work (e.g., Hershcovis & Bhatnagar, 2017). Furthermore, given the critical role of self-efficacy on witnesses' decision to help-or-flee, in Study 2, we investigate personal and organizational factors that affect witnesses' judgement about their self-efficacy in helping at work.

Study 1 examines hypotheses that are building blocks of the helping model; 174 MTurk participants were given $1.50 for their participation. MPlus version 6.11 (Muthen, 2011) was used to conduct latent path analysis. Results from the study are as follow; The overall fit of the model was acceptable (CFI = .90, RMSEA = .08, SRMR = .08). Consistent with Hypotheses 1 and 2, relationship closeness positively predicted sympathy (B = .21, p < .05), and helping efficacy negatively predicted distress (B = -.36, p < .01). In line with Hypotheses 3a and 3b, helping efficacy positively predicted sympathy (B = .43, p < .01) and sympathy positively predicted helping behavior. Moreover, sympathy mediated the relationship between closeness and helping behavior, thereby supporting Hypothesis 3c (B = .05, SE = .03, p < .05). Hypothesis 3d, which predicts the mediating role of sympathy in the relationship between helping efficacy and helping behavior, was also supported (B = .11, SE = .05, p < .05). Finally, in support of Hypothesis 4, perceived severity of coworker's suffering positively predicted witness distress (B = .31, p < .01).

Study 2 was conducted to replicate findings from Study 1 and to identify individual and organizational factors that may shape witnesses' perception of their efficacy in helping at work. Newly included variables in Study 2 were experience of success in helping coworkers, coworker receptiveness of help, time pressure, energy depletion, and climate for helping. These variables were selected based on Bandura (1986), in which sources of self-efficacy were delineated. Final sample was 317 South Korean employees. Data analyses will follow the equivalent method described in Study 1.

Antecedents to the stressor-strain relationship: the role of communication climate

José Rodríguez (Florida International University)

Interpersonal conflict in the workplace is often cited as a leading social stressor across occupations (Mazzola, Schonfeld, & Spector, 2011) requiring an adaptive response from employees. Interpersonal conflict is defined as, "a dynamic process that occurs between interdependent parties as they experience negative emotional reactions to perceived disagreements and interference with the attainment of their goals" (Barki & Hartwick, 2004, p. 234). Recent research has found that non-task organizational conflict, a form of interpersonal conflict in which one is in a dispute with others at work due to organizational factors (i.e., disagreements over policies, imbalances in organizational power, poor leadership), had inimical effects on several outcomes (Bruk-Lee, Nixon, & Spector 2013; Rodriguez & Bruk-Lee, 2016).

Interpersonal conflict has been found to be a strong predictor of aggression targeted at other employees and at the organization (Herschovis et al., 2007). Often considered a strain reaction to stress (Fox & Spector, 2005), counterproductive work behaviors encompass a slew of retaliatory, volitional acts best understood vis-à-vis frustration-aggression theory (Fox & Spector, 1999). Non-task organizational conflict represents a form of goal impediment that is wholly out of the employees' sphere of control, thus counterproductive work behaviors seem to be a logical strain outcome to the experience of non-task organizational conflict.

According to Lazarus (1999), employees' appraisal of stress is paramount in understanding their subsequent reactions. Organizational climate is an often-overlooked organizational variable that influences how employees create and ascribe meaning to work events, including social stressors. Ashford (1985), defined organizational climate as, "the shared and enduring molar perception of the psychologically important aspects of the work environment" (p. 837). Ehrhart, Schneider, and Macey (2014) state that climate captures the meaning employees infer from the policies, procedures, and practices of the organization. According to Schneider and Reichers (1983), "...the symbolic interactionist approach maintains that people in communicative interaction with each other, respond to, define, and interpret elements of the situation..." (p. 33). It would follow that to understand stress appraisal, an investigation of the climate as a precursor is warranted. Communication climate has been conceptualized as having supportive and defensive features (Gibb, 1961). Defensive behavior that is the reaction to a threat or perceived threat will produce defensive communication acts (e.g., not listening). According to Gibb (1961), "as a person becomes more and more defensive, [they] become less and less able to perceive accurately the motives, the values, and the emotions of the sender" (p. 142). By contrast, supportive communication climates will reduce defenses and "the receiver becomes better able to concentrate upon the structure, the content, and the cognitive meaning of the message" (p. 142). Communication climate reflects the expectations employees have for interacting with others in communicative acts. Communication climate may serve as an antecedent to

the stressor-strain process by setting the perceptual framework from which subsequent stress appraisals are made.

123 participants completed the same survey questionnaires at two different time points (i.e., about four-weeks apart). The survey captured employee perceptions of the communication climate (i.e., supportive and defensive), perceptions of the experience of non-task organizational conflict (i.e., social stressor), and reports of engagement in counterproductive work behaviors (i.e., strain). The data were analyzed using AMOS 22 with bootstrapping for confidence intervals. Several analyses were run across time points (see attachment for tables). Findings suggested that higher rates of non-task organizational conflict at time one predicted subsequent reporting of engagement in counterproductive work behaviors four weeks later at time two. While neither aspects of communication climate at time one significantly predicted subsequent reports of non-task organizational conflict at time two, supportive communication at time one was associated with fewer reports of counterproductive work behaviors at time two. Moreover, when all variables were analyzed using only the data from time two (with their respective time one used as a control), the indirect effects of communication climate emerged. Defensive communication climate was associated with increases in non-task organizational conflict, which was associated with increased reports of counterproductive work behaviors. Supportive communication climate was associated with reduced non-task organizational conflict that itself continued to be positively associated with reports of counterproductive work behaviors.

Appraisal theory of stress focuses on how employees attribute meaning to work events and the importance of such attributions to the experience of stressors and strains. Organizational climate emerges from employees' social interactions and seems to serve as a framework from which to understand the origin of stress appraisals, specifically the experience of interpersonal conflict. The results of this study suggest that communication climate, as a specific aspect of the organizational climate, can serve as a lens through which employees view interpersonal conflict with supportive communication climates minimizing the perception of interpersonal conflict and defensive communication climates increasing it. Supportive communication climates may help to ameliorate other frustrations and thus reduce the need for employees to engage in counterproductive work behaviors.

The Sacred and Stressed: Testing a Model of Clergy Health

Drake Terry (Old Dominion University)

In many ways, clergy and religious leaders (e.g., pastors, ministers) are an ignored yet high-risk population (Birk, Rayburn, & Richmond, 2001). In their efforts to ensure the spiritual well-being of their congregations, clergy frequently neglect their own well-being. This results in frequent stress, burnout, and other health-related impairments for members of this population (Halbesleben & Buckley, 2004). A clergy member unable to cope with these same challenges in his or her own life may be ineffective at helping church members to cope with their stress. For this reason, Cunningham (2014) noted that the stress and well-being of clergy are psychological health and well-being issues that can inherently trigger negative ripple effects on the health and well-being of entire communities of religious and spiritual believers and practitioners. An implication of this is that to improve the health and well-being of clergy is potentially to indirectly improve the health and well-being of the vast numbers of people who are served or assisted in some way by clergy.

Recent theory and measure development efforts in this research space have led to several studies of specific occupational hazards or challenges faced by clergy. These challenges include managing high job demands, congregational criticism, lack of congregational support, and isolation (Frenk, Mustillo, Hooten, & Meador, 2013); achieving restoration following moral failures (e.g., alcohol abuse, adultery; Sutton & Jordan, 2013); and resolving conflict among congregation members (Proeschold-Bell, Yang, Toth, Rivers, & Carder, 2014). Proeschold-Bell et al. (2011) proposed a holistic model of clergy health functioning, which includes specific occupational challenges and their detrimental effects on clergy health.

Unfortunately, the constructs in the Proeschold-Bell et al. (2011) model are more theoretical than operational. While such a model is useful for conceptualizing the factors that influence clergy health, an operational model of clergy holistic health is still needed to empirically test the effects of occupational demands, and personal and job-related resources on the health of clergy. In the present study we developed and tested an operational model of clergy holistic health, including occupational demands, and personal and job-related resources (see Figure 1). Data were collected from clergy (N = 418) and analyzed using correlational and regression based techniques.

One important finding, in-line with the demands-control-support model (Johnson & Hall, 1988), was that job control appears to only be a health-enhancing job resource in the presence of moderate to high levels of work-related social support. In other words, this finding suggests that clergy need work-related social support before they are most able to benefit from job control. An implication here is that clergy mental health may be improved by (a) increasing available work-related social support and (b) helping clergy identify and exercise control over their work when possible. Practically, this work-related social support could come from congregation members, denominational leadership, and other church staff members. This support could range from asking clergy about their personal lives to seeing if the clergy need any help with their work-related tasks.

More generally, our overall results corroborated the propositions outlined in our proposed framework and align with previous research that has highlighted the negative relationship between perceived job demands and well-being. That said, the present findings expand on previous research by identifying spiritual well-being as an important outcome that is impacted by job-related demands. Specifically, this expands on findings by Ellison et al. (2010) that spiritual struggle partially mediates the negative relationship between the stressful life events clergy frequently encounter and their mental health. With support from the present findings, we propose that spiritual well-being may be an important well-being outcome in its own right. While the present findings support this proposition for clergy, future research should also consider spiritual well-being as a meaningful outcome for study in the more general (i.e., non-clergy) population.

The present findings also underscore the value of using contextualized or occupation-specific measures in this type of research (Proeschold-Bell et al., 2014). According to the matching hypothesis, specific stressors and specific resources should ideally match to show moderating effects in the prediction of strain (Cohen & Wills, 1985; de Jonge & Dormann, 2006). This hypothesis is supported by the present findings in that available resources (e.g., work-related social support) for clergy corresponded to existing stressors (e.g., emotionally taxing job duties) to mitigate the negative effects of those stressors on mental health. Taken together, these findings suggest that future research should include occupation-specific measures to zone in on resources

which might be especially efficacious for mitigating the negative effects of stressors on health and well-being outcomes.

By implication of this study, those interested in addressing clergy well-being needs should focus their attention on the environments in which clergy work. Work-related social support from the congregation, denominational leadership, supervisors, and co-workers should be the first priority of those who wish to help clergy.

Independence Ballroom A

CEP

Addressing Mental Health in the Workplace

PAPER SESSION

Examining the use and effectiveness of workplace Employee Family Assistance Programs for the identification and treatment of employee depression

Emily Read (University of New Brunswick)

Problem. Healthcare workers are facing increasing job demands and high levels of work stress due to increased pressure on the system accompanied by fiscal and human resource challenges (Cooper et al., 2016; Statistics Canada, 2015). As a result, healthcare workers are particularly vulnerable to job burnout (Schmidt et al., 2014), poor mental health, and depression (Zhang et al., 2014). In fact, in any given year Canadian nurses are twice as likely to experience major depressive disorder as other working women between 25 and 61 years of age (Ohler, Kerr, & Forbes, 2010), with higher rates among those working outside of hospitals (Enns et al., 2015). In one report, almost 50% of nursing assistants in nursing homes were at high risk of depression (Muntaner et al., 2014). Yet, depression amongst nursing home employees has received little attention until recently and studies have focused primarily on nursing staff. Given the critical role that nursing homes play in our healthcare system as the population ages, it is important to understand and address employee well-being and mental health to ensure safe, high-quality, and cost-effective care. Many organizations offer Employee and Family Assistance Programs (EFAPs) that provide support and resources to their employees, including confidential counseling services. Initial evidence shows that EFAPs can be an effective intervention for depression (Nakao et al, 2007). However, the extent to which nursing home employees with depression are using their EFAP is unknown and it is unclear if they are an effective resource for identifying and treating employee depression.

Procedures. A mixed methods study of employees working in nursing homes across the province of New Brunswick, Canada, was conducted. In phase 1, a cross-sectional online survey comprised of demographic variables, validated self-report questionnaires and researcher-developed questions about EFAP use and satisfaction was completed by 89 non-managerial employees. In phase 2, we conducted one-on-one semi-structured interviews with 12 nursing home employees and managers. The main purpose of these interviews was to gain an in-depth understanding of factors that inhibit and facilitate EFAP use for employees with depression in respondents' own words and context.

Analyses. Phase 1: Descriptive statistics were used to assess employee demographics, prevalence and intensity of depressive symptoms, EFAP usage, and employee health and job-related variables. An independent samples t-test was conducted to compare variable means between those with high and low depression scores. Phase 2: Interview data was transcribed verbatim and analyzed using NVivo software for significant themes. Codes were applied to categorize statements that share similar ideas including topics of discussion in response to questions, areas of agreement and disagreement, and characteristics of the discussion (Corbin & Strauss, 2014).

Results. Consistent with past research, nursing home employees in our New Brunswick sample experienced high rates of depression (67%). There were significant differences between those reporting severe symptoms of depression and the rest of the sample. Nursing home employees in the severe depression category had higher levels of emotional exhaustion and cynicism, and greater intentions to leave their jobs. They also had lower scores on resident-centered care, personal efficacy, work engagement, job satisfaction, and self-rated health. Qualitative findings showed that both managers and employees perceived that the program is underutilized. Most managers knew about the program but some employees did not. Managers reported doing little to promote the program and in many cases it appeared they did not clearly understand their role. Some noted that they would find it helpful to have more specific direction from the benefits provider related to promoting and directing employees to the program. On the whole, barriers to using the program identified by both managers and employees include lack of awareness about the program, concerns related to confidentiality, and/or feeling reluctant or embarrassed to seek help, particularly as it relates to mental health.

Practical implications. Our research suggests that nursing home employees are at high risk of depression which has a significant negative association with nursing home employee health and their experiences at work. EFAPs are a potential job resource that could help workers in this sector cope with depression, which may lead to improvements in personal health and workplace well-being. Managers appear to play a key role in promoting EFAPs in nursing homes but need more guidance and support to promote these resources to staff effectively. Moreover, managers may help reduce the fear and stigma associated with asking for help by creating a psychologically safe and empowering workplace where employees feel supported.

Conclusions. Our study showed that depression is an important mental health concern affecting employees working in New Brunswick nursing homes. Results confirmed that EFAPs are an underutilized resource that could help this population. To improve EFAP usage, nursing home managers and employees need better guidance and support.

The Working Mind: Reducing Mental Health Stigma in the Workplace

Stephanie Knaak (Mental Health Commission of Canada)

The mental health (MH) of employees significantly affects their ability to work productively and to maximize both their own satisfaction in the workplace, as well as the economic activity of the employment setting itself. It is recognized that many workplaces have inherent stressors built into them, including normal stresses associated with workplace performance, interpersonal relationships, conflicts, and systemic pressures, can all contribute to potential MH problems. It has also been established that significant mental health challenges in the workplace create additional costs to disability programs, and that MH problems themselves are one of the greater contributors to overhaul costs of healthcare employee benefits. Considering these facts, the promotion and maintenance of workplace MH have become national imperatives in many countries and is supported by a variety of agencies and policies.

A review of workplace MH promotion and anti-stigma programs has unfortunately revealed that there are few evidence-based MH workplace programs. Many programs that purport to reduce stigma and enhance MH in the workplace are either not evaluated, are evaluated using acceptability ratings (which is only weak evidence) or are proprietary and so the evidence is unavailable for public use.

The Mental Health Commission of Canada has developed an evidence-based workplace MH program called The Working Mind (TWM). It has been shown to reduce stigma, increase resiliency and MH knowledge and promote over all mental wellness. Adapted from a program developed by the Canadian military, TWM and a companion program TWM First Responders has been used to train close to 150,000 employees and public safety personnel across Canada. At the centre of these programs is a simple colour chart known as a Mental Health Continuum (MHC). It is a self-assessment tool that helps individual determine whether they are beginning to develop MH problems. The program also provides coping strategies to assist employees maintain mental wellness or return to a place of good MH.

The program has been formally evaluated in several settings involving a survey design where data is collected at three time-points: immediately before the start of training, immediately after training, and 3 months following the end of training. The surveys include validated quantitative measures and instruments that assess specific objectives of the TWM program, including perceived stigma towards those with mental illness and perceived coping skills.

Two program objectives are to reduce the stigma of mental illness and to increase the resiliency of program participants. These are challenging goals, particularly as many do not have high levels of MH stigma. Most people in the workforce have good levels of MH and resiliency to begin. Given this baseline level of functioning, it is relatively difficult for broad programs to show dramatic changes on MH and stigma outcomes (Corrigan, et al, 2012).

Based on the combined results from 8 sites and 1155 participants, our evaluation results show that TWM leads to significant reductions in stigmatizing attitudes towards people with mental illnesses right after the training and that most of this reduction is maintained after 3 months. In fact, our stigma measures show an average effect size compared to baseline (Hedge's g) of 0.38, which means that scores are .38 of a standard deviation better than at baseline. Similarly, resiliency skills (i.e., participant's perceptions of how well they can handle or are equipped to handle stressors) have demonstrated significant increases after the training and these are generally retained after 3 months. Compared to our baselines scores, the effect sizes for resiliency are 0.50 at the end of the program, considered to be a moderate effect.

In addition to surveys, we have also used qualitative methods to examine the efficacy of the program. The results from these methods support our other results. Participants have indicated that the program is an "eye opening experience" and helps to dispel the myths and stigma associated with mental illnesses. One of the most prevalent findings is that participants gravitate to the tangible skills and the resources offered by the program. They find the "Big 4" Skills and the MHC Model to be useful and relevant for both work and personal lives. Participants have indicated that the program is well-organized and interactive, contains excellent materials and find the trainers engaging and knowledgeable. We are hearing, anecdotally, that implementation of TWM has had immense impact on participants. Participants regularly self-identify on the MHC Model and more promptly seek resources.

Our evaluations show that although a brief program, TWM significantly reduces stigma and increases resiliency; impressive outcomes in the context of a broadly applied program. Although our evaluation methods are rigorous, they are less rigorous when compared to a RCT design. Despite this, we are confident in our results, especially as these positive results are found consistently across different sites.

We propose to share elements of the training program and the findings of the new research that has been conducted.

Process and outcome evaluation of a mental health intervention for correctional officers: A Total Worker Health participatory Approach

Mazen El Ghaziri (UMass Lowell)

Statement of the Problem: Correctional Officers (CO's) work in physically and psychologically demanding environments and are exposed to traumatic incidents on a routine basis (Spinaris, Denhof, & Morton, 2013). COs also report poorer physical and psychological health outcomes compared to national averages, such as PTSD (Spinaris, Caterina G., Denhof, & Kellaway, 2012), depression (Obidoa, Reeves, Warren, Reisine, & Cherniack, 2011), coronary health disease, along with substance abuse to cope with the stressors that arise from their occupation (Morse et al., 2011). Moreover, there is a disparity in life expectancy for COs compared to the national average (59 years versus 75, respectively), and limited interventions have been designed to help improve their health (Cherniack et al., 2016).

Purpose: The purpose of this presentation/paper session is to describe the design, implementation, and evaluation process of a mental health intervention targeted to improve the mental health conditions of line-level COs working in a juvenile correctional facility in a Northeastern state using a Total Worker Health participatory approach. This study was conducted through the Health Improvement Through Employee Control (HITEC), a research study based out of the Center for the Promotion of Health in the New England Workplace (CPH-NEW), a Total Worker Health research center of excellence.

Methods. A design team (DT) consisting of nine front-line correctional staff, union representatives, a facilitator (CO), and advisors (research staff) have been meeting for 12 months to address mental health issues including stress reduction in the workplace for COs. The DT utilized the CPH-NEW Healthy Workplace Participatory Program (HWPP) online tool kit to develop a mental health intervention tailored to COs at their facility. The DT used the Intervention Design and Analysis Score Card (IDEAS) tool (Robertson et al., 2013), which is part of the HWPP online toolkit, and a 7-step intervention planning process to help with designing the intervention. The DT will use a pre and post survey, designed by the DT, to assess the efficacy of the mental health intervention.

Process evaluation metrics, such as the quality of facilitation will be evaluated using surveys and qualitative data (Advisor notes). Moreover, participatory design outcomes will be evaluated using pre-and post-intervention survey.

Findings: Through the IDEAS tool, the DT of correctional officers conducted a root cause analysis identifying work stress as the primary health, safety and well-being concern affecting their workforce. The objective of the intervention was to mitigate work stress and post-incident stress exposure at their facility. Utilizing the IDEAS step-by-step process, the team then established the criteria for evaluating the intervention and applied selected criteria to the solution activities by identifying the impact of the intervention, potential barriers, and solutions to

the barriers, and packaged and rated their proposed interventions. The proposed packaged interventions included the development of trainings and policies for report writing, improving post incident decompression and recovery time and establishing a suitable and accessible space for decompression. Additionally, the DT of correctional officers are currently working closely with a facility steering committee (FSC) made up of supervisory and administrative staff at the juvenile correctional facility in collaboration to implement and evaluate the intervention using pre- and post-intervention surveys. The team will be starting the data collection and data analysis process for the pre-intervention survey in the next month.

Preliminary analysis of process data from the advisor's survey reflected the following scores: The mean quality of facilitation was 3.3 out of 4, which is indicative of positive facilitation skills including preparation, engagement, and resourcefulness of the facilitator. The mean score of the IDEAS step assessment was 2.5 reflecting the demands of the tool and process, along with the need for certain adaptability. A group dynamic mean score of 3.6 out of 4 was reflective of the contribution of the group to the discussion, positive and respectful interactions, and the commitment to the process. The following themes emerged from the qualitative process evaluation data: communication process between facilitator and DT, and between DT and FSC; IDEAS step process; commitment and engagement of the DT members and the FSC; and the quality of facilitation.

Implications and Future Direction: This participatory design is currently being implemented in three facilities within the Department of Correction in the Northeastern state. The results from this study will guide in establishing the sustainability and system-wide integration of the program in DOC both locally and nationally.

Resources enabling sustainable return to work for workers with CMDs

Karina Nielsen (University of Sheffield)

Problem statement: The individual, social and economic costs of poor mental health in the workforce are significant (Bilsker et al., 2006). CMDs such as depression, anxiety disorders and adjustment disorders present a major problem in the OECD countries (OECD, 2015). It is estimated that 15% of the working population suffer from common mental disorders (CMDs) and 1 in 2 experience mental ill-health problems at least once in their life, which has serious implications for employment prospects, productivity and wages (Hewlett & Moran, 2014). Even if employees with CMDs return to work, keeping them at work presents a major challenge. Koopmans et al. (2011) found that over a period of seven years, 19% of returned employees had a recurrence of absence; 90% of recurrences occurred within 3 years. Recurrent sickness absence spells due to CMDs often last longer than the first period (Koopmans et al., 2011) and frequent periods are related to increased risk of work disability (Koopmans et al., 2011).

Current research on return to work for employees with common mental disorders suffers from two limitations: First, research mostly focuses on the influence of resources during the absence period ignoring the resources which may facilitate sustainable return to work, i.e. employees continuing to work and thrive at work post-return. Second, research tends to view the work and non-work domains separately and fails to consider the interaction of resources at the individual, group, leader and organizational levels. These limitations call for an integrated approach focusing on the resources that may promote sustainable return to work, i.e. returning and thriving at work without relapse. We define resources broadly as the factors that an individual may use to achieve their goals (Halbesleben et al., 2014); in this case sustainable return to work is the goal. In 2018, a framework for addressing these issues was developed which argues that resources at the Individual, Group, Leader, Organisational and Overarching context (e.g. national legislation) may all contribute to sustainable return to work (Nielsen et al., 2018). In the present study, we aim to operationalize the framework by exploring these three key issues:

Key research questions include:

1) What are the work resources that help workers stay at work after return to work at the individual (e.g. self-efficacy), group (work team/colleagues), leader (line managers' competencies and behaviours, relationship between worker and line manager, e.g. trust), organisational (HR policies), and omnibus context (unemployment benefit system). How are these resources used over time and how useful are they perceived to be?

2) What are the work resources that help workers stay at work after return to work at the individual (e.g. healthy eating and exercise), group (family and friends), leader (continued interaction with GP, social workers, etc.), organisational (support from charities and local community), and omnibus context (media coverage and childcare and housing benefits). How are these resources used over time and how useful are they perceived to be?

3) How does the need for and use of different resources develop over time post-return?

Methods. We conduct a longitudinal semi-structured interview study with workers who have returned to work after a period of prolonged sickness absence due to stress, depression or anxiety. We aim to interview 40 returned workers in their first month of return and the following three months. We will also interview around 10 line managers about their experiences supporting returning workers. Collection will be completed in May 2019 and analyses will be completed in time for the conference. To date, we have completed 14 interviews and three 1st month follow-ups. Data will be analysed using thematic analysis (King, 2004), analysing resources at the five IGLOO levels.

Preliminary results. Preliminary analyses of the existing data suggest that workers often experience recurrent absence periods. Important individual resources include relocation to cheaper housing, exercise, healthy eating and using mindfulness strategies while working. Group resources include socialising outside work. Leader resources involve line managers who have good mental health awareness and organizational resources include opportunities to work in quieter areas and flexible working such as working from home, however, workers feel that employers try too hard and this draws negative attention to them.

Practical implications. Understanding how resources at individual, group, leader, and organizational resources work together with resources outside the organizational context to support returning workers with CMDs stay and thrive at work after long-term sickness absence may provide valuable information for occupational health practitioners supporting return and recommending work adjustments, general practitioners recommending work adjustments, Human Resources developing policies and practices, line managers supporting individual workers and creating a supportive culture.

Conclusions. Due to the limited data collected so far, we will not draw any overall conclusions.

Salon 10

Job Insecurity, Career Needs, Earnings, and Health in a Global Context

PAPER SESSION

Career Needs and Prevalence of Occupational Burnout in the Saudi Aviation Industry

John Ekore (Prince Sultan University)

Focus of Research: The Vision 2030 document seeks to promote tourism and foreign participation in the Saudi economy. Management of talent in the aviation industry to effectively improve on service delivery is central to the achievement of the Vision's critical objectives. As it is commonly known, the success would depend largely on the workforce members' level of adjustment to their career. Therefore, understanding their career needs and prevalence of occupational burnout is important since they are factors that have been known in the literature to play roles in employees' work outcomes. In Saudi samples, there is dearth of literature on employees' career needs, especially in the aviation sector. Much of the studies on occupational burnout have been on healthcare employees and not its prevalence in the aviation sector (Al-Sareai, Al-Khaldi, Mostafa, Abdel-Fattah, 2013; Turki, et.al, 2013; and Nazar, 2016). Apart from the negative impact of occupational burnout on work decision making and performance, employees' needs are known to be precursor to commitment and performance in the workplace (Balogun and Ekore, 2002). Despite their roles on work attitudes and behaviors, identifying career needs and the prevalence of occupational burnout in the sector have not been given visible research attention. The present study is motivated to raise awareness through the baseline data it would provide, and bridge the knowledge gap by adding to the body of literature that exists on aviation talent management studies. The outcome is expected to guide interventions for the development of more productive workforce by scholars and policy makers in the Saudi aviation industry.

Research problem: Despite their importance in employees' career adjustment to effectively deliver on services (as needed for the success of Vision 2030), issues of career needs and prevalence of occupational burnout in Saudi samples have not been adequately examined and reported, especially in the global aviation literature.

Objectives. The main objective of the project is to investigate career needs and occupational burnout in Saudi Arabia's aviation industry.

Specifically, the study is designed to:

(i)Identify the career needs of workers in the Saudi aviation industry

(ii)Examine the prevalence of occupational burnout in the industry

(iii)Find the extent to which the career concerns of employees predict their experience of occupational burnout in the industry

(iv)Raise awareness on the career needs and occupational burnout of workers

(v)Provide evidence-based reference that can help to improve the workers' career adjustment and productivity when addressed

(vi)Stimulate further research interests that focus on psychosocial hazards in the Saudi aviation industry

(vii)Add Saudi sample to the available global literature on the psychosocial issues in aviation sector

(viii)Provide the basis for intervention that can address the psychosocial hazards among vulnerable employees.

Methods. The study is being designed to adopt the survey method.

Occupation/Industry: Population and sample: A sample size of 1051 has been collected. Respondents were drawn from workers in Saudi aviation industry across offices and airport facilities. They cut across various departments/ units, work categories, and other demographics. The personal identification of each respondent was not required. All information supplied are meant strictly for the research.

Research instruments: The main instruments for data collection are the questionnaires that contained the scales. The first part of each questionnaire contain the demographic characteristics of each employee to enable comparison across characteristics. The second part contain the career needs scale and occupational burnout scales. The career needs scale measures the various dimensions of employees' career needs. Two versions were used. The main version and the version for standardization. In order to assess the level of occupational burnout among the workers, the Maslach's burnout scale was standardized for the aviation industry and used accordingly.

Analysis: The data is being analyzed by using both qualitative and quantitative techniques. The quality analysis would provide insight to other workplace concerns that were not covered in the questionnaire scales. The qualitative data was generated through an open-ended item contained at the last part of the questionnaire.

Conclusions. Apart from the findings to be derived from testing the propositions, it is expected that the recurring themes from the qualitative data would offer new perspectives to other concerns shared by employees in the Saudi aviation industry.

Perceived job insecurity and its association with sickness absence and sickness presence among full-time waged workers in South Korea

Ji-Hwan Kim (Korea University)

Problem: Sickness absence has been considered as an indicator of workers' health problems (Brborovic, Daka, Dakaj, & Brborovic, 2017; Gerich, 2016). Employment conditions in South Korean have become insecure since the 1997 financial crisis (A. E. Kim & Park, 2006). Under the chronic situation of job insecurity, health problems of Korean workers could be linked to increasing of sickness presence as well as sickness absence (J. Y. Kim, Lee, Muntaner, & Kim, 2016). Moreover, most of the previous studies have used single cut-off days when defining sickness absence and sickness presence regardless of working conditions. Therefore, this study sought to investigate whether perceived job insecurity was associated with sickness absence and sickness presence and whether these associations differ by changing cut-off days of sickness absence and sickness presence.

Procedures and Analyses. This research analyzed a nationally representative dataset of 21,539 full-time waged workers from the 4th Korean Working Conditions Survey, conducted by the Occupational Safety and Health Research Institute in 2014.

As an independent variable, perceived job insecurity was assessed by two questions: 1) "It is possible to lose my job within 6 months," and 2) "Even if I quit or lose my current job, I can easily find a new job equal to the condition of the current job." Respondents could answer each question on a five-point scale ranging from "strongly disagree (1)" to "strongly agree (5)." After reverse coding the second question, scores from two questions were summed scores. Resulting summed scores ranged from 2 to 10, with higher scores indicating a higher level of perceived job insecurity. Using a median value of summed scores as a

cut-off point, respondents were classified into two categories: Secure (4 or lower), Insecure (higher than 4).

As dependent variables, sickness absence and sickness presence during the past 12 months were measured by asking how many days workers have ever been absent due to their health problems (i.e. sickness absence) or have worked while they were sick (i.e. sickness presence). Seven different cut-off days (from "1 day or more" to "7 days or more") were used when defining a case of sickness absence and sickness presence.

Poisson regression model with robust error variance was applied to investigate whether perceived job insecurity was associated with sickness absence and sickness presence after adjusting for potential confounders including socio-demographic (i.e. sex, age, and number of household members), socio-economic (i.e. education level, and monthly income), and work-related variables (i.e. employment status, occupation, weekly working hours, and size of enterprise).

Results. When "1 day or more" was the cut-off day of sickness absence and sickness presence, perceived job insecurity showed statistically non-significant association with both sickness absence (PR: 1.06, 95% CI: 0.97, 1.15) and sickness presence (PR: 1.04, 95% CI: 0.99, 1.10). However, when "2 days or more" was used as cut-off day, we found the opposite direction between the association of perceived job insecurity with sickness absence and sickness presence. Furthermore, the difference became getting bigger with changes into higher cut-off days. As cut-off days changed from "2 days or more" to "7 days or more", association between perceived job insecurity and sickness absence was attenuated and remained statistically non-significant: "2 days or more" (PR: 0.97, 95% CI: 0.88, 1.08), "3 days or more" (PR: 0.94, 95% CI: 0.82, 1.08), "4 days or more" (PR: 0.92, 95% CI: 0.77, 1.10), "5 days or more" (PR: 0.96, 95% CI: 0.79, 1.16), "6 days or more" (PR: 0.99, 95% CI: 0.80, 1.23), and "7 days or more" (PR: 0.97, 95% CI: 0.77, 1.23). However, association between perceived job insecurity and sickness presence became stronger and statistically significant: "2 days or more" (PR: 1.06, 95% CI: 1.01, 1.12), "3 days or more" (PR: 1.13, 95% CI: 1.05, 1.21), "4 days or more" (PR: 1.12, 95% CI: 1.02, 1.23), "5 days or more" (PR: 1.15, 95% CI: 1.04, 1.27), "6 days or more" (PR: 1.15, 95% CI: 1.01, 1.31), and "7 days or more" (PR: 1.16, 95% CI: 1.01, 1.32).

Practical implications and Conclusions. This study showed that the association of perceived job insecurity with sickness absence and sickness presence was dependent on different cut-off days of sickness absence and sickness presence. These results suggest that sickness presence, as well as sickness absence, should be considered as occupational health concerns when implementing a policy to promote workers' health condition. It is also necessary to carefully define sickness presence and sickness absence using different cut-off days according to working conditions.

Value on Workers and Occupational Fatality Rates in U.S.

Jin Lee (Kansas State University)

Statement of the Problem: How workers are valued at work by norms, policies, and practices might be associated with the amount of efforts and resources to protect workers. In the contexts where workers are more valued, more attention will be paid and greater quantity and quality of safety protections will be offered to them for their safety/ health. On the contrary, in the contexts where workers are inadequately valued, they might suffer from greater workplace hazards and extreme outcomes would be more likely, such as occupational fatality rates. These inferences are consistent with the view of sensemaking theory (Weick, Sutcliffe, & Obstfeld, 2005), which contends that people rationalize and give meaning to their experiences through a process of sensemaking, contributing to the development of shared perceptions on which behaviors and practices are acceptable or not acceptable.

In U.S., workers are not equally valued across states and it can exacerbate occupational safety/health disparity. When it comes to specific economic indicators representing how workers are valued such as minimum wage and workers compensation benefits, notable discrepancies exist. In fact, minimum wages were $2.00 in Oklahoma (for small employers) and $9.47 in Washington, based on 2015 U.S. Department of Labor data (national mean = $7.62, SD = 1.37). Also, the average of workers' compensation benefits for a permanently injured hand, arm, or leg (for damage to body part and future lost wages) were $43,413 in Alabama and $68,5339 in Nevada (national mean = $174,664, SD = 112,735).

People make decisions in consideration of contextual cues on acceptable and desirable behaviors (Brown, Stacey, & Nandhakumar, 2007). Accordingly, local governments, organizations, and employers may interpret minimum wage and workers compensation benefits as specific contextual cues regarding "value on worker" and use this info to leverage human resources to achieve industrial and economic progress. The present study aimed to explore how minimum wage and workers compensation benefits are associated with fatality rates across 50 U.S. states.

Method and Analyses. The present study utilized seven state-level variables categorized into three groups. Key study variables included 1) Average of workers compensations for the loss of an arm, hand, or leg in 2015; 2) Minimum wage in $ unit, using the data from 2015. Contextual variables included 1) education level defined by the % college degree earned in 2015; 2) GDP (gross domestic product) per capita in 2015. These variables were included because they can respectively serve as the proxy of job type (i.e., more/less protected) and the gauge of economic development level of a region. Additionally, two control variables included 1) Income gap, represented by Gini index from the national data from 2010; 2) Population information according to the national census data from 2010. These variables were included because they can respectively serve as the surrogate of socioeconomic pressure and the size of human resource pool.

Multiple regression analysis was conducted to examine the prospective relationship between these six variables and occupational fatality rates, operationalized as the number of workers killed at work per 100,000 workers in 2016.

Results. Descriptive statistics and correlations of the study variables are presented in Table 1. As summarized in Table 2 and Figure 1, both minimum wage ($\Delta R2 = 4.21$) and workers compensation benefits ($\Delta R2 = 3.87$) in 2015 were significantly and negatively associated with fatality rates in 2016. Also, education level was negatively associated with fatality rates ($\Delta R2 = 28.04$) while GDP per capita was positively associated with fatality rates ($\Delta R2 = 17.76$).

Discussion and Conclusion. The present study showed that quantitative indicators of how workers are valued at work, minimum wage and workers compensation benefits in 2015, were significantly and negatively associated with fatality rates in the following year of 2016. It is inferred that if workers are easily replaceable due to lower cost of hiring and making up for workers' serious injuries, then the workers are more subject to adverse working conditions leading to fatality. Put differently, underscoring workforce flexibility more than workforce stability would lead to greater occupational safety/ health concerns. The major findings of the present study are in line with the study of Baines (2005)

showing that how readily replaceable workers are can be associated with organizations' tolerance to unhealthy work environment.

It is noteworthy that education was negatively associated with fatality rates while GDP per capita was positively associated with fatality rates. Workers with greater education may have broader options for safer and healthier work opportunities. GDP per capita, which indicates the business efficiency (i.e., higher return per employee), may be associated with the priority of productivity over workers' safety and wellness.

Overall, the present study illustrates the gap in how workers are valued across U.S. states. Additionally, the study speaks to the importance of fostering culture where workers are adequately valued, cared about, and protected to prevent and curtail occupational fatality.

Job Insecurity Across Borders: An Examination of Job Insecurity, Perceived Organizational Support, and Turnover Intentions in the United States and China

John Morgan (Clemson University)

Job insecurity is a rising threat to worker health and well-being around the world. Exact definitions of job insecurity have differed somewhat over the past three decades of research on the topic (Shoss, 2017), ranging from powerlessness over continuing one's job (Greenhalgh & Rosenblatt, 1984) to more modern conceptualizations of perceived threats or risks to one's job (Schreurs, Van Emmerik, Günter, & Germeys, 2012). The negative outcomes of job insecurity have been well documented, including worsened health/well-being, lowered job satisfaction, lowered organizational commitment, worsened job performance, and increased turnover intentions (Cheng & Chan, 2008).

In the United States, increasingly prevalent changes to the employment relationship, such as temporary or contract work, as well as downsizing and outsourcing of jobs to other countries has led to a dramatic increase of workers experiencing job insecurity (Benach et al., 2014). In the People's Republic of China (PRC), similar changes in the nature of work are occurring due to shifting from a centralized, planned economy to autonomous companies, causing Chinese workers to increasingly work on a temporary or contract basis (Child, 1994; Lee, Bobko, & Chen, 2006).

This research extends the job insecurity literature by treating job insecurity as a demand within the Job Demands-Resources (JD-R) model, with perceived organizational support (POS) as a corresponding resource. POS is the degree to which an employee feels the organization values them and cares about their well-being (Rhoades & Eisenberger, 2002). The JD-R model proposes that employees balance the demands of their job with the resources they have available to meet them, leading to changes in strain and motivation, and finally to various personal and organizational outcomes (Bakker & Demerouti, 2007). We examined the relationship of job insecurity and POS with turnover intentions and whether this relationship was mediated by burnout and engagement, respectively. In addition, we utilized data collected in both the United States and China to examine how job insecurity's effects may differ cross-culturally.

In the American sample, data were collected using Amazon Mechanical Turk (MTurk). Participants were required to have a primary job and not use MTurk as their primary source of income. 1,073 individuals initially responded with 553 also completing the second wave three months later. The majority of the participants (52.4%) were women; the sample averaged 39.59 hours/week in their primary job, 5.7 years of job tenure, and annual income of $42,758. Participants were widely geographically located across the United States with very high variety in occupations. See Table 1 for descriptive statistics and correlations in this sample.

The Chinese sample came from 426 participants who participated in two surveys at a paper manufacturing facility. Participants were predominantly male (73.6%), had an average age of 30, and averaged 9.2 years of job tenure. They worked 70.2 hours/week on average and 95.7% earned less than 1000 yuan per month ($143 in 2007, when these data were collected), with no participant earning more than 3000 ($429). See Table 2 for descriptive statistics and correlations in this sample.

Structural equation modeling showed that POS had a direct relationship with turnover intentions in the American sample (CFI=.99, RMSEA=.07, SRMR=.02, see Figure 1), and that job insecurity had a direct relationship with turnover intentions in the Chinese sample (CFI=.97, RMSEA=.04, SRMR=.03, see Figure 2) suggesting cultural differences do exist regarding job insecurity. Power distance may explain why POS did not directly impact turnover intentions in the Chinese sample. China tends to be a high power distance culture, meaning employees follow their supervisor out of a sense of obligation rather than reciprocity (Farh, Hackett, & Liang, 2007). As a result, POS may not have been as important to employees as job insecurity when considering their turnover intentions.

In contrast, in the American sample, POS predicted both burnout and turnover intentions. The U.S. is an individualistic and lower power distance culture, meaning employees value individual achievement and reciprocity for their actions (Rockstuhl, Dulebohn, Ang, & Shore, 2012). Because of this, job insecurity may be more likely to be attributed to outside forces, such as economic conditions rather than to a betrayal of group ties. POS, however, may be more highly valued by American employees who prefer to feel their individual achievements are being recognized and rewarded; a lack of this support may explain employees burning out and leaving the organization.

From a practitioner standpoint, interventions to influence POS would be more impactful for an American company, as POS directly impacted turnover intentions. In contrast, Chinese companies may have greater success by improving job insecurity, as their employees would likely not react as positively to improved organizational support. Theoretically, these results suggest that future JD-R research should further examine cultural differences; our findings suggest job insecurity and perceived organizational support are closely intertwined but show differing effects on turnover intentions depending on the employee's cultural context.

Independence Ballroom CD

Starting (or Changing) a Research Program: The Experience of Veteran Researchers

SYMPOSIUM

Chairs: Irvin Schonfeld (City University of New York), Ashley Nixon (Willamette University)

This is symposium from SOHP's Education and Training Committee is one element of a three-part series relevant to its mandate to target concerns that pertain to OHP-related education and training. This session focuses on careers in academia. Other programs concern

(a) best practices in teaching and (b) careers in the world of practice outside of academia.

This symposium is relevant to (a) individuals who are pursuing doctorates in an OHP-related specialty, (b) new assistant professors, and (c) faculty members who are looking to make a change in their research program. The presenters have diverse research interests. They will describe their career trajectories, including turning points and transitions. The panelist will describe what motivated them to go in one direction or another. They also underline the skills that were important for them. As they explore the transitions they made, the presenters will underline the ideas and strategies that help to start and maintain a research program. Not every panelist headed straight into graduate school after college. Or even straight into college after high school.

Each panelist will present for approximately 10 minutes, followed by a 10 minute give-and-take with the audience. We will save 20 minutes at the end for a break-out session in which attendees can talk with individual panelists and explore additional ideas about research programs.

Research Program: The View from Portland

Leslie Hammer (Portland State University)

My perspective is unique in part because the focus of my research program evolved dramatically soon after the start of my academic career. Coming out of graduate school, I had found a love for research but had not yet developed a research program I felt truly passionate about. Through partnerships with new colleagues early in my academic career, however, I discovered a deep desire to help working families. I began researching work-family issues in 1992, and I have since focused my work on a clear research program by building upon this early work-family research with numerous grants and projects, small and large. Ultimately, I found my niche in designing, implementing, and evaluating interventions to make measurable changes in organizations and improve the health, safety, and well-being of workers and their families. Throughout the evolution of my research program, I developed several key takeaways and recommendations. One central contributor to my starting and maintaining a research program is that I felt passionate about enjoyment I experienced building strong partnerships with colleagues and organizations. My first large grant came about because of one particularly strong relationship with a colleague I met at Portland State University. Since that first large project, I have served as PI or co-PI of many grants totally over $15M, and each one has been possible because of my focus on not only conducting strongly designed research, but also building strong relationships. By discovering a work style that fit my personality and skills, I have been able to build a team and network of colleagues I genuinely enjoy working with and who lead my research program into overlapping areas that I may not have otherwise explored. Another key point along my path was my determination to make tangible, measurable changes in organizations. This drive has translated into many an intervention study. By focusing on an aspect of research I felt so motivated to achieve, I have been able to develop a research program that is both successful and meaningful—a program I enjoy maintaining and growing. This sense of meaningfulness has gone hand in hand with the degree to which my research program gives back to the community. From projects to help military veterans reintegrate into supportive civilian workplaces to projects to improve safety for nearby municipal and federal employees, making a difference in the lives of others has been central to my research program and has helped me maintain my motivation to continue the research. I have even expanded this interest into the private sector as co-owner of a firm called Work Life Help, which focuses on disseminating the findings from my research directly to organizations by conducting assessments, implementing training programs, and providing evidence-based consulting that organizations may not otherwise have access to through my academic work. My work has been funded by the NIH, NIOSH, the DoD, and the Alfred P. Sloan Foundation. One of the key lessons I have taken from career path is to be adaptable and enthusiastically take on new opportunities as they come up. Much of the reason my career has been fulfilling is because of my willingness to try new routes and follow those aspects of those new career routes that inspire me. The content of my research program has evolved over time, but by applying my interests and skillsets to new opportunities, I have built a research program that is both successful and enjoyable.

Research Program: The View from the Southeast

Robert Sinclair (Clemson University)

I can trace my initial interest in research back to a few factors early in my life. First, I attended my first Boston Red Sox Game at Fenway Park in 1975, when I was 10—an 8-6 loss to the Oakland A's. Baseball reference tells me that it was August 31, 1975 and that shortstop Rick "Rooster" Burleson had 4 hits and 4 Runs Batted In for the Sox, although Reggie Jackson outdid him with 5 RBIs for the A's. Rooster was one of my childhood favorites because he signed my glove at an event a year or two after that game and said "Hey, that's a nice glove." But, I digress. One of the many reasons I became fond of baseball over time was its reliance on statistics. I enjoyed how the players' numbers accumulated over time and I spent a lot of time playing table top baseball games of the era and keeping track of how all my own players performed. I also invented a basketball game that I could play with a deck of cards and my own set of simple player ratings. While the game was far from perfect, it kept me entertained, in part by keeping track of all the statistics. I never did like formal math all that much. In fact, while many of my friends were taking calculus and trigonometry in their last years of school—I took what I think was called business math, but was really "Math for people who are going to wind up in Prison." As I try to teach math to my daughter now, she passionately complains that she will never use it in real life. I often think to myself (yeah, you're probably right). But, statistics was something different than the rest of math for me—a way to describe and capture interesting patterns in reality. When I graduated high school, I joined the United States Marine Corps at the same time as my best friend went to college, majoring in psychology. We corresponded by letter throughout a lot of that time. When I got out of the Marine Corps I knew that (a) I was going to major in psychology, (b) because of my experience in the USMC, I was interested in working conditions and work motivation, and (c) pretty much from the first days that I set foot on a college campus, I knew that was the work environment for me (I think it had something to do with wearing jeans to work). My goals were not lofty, I really just wanted to make enough money to own a piano. Anyhow, during my senior year of college, I met with my department chair who asked me what I wanted to do after graduation. I told him that I didn't really know, but I thought maybe something to do with psychology and work. He told me I wrote well enough and that I should apply to graduate school and that what I was interested in was called Industrial Psychology (we did not have a course in it). So, I applied to graduate programs in IO psych, not knowing too much else about it. I was fortunate enough to get accepted at Wayne State University and work with Lois Tetrick who shared (and helped me foster) my general curiosity about research and working

conditions. I became part of a program of research on union members that later developed into my work on occupational health psychology. It is interesting to contrast my experience then with what we expect of students and early career professionals now. Back then, I was sort of fumbling around and not taking life that seriously as an undergraduate, and not thinking too much about the future. I wrote papers on an old typewriter with a six pack of beer by my side. I stopped writing when the typewriter keys stopped obeying my commands. Now, we expect applicants to graduate programs to have well developed career plans including partly formed ideas of what specific topics they want to spend their careers studying, by the time they are juniors or seniors! I think that developing a focus is important to one's early academic career, both in terms of forming a scholarly identity and from an efficiency perspective; it is much easier to write about literature you are already familiar with than it is to learn something new for each paper. On the other hand, it is also productive to do a little stumbling around. Bringing new areas/topics/models etc. into your work will generate new insights on old topics. And, as the research enterprise gets increasingly multidisciplinary, it becomes ever more important to be comfortable with stumbling around in unfamiliar areas and finding good colleagues to help show you the light.

Research Program: The View from New York City

Irvin Schonfeld (City University of New York)

Being a former teacher, it would seem straightforward that I would develop a research program devoted to job stress in general, and teacher stress in particular; however, my career had been anything but straightforward. It had much sideways and backwards movement. As an undergraduate I had been a psychology major and math minor. In college I had become involved in two movements, the Civil Rights and anti-war (Vietnam) Movements. As those movement intensified, I became interested in social psychology, especially the research of Leon Festinger and Elliot Aronson. I saw in social psychology an opportunity to understand and improve human relationships. I turned down offers to pursue a doctorate in social psychology because my draft deferment would disappear upon graduation and the government had subpoenaed my college records. I did not want to serve in Vietnam. And I did not want to seek refuge in Canada. I found that I could get a draft deferment by doing something constructive, by becoming a teacher in an under-performing public school. I taught mathematics and earned a master's degree in psychology in night school. Having been a math teacher for six years, my interest in social psychology lessened and I became more interested in children's cognition about number and quantity. I quit teaching to pursue a doctorate in developmental psychology. Influenced by Piaget's research, I read everything he wrote. I became particularly interested in the last wave of his research, which he called the psychology of functions and correspondences. My dissertation was devoted to that topic. Among the different jobs I held, I had some that were stressful. In college, I worked in a factory. I was a tool and die operator. I stamped out the soles of ladies' slippers in a hot, humid factory. It was the kind of job in which a mistake could have resulted in a worker getting his hand crushed. When I was a new math teacher, a veteran science teacher who taught the same tough kids I taught suffered a "nervous breakdown." It happened during the third month of my first year as a teacher. After I earned a doctorate, I failed to get an academic job, and took a position at a school district as director of research and evaluation. The head of my office was a dictatorial woman who berated staff members publicly. I observed the district reading coordinator break down in tears in anticipation of a tongue-lashing. The woman in charge could not be fired because she had a talent that the district superintendent needed: she was an excellent grant writer. I forcefully responded to her insults only to get fired a few weeks before my wedding. After getting fired, I got a job—amazingly—in the Department of Psychiatry at Columbia University. I think my programming skills and knowledge of statistics got me the job. At Columbia I became involved in epidemiological research in child and adolescent psychiatry. I enjoyed the research. Although I turned my dissertation research into publishable papers, my research interests shifted to the fascinating field of epidemiology (it would shift once more). I got a post doc in epidemiology. I studied under people like Bruce Dohrenwend, Bruce Link, and Pat Cohen, who had been studying impact of life stress. But only a fraction of their research was devoted to stress at work. I knew that many teachers have stressful jobs. I remembered the teacher who had a nervous breakdown. I remembered the rock a student threw into my back, requiring my taking a two-week medical leave. On my post doc, I had an epiphany. I realized that I what I wanted most to do is to study job stress in teachers. I was an insider, having been a teacher. I could relate to the experience of teachers. I have appreciated that teachers sometimes get blamed for problems that are out of their control. I completely stopped conducting research in cognitive development. I slowed my research in child and adolescent psychiatry, although for two reasons I did not stop it. One was out of personal loyalty to David Shaffer, the chief of Child and Adolescent Psychiatry at Columbia, who treated me very well. The other was that I had some residual interest in the topic and published papers on school violence and bullying. Mostly my research has concerned teachers. As luck would have it I met Renzo Bianchi. There was a convergence of thinking. We understood each other across an ocean and across languages. We started to analyze teacher burnout and its relationship to depression. I have several takeaways: capitalize on your own work experience and the work experiences of people you know; find dependable colleagues; be willing to change directions; study statistics; remember what the poet Dylan Thomas wrote, "Life always offers you a second chance; it's called tomorrow."

Research Program: The View from Switzerland

Norbert Semmer (University of Bern)

Initially equating psychology with psychotherapy, I later became fascinated by I/O psychology. Finishing with a major in I/O psychology and a minor in clinical psychology, in my research career I focused on stress at work, and on group communication and coordination. For our first research project, we wanted to get away from behaviorism, which was rather influential at that time, by including cognitive processes, notably goal-directed actions. Furthermore, rather than focusing exclusively on group climate and social relations—an important topic in our curriculum –, we also focused on the nature of tasks and problems in task execution. For my dissertation, I developed the "Instrument for stress-related task analysis." I spent quite some time observing and interviewing workers and administering questionnaires, mostly in steel companies. Part of this experience was that many people enjoyed talking about their work (albeit often after initial skepticism) and saw their work as an important part of their lives. I believe ever since that researchers should go into the field and find out what people are actually doing. So, that's my first takeaway: Go into the field; get to know people and their work, and listen to them After my dissertation, I, studied health behavior in childhood and adolescence at the German

Federal Health Office in Berlin. I learned a lot about methodology and about interdisciplinary cooperation, but I went back to I/O psychology when I was offered a job at the university of Bern, Switzerland, where I have been responsible for the I/O program for 27 years. During that time, we undertook many projects, often resulting in Ph.D. and master's theses. I kept my basic perspective, but the specifics varied, due to the interests of (1) my PhD students, and (2) our cooperating partners. Both are important: Granting considerable autonomy to Ph.D. students within the overall program is a strategy I still recommend. Collaborating with organizations and interdisciplinary partners is easier if you focus on their problems rather than only pushing your own research interests. Opportunities for a stronger focus on your own perspective will likely arise over time. So, your own vision is important, but it should be coupled with patience, perspective-taking, and short-term pragmatism. As an example, in our long-standing collaboration with medical colleagues, the number of issues we could study and the methods we could employ grew as mutual trust and respect developed. So, this is my second takeaway: Following your vision is likely to take time. Balance long-term vision and short-term pragmatism and be open to partners' interests even if they are not at the core of your own vision. Focusing on tasks and task execution requires methodologies beyond questionnaires, such as observations, interviews, and qualitative methods. These take time before yielding a publishable paper, which hinders some people from employing them. For practical reasons, an academic has to go for quick publications to some degree (e.g., tenure, promotion), but we also need the other methods to understand what people are really doing and what are their concerns. These methodologies often lead to new insights. For instance, studying incivility in the operating room (OR), we found that the incivility literature focuses on consequences of incivility and discusses triggers mostly in rather general terms (e.g., stress, hierarchy). In line with our task focus, we identified disrupted coordination as a frequent trigger (e.g., an instrument not handed to the surgeon when needed), and we are now developing a theory of "micro-coordination conflict"; this would not have been possible without gathering observational data in the OR. So, this is my third takeaway: To get a good picture of what is happening, employ a variety of methods, some of which take time until results are publishable. Go for them in addition to studies that yield results quickly. Finally, this may seem a smooth path, but it was not. Not all projects developed as planned; results often were not as expected; Ph.D .students left early, and I often did not have time to analyze their data. Furthermore, presenting new concepts may encounter quite skepticism. For instance, a paper on illegitimate tasks, a new concept developed within the framework of our "Stress-as-Offense-to-Self" theory, was rejected time and again. This period required quite some frustration tolerance. I did not give up because I regarded this concept as important and valuable. In the meantime, many publications on illegitimate tasks have appeared—living with the setbacks paid off eventually. So, this is my fourth takeaway: Building and maintaining a vision and translating it in research is associated not only with successes but also with set-backs and frustration. Do it only if you are fascinated by people at work, their tasks, their problems, and their way of dealing with them.

Independence Ballroom B

Social Environment and Workplace Mistreatment

PAPER SESSION

Good Intentions Go Awry: Investigation of Unhelpful Supportive Leadership and Employee Psychological Well-being

Cheryl Gray (University of South Florida)

Today's workplace is becoming increasingly uncivil, and negative leadership is on the rise (Johnson & Indvik, 2001; Pearson, Andersson, & Porath, 2000). Negative leaders are "leaders who, by treatment of subordinates, discourage and do harm to the subordinate and the organization" (Dinh et al., 2014, p. 19). The purpose of this research is to introduce a new form of negative leadership: unhelpful supportive leadership. Contrary to established forms of negative leadership, unhelpful supportive leaders perform supportive acts that are intended to benefit direct reports, but are perceived as unhelpful or harmful by their recipient(s). This research aims to demonstrate that unhelpful supportive leadership is associated with many of the same detrimental employee outcomes as negative leadership, particularly abusive leadership.

Research suggests that leaders can cause harm when performing ostensibly helpful behaviors (Gray et al., 2018). For example, a leader may take over an employee's task to be helpful while inadvertently overstepping and upsetting the employee. Failures of supportive leadership may be explained by self-determination theory. The theory posits that there are several innate psychological needs driving self-motivation and well-being: competence, autonomy, and relatedness (Ryan & Deci, 2000). Support from unhelpful supportive leaders may be harmful when it undermines these needs. For example, a supervisor may lower an employee's perceived competence by providing overly critical developmental feedback. Additionally, supervisors may strip their employees of their sense of control and freedom if they take over employees' tasks or impose suggestions. A supervisor may also reduce an employee's perceived relatedness (i.e., relationship quality) through presumably supportive behaviors that demonstrate a disconnection between the supervisor and employee.

Hypotheses 1-3: Unhelpful supportive leadership is negatively correlated with employees' perceived (1) competence, (2) autonomy, and (3) relatedness.

According to self-determination theory, the extent to which leaders and organizations fulfill or thwart their employees' basic needs impacts their well-being (e.g., Deci et al., 2001). Because unhelpful supportive leaders may inadvertently thwart their employees' basic needs, they may also inadvertently decrease their employees' job-related affective well-being.

Hypothesis 4: Unhelpful supportive leadership is positively correlated with employees' job-related negative affect.

Taken together, self-determination theory suggests a conceptual model of unhelpful supportive leadership. The overall model is displayed in Figure 1 and proposed below:

Hypothesis 5a-c: Employees' perceptions of (a) competence, (b) autonomy, and (c) relatedness mediate the relationship between unhelpful supportive leadership and employee job-related negative affect.

One hundred eighty-nine employees were recruited from an American University. Participants (41 male and 148 female) ranged in age from 18 to 54 (M = 21.15, SD = 3.95). Each participant completed a survey with the following measures: unhelpful supportive leadership (UWSSS; Gray et al., 2018), work-related basic needs satisfaction (Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010), abusive supervision (Pinder, 1998), and job-related affective well-being (Spector, 2007).

In support of hypotheses 1-3, unhelpful supportive leadership was negatively associated with employees' psychological needs: competence ($r = -.20$, $p < .01$), autonomy ($r = -.23$, $p < .01$), and relatedness ($r = -.52$, $p < .01$). In support of hypothesis 4, unhelpful supportive leadership was positively correlated with job-related negative affect ($r = .54$, $p < .01$; See Table 1).

A Structural Equation Model (SEM) analysis was conducted to test the hypothesized model of unhelpful supportive leadership using ML estimation as implemented in the CALIS procedure in SAS 9.4. The chi-square measure of fit was statistically significant [$x2(4) = 50.02$, $p < .01$], and the descriptive measures of fit (SRMR = .11, RMSEA = .25, CFI = .78) suggest poor model fit (Hu & Bentler, 1998). The model is shown in Figure 1. Taken together, the SEM findings suggest that unhelpful supportive leadership is associated with job-related negative affect, but the relationship is not well explained through a reduction of psychological needs, thus not supporting hypothesis 5.

Interestingly, the findings suggest that unhelpful supportive leadership may be at least as detrimental as abusive supervision on employees' psychological needs and job-related negative affect. Results of z tests for dependent correlations suggest that the relationships between unhelpful supportive leadership and negative employee outcomes are at least as strong as the relationships between abusive supervision and negative employee outcomes (See Table 2).

A primary implication of this research is that the dark side of leadership extends beyond malicious leaders who are "abusive" or "despotic." Well-intended, supportive leaders may also elicit detrimental employee outcomes, sometimes to a greater degree than mal-intended leaders. Particularly, unhelpful supportive leaders, compared to abusive leaders may hinder a direct report's sense of control and freedom in the workplace. Given their good intentions, unhelpful supportive leaders may be especially receptive to interventions. Thus, a heightened understanding of unhelpful supportive leadership may offer an especially impactful avenue for informing practical change in the negative leadership domain.

Workplace Ostracism Suppresses Effects of Role Stressors on Psychological and Organizational Outcomes

Sharon Glazer (University of Baltimore)

Workplace ostracism occurs when a person perceives being socially excluded by another member or group in the organization and the exclusion violates the victim's perception of the commonly understood social norm (Robinson, O'Reilly, & Wang, 2013). Studies on general forms of ostracism indicate that experience of ostracism colors the perception of other social phenomenon and the external environment (e.g., Lyyra, Wirth, & Hietanen, 2017; O'Connor & Gladstone, 2015), and exacerbates the effects of life stressors on well-being (Williams, 2001). However, most research presented workplace ostracism as a stressor predicting anxiety and burnout (Peng & Zeng, 2017; Sulea, Filipescu, Horga, Orțan, & Fischmann, 2012). Drawing on the transactional theory of stress (Lazarus & Folkman, 1984), stipulating that stressors lead to undesirable outcomes when it becomes exceedingly difficult for a person to cope with the stressors, the current study examines workplace ostracism as a moderator variable that intensifies the effects of stressors on psychological and organizational outcomes.

Workplace ostracism is a property of the environment; it represents how the focal individual views interpersonal experiences in the given work environment. A person perceiving workplace ostracism may feel uncertain about social work arrangements and sense a loss of control over work activities (Williams & Nida, 2011), which increases strains (Karasek, 1979). We, therefore, posit that workplace ostracism would interact with stressors to predict psychological and organizational outcomes. Specifically, workplace ostracism will moderate the relationship between each role stressor and each outcome, such that as role stressors increase (a) anxiety will increase and (b) affective organizational commitment and general well-being will decrease more strongly for those whose experience of workplace ostracism is high (vs. low).

Method This study comprises of 163 (46.6% were female) M-Turkers who successfully completed the screener survey (T1) to identify employed individuals from the USA, working 35 or more hours/week of which no more than 40% of their time was from home, and continued to be matched on T2 and T3 surveys. The mean age was 36.9 (SD = 9.9) years. Most (79.1%) were Euro-Americans, 8.0% were Asian, 5.5% were African American, and 5.5% were Latinos. Chi-square analysis showed no significant differences between completers and non-completers of T3 survey in terms of sex, ethnicity, and highest educational degree.

Measures. Five items for each of role overload (RO; =.87) and role ambiguity (RA; =.89) measured role stressors (adopted from Glazer & Beehr, 2005) at T2. Three strain/outcome measures were also employed at T3, including general well-being, an 11-item modified version of the General Health Questionnaire (Goldberg, 1996; =.94); anxiety, a four-item questionnaire derived from Parker and DeCotiis' (1983; =.86); an eight-item measure of affecitve commitment (Allen & Meyer, 1993; =.94). Finally, workplace ostracism (T2) consisted of 10 items (Ferris, Brown, Berry, & Lian, 2008; =.94).

Result and Discussion. Means, standard deviations, and correlations of the main study variables are presented in Table 1. All correlations were significant and in the expected directions. Six multiple regression analyses were performed; four yielded significant results (see Table 2). Consistent with theory, perceiving workplace ostracism has independent significant main effects on outcomes, but counter to expectations, the slopes of the relationships between role stressors and well-being, as well as affective commitment, for those who were low on workplace ostracism decreased more strongly than amongst those high on workplace ostracism (see Figure 1). Likewise, the slope between role stressors and anxiety increased more strongly for those low (vs. high) on workplace ostracism. Nonetheless, in all cases, those high (vs. low) on workplace ostracism experienced greater anxiety and less general well-being, as well as less affective commitment. Given the result, it appears that the negative effect of workplace ostracism was so strong that it suppressed the relationships between role stressors and outcomes.

This study begins to shed light on the role of workplace ostracism even though the theory was not firmly supported. However, it is quite evident that workplace ostracism is related to both role stressors and outcomes. Future studies could investigate mediational relationships as workplace ostracism has been shown to exacerbate the effect of life stressors (Williams, 2001). Furthermore, studies could look into whether workplace ostracism acts as a suppressor variable in the

stressor-outcome relationship and examine additional stressors and outcomes.

Understanding conditions that promote effective management of workplace bullying

Sue O'Donnell (University of New Brunswick)

Research Context/Problem: Workplace bullying (WPB) is a prevalent and costly form of workplace abuse. A substantial amount of research has focused on examining the health impacts of WPB for employees and emotional and physical impacts have been well established. WPB also results in negative consequences for work organizations which include higher costs associated with health service and medication use and sick and disability leave. Bullying contributes to lowered productivity, commitment and morale and increased costs associated with grievances, litigation and turnover and replacement. Despite consistent evidence that WPB results in harmful and costly consequences, targets describe significant challenges when it comes to addressing and resolving the problem and many leave the workplace due to lack of support to resolve WPB (O'Donnell et al., 2010; O'Donnell & MacIntosh, 2015; Workplace Bullying Institute, 2014). Workplace professionals who play a role in managing WPB also report difficulties in managing and resolving the issue. Although a number of recommendations for addressing WPB have appeared in the literature, few have been tested and evaluated (Hodgins, MacCurtain, & Mannix-McNamara, 2014). Thus, even though workplace organizations are increasingly implementing programs and policies aimed at addressing WPB, they are doing so with little evidence to suggest which strategies are most effective. To address the issue of WPB, and create conditions that facilitate successful workforce participation, it is critical that strategies aimed at managing bullying are grounded in evidence. An important starting point is to identify factors that influence effective resolution of WPB from the perspectives of individuals most affected by the problem. This includes targets and key individuals within workplace and professional organizations who are tasked with addressing WPB (i.e., supervisory, human resource, compensation, human rights, and union professionals).

Purpose: The purpose of this study was to explore and explain factors that influence capacity among targets and workplace organizations and professionals to address and resolve WPB.

Procedures. Using a qualitative grounded theory approach, a convenience sample of 18 Atlantic Canadian individuals (12 targets and 6 workplace professionals) took part in one-on-one interviews to better understand the range of strategies being used to address WPB across a range of occupational types and sectors. Data collection and analysis occurred concurrently and data and emerging findings directed sampling and recruitment and the focus of interview meetings including semi-structured interview questions.

Results. Preliminary analysis suggests that a central problem identified in these data among both targets and workplace professionals was a lack of understanding of rights and responsibilities surrounding managing and addressing WPB. Targets sometimes found it difficult to name and define their experiences which could delay action and negatively impact health. Even when targets did name and label experiences many found it difficult to address experiences either formally or informally due to uncertainty and/or concerns that their efforts would be ineffective, make the situation worse, hamper their reputation, or result in reprisal. Both targets and workplace professionals noted that while individuals such as managers and direct supervisors often recognized the need to address the problem, this did not always translate into concrete action. Organizational professionals outlined the need for managers and/or supervisors to address more problems promptly and directly and highlighted the need for ongoing organizational and professional development to better prepare professionals for addressing such issues.

Implications. Results include an understanding of factors that influence effective management and resolution of WPB from the perspectives of targets and professionals. This research will contribute to the limited evidence base related to effective strategies for addressing WPB. By identifying conditions that influence how bullying is addressed, including those factors that facilitate successful management of WPB, this development project will provide a theoretical foundation for researchers interested in developing, testing, and evaluating interventions to address WPB.

Conclusions. There is a need to better understand and act on roles and responsibilities to address and manage WPB, particularly among workplace professionals.

Philadelphia Ballroom North

Opioids in the Workplace, Prevention and Response

SYMPOSIUM

Chair: Joseph Hughes, Jr. (National Institute of Environmental Health Sciences)

Occupational injury, stress, despair (1) , and related pain have been associated with opioid use disorder.(2) In 2017, opioids were found to be responsible for more than 48,000 deaths.(3) In response to this public health emergency(4), researchers have been exploring risk factors and interventions that can prevent and respond to the crisis. Recent research from the Massachusetts Department of Health described the number of opioid fatalities by industry and occupation. The study documented approximately 4,300 overdose deaths(5) over a four-year period. The rate of fatalities among construction, farming, and fishing industries was six times higher compared to workers in other industries. The rate was also higher among workers in occupations with lower availability of paid sick leave and lower job security. SAMSHA has characterized substance use and substance abuse by industry. (6)

When designing opioid treatment and recovery programs for workers, there are numerous psychological obstacles to overcome. For instance, stigma and fear are significant obstacles, preventing workers who need substance abuse or mental health counseling from coming forward and accessing available services.(7) Additionally, open communication about uncomfortable topics and moving to non-punitive programs can help create an environment where affected workers are more likely to access treatment. Development of peer support is fundamental to breaking down barriers.

Establishment of effective workplace training programs is key to addressing these needs.

National Institute for Environmental Health Sciences Worker Training Program: Establishment of Training on Opioids in the Workplace

Jonathan Rosen (National Clearinghouse for Worker Safety & Health Training)

Jonathan Rosen, M.S., will review the establishment of the National Institute for Environmental Health Sciences (NIEHS) Worker Training Program (WTP) four-hour awareness training entitled, "Occupational Exposure to Fentanyl and Other Opioids".(1) Additionally, NIEHS WTP is developing additional workplace training to prevent opioid misuse, addiction, and death. The training addresses collaboration among employers and labor unions in establishing workplace culture that encourages open communication about substance abuse and mental health issues, attacks stigma, and provides non-punitive approaches to access treatment and recovery resources. Key interventions include educating workers and employers in high-risk industries and sharing best practices for prevention through training and establishment of effective pathways to treatment. Employee, member, and peer assistance programs are also proposed as important workplace interventions.(2) References 1. NIEHS National Clearinghouse for Worker Safety and Health Training Tool https://tools.niehs.nih.gov/wetp/index.cfm?id=2562. 2. Preventing Opioid Use Disorders among Fishing Industry Workers, A. Wangari Walter, et al, Int. J. Environ. Res. Public Health 2018

American Industrial Hygiene Association's Response: Addressing Occupational Exposure to Fentanyl and Other Opioids

Peter Harnett (Leidos Inc.)

Donna Heidel, M. S. will review the opioid-related work of the American Industrial Hygiene Association (AIHA), a professional association focused on protecting worker health. AIHA worked with the President's Commission on Combating Drug Addiction and the Opioid Crisis to include a section on the first responder exposure to aspect of the opioid crisis, including new Fentanyl Safety Recommendations for First Responders. In addition, AIHA has been working with a variety of federal and state policymakers to help protect first responders and others from exposure to opioids and their synthetic analogues and will continue our work as the nation seeks to address this epidemic. AIHA has established an Opioids Working Group consisting of subject matter experts to develop resources to help first responders respond to the opioid crisis. AIHA recommends a four-pronged approach to guide employers to meet the needs of workers who may be occupationally exposed to opioids and their synthetic analogues: 1. Identify all the workers (including volunteers) who may be exposed and the specific activities that place them at risk for exposure; 2. Identify the work practices and personal protective equipment (PPE) that have been successfully adopted by the pharmaceutical and healthcare industries and may have equal application when handling opioids and synthetics by the workers noted above; 3. Develop specific practical guidance and training to control exposure; and, 4. Provide targeted and widespread dissemination of the training and guidance to all potentially exposed workers, including through the creation of short, field-useful wallet cards and social media.

Opioid and Benzodiazepine Use Before Injury Among Workers in Washington State, 2012 – 2015

Esi Nkyekyer (University of Washington)

Esi Nkyekyer, M.D., will report on the association between pre-injury opioid and benzodiazepine use and the risk of disability after work-related injuries in Washington State's Workers' Compensation system. (1) This study included 313,543 Washington State Department of Labor and Industries workers' compensation injury claims from 2012-2015 that were linked with State Prescription Monitoring Program data. Pre-injury prevalence of opioid or benzodiazepine use were compared between compensable and non-compensable claims, and between workers with and without post-injury prescriptions. The prevalence of opioid and benzodiazepine use in the 90 days before injury was 8.6% and .9%, respectively. Workers with pre-injury opioid or benzodiazepine use were more likely to have compensable claims and be on opioids or benzodiazepines, respectively, after injury. Cases with chronic opioid use pre-injury nearly universally receive opioids post-injury. Pre-injury opioid and benzodiazepine use may increase the risk of disability after work-related injury. This work builds on Washington State's innovative research to identify trends in opioid fatalities and overuse within the state's workers' compensation system,(2) which concluded that opioid treatment for work injuries was not effective for pain management or functionality.(3) Subsequently, provider education, opioid prescription guidelines, and regulatory interventions successfully reduced the opioid overdose fatality rate and the disability burden.

12:00–12:45 p.m.
Philadelphia Ballroom North

Luncheon Session

Early Career Speed Mentoring

Chairs: Tammy Allen (University of South Florida), Larissa Barber (San Diego State University) , Alyssa McGonagle (University of North Carolina Charlotte)

Applied/Practice OHP Careers
David Ballard

Academic OHP Careers
Kimberly French

Interdisciplinary Collaboration
Gwen Fisher

Extramural Funding for OHP Research
Bill Shaw

Publishing in OHP Journals
Russell Matthews

Partnering with Organizations
Chris Cunningham

1:00–2:15 p.m.

Concurrent Sessions 10

Independence Ballroom CD

Work-related Boredom at Different Levels: Days, Persons, and Jobs

SYMPOSIUM

Chair: Edwin van Hooft (University of Amsterdam)

It is not uncommon for employees to experience boredom in their jobs, and some estimates even indicate that no less than 87% of employees feel bored at work at least some times (cf. Watt & Hargis, 2010). Work-related boredom refers to a negative emotional state characterized by being unable to focus attention (inattention) and longing to engage in a satisfying activity (disengagement) (Baratta & Spence, 2018). During recent years, academic interest in the topic of work-related boredom has increased substantially, and it has been shown to be associated with a variety of negative consequences, such as counterproductive behavior (Bruursema et al., 2011; Van Hooff & Van Hooft, 2014), withdrawal from work (Harju et al., 2014; Reijseger et al., 2013) and depressed feelings (Van Hooff & Van Hooft, 2016).

Given these costs for both the individual employee and for the organization, it is important to find ways to reduce (the negative consequences of) boredom at work. This requires knowledge about the causes of boredom, as well as about effective coping strategies do deal with it. In order to apply targeted interventions to reduce boredom, it is also important to know which employees in which types of jobs are most likely to experience (consequences of) work-related boredom. So far, these issues have received only limited attention, though. Therefore, in the proposed symposium, three studies - based on data from Finland, Switzerland and The Netherlands - will be presented that aim to advance insight a) into the effectiveness of coping strategies that employees use to deal with work-related boredom, b) into inter-individual differences in how employees cope with work-related boredom, and in how boredom develops over time, and c) into work characteristics and professions that are associated with (inter-individual differences in the development of) work related boredom. The three studies provide different perspectives on studying boredom, focusing on this topic from a daily, a person and a job-level perspective.

The first study aims to shed light on inter-individual differences in how employees cope with work-related boredom on a daily basis, and on the effectiveness of coping strategies to reduce the daily experience of this emotional state. In a 5-day daily design (two measurements daily, during the lunch break and at the end of the workday) among 85 employees from various occupations, this study shows that trait-level self-control plays a significant role in determining the type of coping strategy employees exhibit to deal with work-related boredom. Specifically, high self-control increases the association between boredom and job crafting behavior, and decreases the strength of the relationship between boredom and bored behavior. The study also shows that that engaging in bored behavior is an ineffective way to deal with work-related boredom, as this type of behavior is associated with higher levels of subsequent boredom.

The second study focuses on boredom from a person-perspective, and examines inter-individual differences in work-related boredom, as well as work characteristics associated with (differences in) the development of boredom over time. By means of a 18-month 2-wave longitudinal design among 2453 respondents working in Finnish municipalities, this study employs latent profile analysis and analysis of variance to examine whether different subgroups of employees can be identified that differ with respect to their development of boredom over time (e.g., stable, increase, decrease), and whether these profiles are characterized by different job demands (i.e. challenge demands, workload demands, hindrance demands and work underload).

The third study examines boredom on the job-level. It is a longitudinal study based on a representative sample (N = 1408) of working adults in Switzerland. The study showed that 29.8% of employees work in passive –i.e., potentially boring - jobs (characterized by low autonomy and low demands) and that employees in such jobs experience relatively low levels of work engagement. Furthermore, results show an over-representation of employees in service/sale and administrative sectors in the category of passive jobs, reminding of the recent popular concept of « bullshit jobs » (Graeber, 2018). To better grasp the particularities of such a professional environment, a second (and ongoing) project will be presented, aiming specifically at work-related boredom and perceived meaning of work of employees in a public administration.

All in all, the results of presented studies will increase the understanding of work-related boredom, by showing which job characteristics are related to the development of work-related boredom over time, by demonstrating that especially employees with low level of self-control engage in ineffective coping strategies to deal with this emotional state, and by providing insight into the types of jobs that carry the highest risk of job incumbents experiencing boredom. From a practical point of view, these studies will provide starting point to reduce (consequences of) work-related boredom both on the job and on the person-level.

Dealing with daily job boredom: bored behavior and job crafting as coping mechanisms

Madelon van Hooff (Radboud University)

Recently, interest in the topic of work-related boredom has increased substantially, and research has paid attention to ways in which employees cope with feelings of boredom in their job. Two common coping mechanisms are bored behavior (i.e., "specific affect-based withdrawal behaviors of employees at work, which are not directly functional in obtaining one's work goals"; Van Hooff & Van Hooft, 2014, p. 350) and job crafting (i.e., "changes that employees make to balance their job demands and job resources with their personal abilities and needs"; Tims, Bakker, & Derks, 2012, p. 174). Work-related boredom has been shown to relate positively to both of these behaviors (Van Hooff & Van Hooft, 2014; Harju, Hakanen, & Schaufeli, 2016). An important question is if and to what extent these two coping mechanisms are effective in decreasing boredom at work. Furthermore, if these coping mechanisms are differentially effective, it is of interest to examine which employees engage in which type of coping to deal with work-related boredom. The current study aimed to examine inter-individual differences in how employees cope with work-related boredom, and how effective these coping strategies are in decreasing boredom. Given

that boredom is an activity-related emotion that may fade when one is no longer engaged in the boredom-inducing activity (Van Hooff & Van Hooft, 2016), we examined these questions from a daily perspective. We focus on trait self-control as an inter-individual difference that may explain whether an individual engages in bored behavior or job crafting when experiencing boredom at work. Specifically we hypothesize: 1a) that there is a positive association between daily work-related boredom and bored behavior, which is weaker for employees higher on trait self-control, 1b) that there is a positive association between daily work-related boredom and job crafting, which is stronger for employees higher on trait self-control, 2a) that bored behavior is positively related to subsequent work-related boredom, and 2b) that job crafting is negatively related to subsequent work-related boredom. Method. Data were collected with a general survey and a five-day daily diary study (Monday-Friday) with two measurements daily (during lunchbreak, and at the end of the workday) among 85 employees from various occupations (52.9 % female). Trait self-control was assessed in the general questionnaire (23 items, e.g., "Before I do something, I go over the possible consequences; De Boer, Van Hooft, & Bakker, 2011). Work-related boredom (4 items, e.g., "This morning/afternoon, I felt bored at work; Lee, 1986), bored behavior (6 items, e.g., "This morning/afternoon at work, I pretended to be busy"; van Hooff & van Hooft, 2014), and job crafting (3 items, e.g., "This morning/afternoon at work, I asked for more responsibilities"; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012) were measured daily on both measurement occasions. Results. Results of multilevel analyses (with grand-mean centered independent variables) revealed a positive association between work-related boredom reported during the morning, and bored behavior (multilevel estimate = 0.60, t =11.55, p < .001) as well as job crafting (multilevel estimate = 0.16, t = 2.18, p = .03) during the morning. Supporting Hypothesis 1a, the significant interaction of self-control (multilevel estimate = -0.32, t = -3.25, p = .002) indicated that self-control attenuated the association between work-related boredom and bored behavior. Hypothesis 1b was supported as well, because the significant interaction of self-control (multilevel estimate = 0.42, t = 3.04, p = .004) showed that the association between work-related boredom and job crafting was indeed stronger for employees with a higher level of self-control. Furthermore, results demonstrated that—controlled for work-related boredom in the morning—bored behavior in the morning was positively associated with work-related boredom in the afternoon (multilevel estimate = 0.60, t = 9.60, p = < .001), supporting Hypothesis 2a. However as—controlled for work-related boredom in the morning—job crafting in the morning was not significantly related to work-related boredom in the afternoon (multilevel estimate = 0.05, t = 0.94 p = .35), Hypothesis 2b was not supported. Conclusions and practical implications. Our study showed that, on a daily basis, work-related boredom is positively associated with two distinct coping strategies, namely bored behavior and job crafting, and that self-control plays a significant role in determining the type of coping behavior employees exhibit. We also showed that engaging in bored behavior is an ineffective way to deal with work-related boredom, as this type of behavior is associated with higher levels of subsequent boredom. Within a single working day, job crafting did not reduce work-related boredom. It could be that the presumed positive effects of job crafting need longer to become visible in reduced levels of boredom. From a practical point of view, our study highlights the importance of preventing bored behavior as a way to deal with work-related boredom. This seems especially important for employees with a low level of self-control.

Profiles of boredom at work and job demands

Lotta Harju (Vrije Universiteit Amsterdam)

Boredom at work is defined as an unpleasant state of passiveness, which is characterized by attentional difficulties and disengagement (e.g. Baratta & Spence, 2018). Having long been an overlooked area of research in the field of occupational health psychology, studies on boredom at work have recently gained momentum (Vodanovich & Watt, 2016). This growing body of literature implies that boredom is a distinct state of employee ill-being, which is associated with negative employee health, attitudes and performance (see Schaufeli & Salanova, 2014 for an overview). Although the few longitudinal studies that exists have found boredom at work to be a rather stable phenomenon on a general level (Harju et al., 2016; 2018), no studies to date have explored whether it is like that for everyone. Some individuals are perceived to be more prone to experience boredom (Farmer & Sundberg, 1986) and differ in their response to the experience (Malkovsky, et al., 2012), which implies there may be differences across employees in how much they report boredom and how it evolves over time. For example, while boredom may remain stable for some employees, it might increase for others, as bored employees may react to their situation in ways that make their situation even worse (van Hooff & van Hooft, 2014). Hence, the first aim of this study is to explore whether different profiles may be identified in the levels and development of boredom at work over time. As a second and subsequent aim, this study examines whether these groups are characterized by different types of job demands. Boredom at work is commonly associated with not having enough challenging tasks or enough tasks in general, because in such situations the individual's need for activation and stimuli is not fulfilled in the given environment (e.g. Cziksentmihalyi, 1975; Reijseger, et al., 2013). Some studies, argue, however, that it is not just lacking challenging job demands or work underload that may cause boredom. More specifically, excessive workload and hindrance demands are also suggested to play a role in the emergence of boredom at work, because these job characteristics may obstruct individuals from fully engaging in their task performances and thus render work meaningless (Harju, 2017; Harju & Hakanen, 2016). Hence, employees may also be bored because of other types of demands than just lacking challenges or work underload. Research is yet to examine, however, what types of job demands, or lack thereof, bored employees effectively perceive. This study employs data collected at two measurement points with 18 month time lag from 2453 respondents working in Finnish municipalities who returned the survey at both measurement points. This was 57% out of the 4302 respondents who had at T1 indicated that they would like to participate in the follow-up study. Latent profile analyses (LPA) will be used to identify groups from the observed data that follow similar patterns of mean changes in boredom at work over time. Thereafter it will be examined, if these groups differ in regards to the level of four different job demands (i.e. challenge demands, workload demands, hindrance demands and work underload). The analyses and the respective findings are forthcoming, and will be further discussed in the presentation. This study will be the first on boredom at work employing person-centered methods. By exploring whether there may be different patterns on how boredom at work develops over time, this study will extend knowledge on the unique paths, if there are any, of boredom. In addition, this study will expand understanding on the role different types of job demands may play in how boredom emerges and develops. Hence, this study will inform scholars and practitioners alike on how boredom may

evolve, and thus advance understanding on how to sustain a motivated and well-performing workforce in organizations.

Better bored than burned-out? Passive work conditions and well-being

Cecilia Toscanelli (UNIL | Université de Lausanne)

During the last three decades, several structural and global phenomena have induced changes and transformations in the nature of work and the demands of the labor market. Indeed, intense market-based pressures resulting from globalization, together with fast-paced and intense technological evolution, have brought workers to face the risks and challenges of a fast changing, highly competitive and insecure labor market, characterized by intense demands of continuous qualification and adaptation. The adverse effects of these challenges and risks have been widely documented in terms of increasing work-related strain, psychological distress and exhaustion, some scholars going so far as to consider burnout as the archetypical effect of the overwhelming demands that characterize the contemporary world of work (Weber & Jaekel-Reinhard, 2000). However, while adverse working conditions and their outcomes are traditionally studied in terms of over-stimulation resulting from high psychological demands and low autonomy, a few studies have also brought attention to the consequences of under-stimulation and boredom, in work environments characterized by extremely low job demands combined with low autonomy. Work-related boredom can be defined as « an unpleasant state of relatively low arousal and dissatisfaction, which is attributed to an inadequately stimulating work situation » (Mikulas & Vodanovich, 1993, pp. 3), and studies show that large proportions of workers are concerned by chronic boredom (van Hooff & van Hooft, 2014). This pernicious yet widespread phenomenon may be understood as a new trend in the post-industrial labor markets: technological changes lead to ongoing automatization and routinization of work, contributing to the proliferation of professional activities void of intellectual stimulation, social contribution and personal meaning, whereas increasing job insecurity forces highly qualified workers to cling to jobs that may not fit their actual skills or their true aspirations (van der Heijden, Schepers & Nijssen, 2012). Building on these observations, our study focuses on two main questions. How does under-stimulation resulting from passive job conditions impact work-related well-being (e.g. engagement and satisfaction)? Which professional categories are more concerned with passive conditions? This study is part of a longitudinal research financed by the Swiss national Science Foundation and focusing on contemporary career trajectories and work-related well-being. Analyzes are based on a representative sample of working adults in french-speaking and german-speaking parts of Switzerland (N = 1408; Mean age = 44.21, SD = 8.385; 51.5% women). Using the Job content questionnaire (Karasek et al., 1998), we categorized our population in 4 job categories: low strain (25.8%), high strain (16.8%), active (20.3%) and passive (29.8%), then analyzed differences and specificities between these categories in terms of work engagement and job satisfaction, with a focus on the passive category (potentially our bored subjects). Big five personality dimensions were assessed to control for the dispositional antecedents of boredom. ANOVAs show significantly lower levels of work engagement in the passive conditions compared to the active and low strain categories. Furthermore, even though employees in passive conditions report higher satisfaction than those in high-strain conditions, they show similar levels of work engagement, namely low scores of absorption and dedication. Finally, we also used the International Standard Classification of Occupations (ISCO-08) to identify which professional domains and occupations were most represented in the passive work conditions category. Our results show an over-representation of employees in service/sale and administrative sectors, reminding of the recent popular concept of « bullshit jobs » (Graeber, 2018). To better grasp the particularities of such a professional environment, a second (and ongoing) project will be presented, aiming specifically at work-related boredom and perceived meaning of work of employees in a public administration.

Independence Ballroom B

Stress and Mental Health

PAPER SESSION

Preliminary Bifactor Analysis Study of Burnout, Depression, and Anxiety in Austrian Teachers

Irvin Schonfeld (City University of New York)

Four problems affect research on burnout. One is that burnout has not been included in the standard psychiatric/medical nomenclature (DSM-5 and ICD-10). In other words, the concept of "clinical burnout" is not in the standard nomenclature.

Second, there is no consensual definition of burnout in the research literature. The most commonly used definition derives from Maslach, Leiter, and Jackson (2016), who defined burnout as a syndrome caused by chronically aversive working conditions and combines emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. The locus of whatever consensus exists regarding burnout is that exhaustion is its core (Kristensen, Borritz, Villadsen, & Christensen, 2005; Shirom & Melamed, 2006).

Third, burnout scales' discriminant validity is problematic. The scores on burnout-related exhaustion scales correlate highly with scores on depressive symptom scales (Ahola, Hakanen, Perhoniemia, & Mutanen, 2014; Bianchi, Schonfeld, & Laurent, 2014, 2015; Schonfeld & Bianchi, 2016; Schonfeld, Verkuilen, & Bianchi, 2017; Wurm et al., 2016) and anxiety scales (Schonfeld, Swingler, Bianchi, & Verkuilen, 2019; Schonfeld, Verkuilen, & Bianchi, under review). These findings suggest that the core exhaustion component of burnout scales and depression and anxiety scales measure the same construct.

Fourth, most research on burnout-depression(-anxiety) overlap has relied on the Maslach Burnout Inventory (Bianchi, Schonfeld, & Laurent, 2014) and to a lesser extent the Shirom-Melamed Burnout Measures (Schonfeld & Bianchi, 2016). One purpose of this study is to examine the problem of construct overlap in a different burnout scale, the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003), particularly with regard to its Exhaustion subscale.

Burnout and depression have similar nomological networks (Bianchi, Schonfeld & Laurent, 2018; Bianchi & Schonfeld, 2016; Schonfeld & Bianchi, 2016). Unresolvable job stress plays a role in both burnout and depression (Schonfeld & Chang, 2017). Burnout is also associated with anxiety (Bianchi et al., 2014; Rössler, Hengartner, Ajdacic-Gross, & Angst, 2015; Schonfeld & Bianchi, 2016). Research in psychopathology has suggested that depressive and anxiety symptoms are part of the same dimension of psychopathology (Caspi et al., 2014) which has also been labeled psychological distress (Dohrenwend et al., 1980).

To further examine the relationship between burnout, depression, and anxiety, we conducted a preliminary study of 209 Austrian schoolteachers (we plan to enlarge the study by recruiting teachers from Germany). We used the German-language version of every scale. The instruments included the Oldenburg Burnout Inventory (OLBI) with its Exhaustion and Disengagement subscales (Demerouti, Bakker, Vardakou, & Kantas, 2003), the 9-item depression module of the Patient Health Questionnaire (PHQ-9; Löwe & Spitzer, 2002), the 10-item version of the CES-D (CESD-10; Cole, Rabin, Smith, & Kaufmann, 2004; Hautzinger & Bailer, 1993), and the 7-item Generalized Anxiety Disorder scale (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006).

Using Mplus we developed a bifactor model (Rodriguez, Reise, & Haviland, 2016) aimed at understanding item dimensionality by identifying two sources for each item's systematic variance, a general distress factor and one source specific to the nature of a scale's items. We treated the items as ordinal. With five scales or subscales we extracted five bifactors in addition to the general distress factor. With 7 to 10 items per scale, the factors were over-identified (MacCallum, Widaman, Zhang, & Hong, 1999). We employed a target rotation in a six-factor solution (Heiserman & Maydeu-Olivares (2018), specifying zero targets for loadings on the bifactors for items that do not belong to the scale and allowing all other loadings to be free (Browne, 1972). Rotation is a minimized a least squares criterion vis-à-vis the target values. The general factor and bifactors can be orthogonal or oblique.

Model fit was good: RMSEA = 0.027; CFI = 0.987; TLI = 0.982; SRMR = 0.047. As anticipated the PHQ-9 (M loading = 0.698), CES-D (M loading with corrections for negatively worded items = 0.620), and GAD-7 (M = 0.678) items loaded highly on the general distress factor. As expected the OLBI Exhaustion items loaded more highly on the general factor (M corrected loading = 0.594) than the Disengagement items (M corrected loading = 0.357) although some of the Disengagement items' loadings on the general distress factor were not negligible (e.g., item 11, sickened by work tasks, loading = 0.607). Like the PHQ-9, CES-D, and GAD-7 items, the Exhaustion items loaded more highly on the general distress factor than on their respective bifactors. By contrast, the Disengagement items loaded more highly on its bifactor than on the general factor (M = 0.440).

The findings are consistent with the view that exhaustion, burnout's core, is not separate from depression and anxiety. By implication, burnout cannot be categorized as an independent syndrome (Bianchi, Schonfeld, & Laurent, 2017). Exhaustion items from burnout scales, like items on depression and anxiety scales more likely reflect psychological distress (Caspi et al., 2014; Dohrenwend, Shrout, Egri, & Mendelsohn, 1980).

The Impact of Morally Challenging Experiences on Psychological Distress, and Turnover Intentions

Kathy Michaud (The Department of National Defence and the Canadian Armed Forces)

The nature and conditions of work are changing throughout the world, including those on military operations (Canadian Army Land Warfare, 2015; Robinson, 2009). Recent operations have exposed military personnel to traumatic situations that can challenge deeply held moral convictions (Jetly & Thompson, 2014; Nazarov, Fikretoglu, Liu, Thompson, & Zamorski, 2018). Examples of these morally challenging experiences (MCEs) include being exposed to civilian deaths, ill or injured women or children they are unable to help, and instances of disproportionate violence (Drescher et al., 2011; Vargas, Hanson, Kraus, Drescher, & Foy, 2013). MCEs have been hypothesized to cause moral injuries, which are defined as the guilt- or shame-driven response that stems from perceptions of "perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations" (Litz et al., 2009, p. 700). Not every individual exposed to an MCE suffers a moral injury or other psychological disturbance, however, so these experiences must be considered separately from their possible outcomes for individuals and for their organizations (Frankfurt & Frazier, 2016).

MCEs bear a likeness to combat stressors, which have been associated with both posttraumatic stress and major depressive disorder (Currier, Holland, Drescher, & Foy, 2015; Nazarov, Fikretoglu, Liu, Thompson, & Zamorski, 2018; Watkins, Sudom, & Zamorski, 2016) and which have in turn been linked with detrimental organizational outcomes (e.g., Blanc & Kelloway, 2014; Hoge et al., 2006; Watkins, 2014, Vinkour, Pierce, Lewandowski-Romps, Hobfoll, & Galea, 2011). While these findings indicate that combat-related stressors—which include traumatic experiences—affect individuals' organizational functioning, the extent to which these findings are generalizable to the experience of MCEs remains unclear. It is therefore necessary to independently examine the impact of MCEs during deployment on soldiers' organizational functioning.

We developed a model to examine whether perceptions of MCEs during deployment contributed to psychological distress and an important organizational outcome, turnover intentions. Drawing on the stress literature (Anisman, 2014; Pratt & Barling, 1998), we conceptualized MCEs during deployment as stressors to which some people will experience a stress response (McEwen, 2000), depending on how they perceive and appraise such events (Lazarus & Folkman, 1984). If perceptions of moral challenges (i.e., stressors) cannot be reconciled with an individual's own values and beliefs, and the associated stress response becomes chronic, we posited that the individual may experience strain (i.e., detrimental physiological and psychological outcomes; McEwen, 2000; Pratt & Barling, 1998). We sought to examine the unique contribution of MCEs to psychological distress (i.e., a manifestation of strain) to post-deployment well-being and intentions to leave the organization. Turnover intentions are an important organizational concern because they indicate psychological withdrawal from work (Hanisch & Hulin, 1990, 1991; Johns, 2001), which can lead to declining performance and absenteeism (e.g., Sheridan, 1985) and to actual turnover (see Tett & Meyer, 1993).

Method. Participants were Canadian Armed Forces personnel (N = 318) who completed the Human Dimensions of Operations Survey four to six months after returning from deployment to Afghanistan in 2010. The Mental Health Advisory Team Combat Experiences Scale (MHAT-CES; Killgore et al., 2008) was used to assess combat exposure. This self-report measure assesses exposure to a broad spectrum of combat-related stressors. In addition to morally challenging experiences, this included working in dangerous environments, life threats, exposure to death, and active combat experiences. The Kessler Psychological Distress Scale (K10; Kessler et al., 2002) was used to assess psychological distress and the Intentions to Turnover scale (Colarelli, 1984) to assess turnover intentions.

Results. A mediational analysis was conducted using status (i.e., Regular Force or Reserve Force), rank, years of service, and the other combat-related stressors as covariates. Results showed that exposure to an MCE was positively related to psychological distress ($a = 0.21$, $p < .01$); that psychological distress was positively related to turnover intentions ($b = 0.26$, $p < .01$); and, finally, that MCEs were related to

turnover intentions through psychological distress. The total effect of the model was significant (c = 0.21, p < .001, CI 0.05, 0.27), supporting the mediation model.

Discussion. This study contributes to a small body of research that has found that the moral challenges faced by military personnel in combat are related to their well-being (see also Currier et al., 2015; Nazarov et al., 2018; Watkins et al., 2016). Our research also goes a step further in considering the relationship between MCE and turnover intentions. These findings suggest that MCEs can be particularly detrimental to the well-being and work withdrawal behaviours of military personnel, even after accounting for exposure to other combat-stressors. This knowledge can contribute to the development of appropriate pre-deployment training and education materials to address the moral challenges individuals may face on deployment, with the goal of reducing the negative impact of such events on both individuals and the organization.

Discovering inflammatory network structure of depression symptoms and suicidal ideation in Japanese employees: A preliminary analysis

Takahiro Soeishi (Waseda University)

Problem: According to WHO, depressive disorders will be the first leading cause for the burden of disease in 2030. Even in 2004, it has already been the first leading cause in middle and high-income countries. In addition, Japanese Ministry of Health, Labor and Welfare indicates that the number of workers' compensation for depressive disorders is increasing and now has exceeded compensation for brain/heart disease. For such reason, prevention of workplace depression became very important issue in Japanese society.

Many researchers often conducted studies about the relationship between inflammatory cytokines or C-reactive protein and worker's mental health problems, including depression/depressive disorders [1]. However, there are little research revealing the correlation structure for the cascade of inflammatory markers. Moreover, in an animal study, a group of researchers discovered that repeated social defeat stress activates microglia, which is intracerebral inflammatory cell [2]. And then microglia increase the gene expression involved in inflammatory cytokines. Because of these facts, we are paying attention to the correlation structure among a series of inflammatory markers.

Several indicators to measure the depression level have been proposed, and Kessler 6 (K6) is one of them. In the first place, Kessler and his colleagues developed 6-item very short screening instruments for depression. After that, Furukawa and his colleagues translated and validated the Japanese version in 2008. We also used a single question asking about the suicidal ideation: I seriously consider that I would feel better if I were to die. Response options followed the K6.

Procedures. Our research was designed as a 3-year prospective study started at May 2018. This time, we will analyze the baseline cross-sectional data. Data were collected with self-administered questionnaire combined with blood test measuring inflammatory markers (interleukin (IL)-6, IL-8, IL-12/23p40, Il-15, IL-27, Tumor necrosis Factor (TNF)-α, interferon-γ. high sensitive C-reactive protein (hs-CRP), and white blood cells (WBCs)). Overall, 390 employees agreed to participate in the survey. Of these 390 employees, 384 participated in inflammatory marker sampling test.

Statistical Analyses. We have started analyzing the association between depression symptoms and suicidal ideation. Specifically, linear regression analysis was performed. We used K6 and suicidal ideation as the dependent variables and inflammatory markers as independent variables.

Results. In this study, we aim to increase knowledge of diagnosis of worker's depression and suicidal ideation by combinations of biomarkers. To be more concrete, we study whether the network structure of selected inflammatory markers to be good indicators for predicting depressive disorder and suicidal ideation. Preliminary analysis indicated that increased suicidal ideation was associated with decreased TNF-α and increased hs-CRP controlling for age, sex, BMI, job control and job demands. More detailed results will be presented at the conference.

Practical implications. Past studies have suggested that poor mental health are related to increased inflammatory responses. These findings have been confirmed with a Japanese sample as well which suggest that it may become a useful marker for detecting levels of mental health in the future.

Conclusion. The results of this study indicates that several inflammatory markers may be useful to predict mental health status of the employees.

Depression and the Metabolic Syndrome in the US Workforce (Prevalence and associated risk factors of Mets): Using the National Health and Nutrition Examination Survey (2009-2012)

Won Ju Hwang (Kyung Hee University)

Background. The prevalence of the metabolic syndrome which leads to cardiovascular disease is increasing worldwide. This research introduces key concepts of psychosocial factor relevant to the clinical fields of metabolic syndrome in occupational health (2). Previous studies suggested that depression may lead to the development of cardiovascular disease through its association with the metabolic syndrome (3). However, little is known about the relationship between depression and the metabolic syndrome in workforce (4). The purposes of this study were to estimate the prevalence of metabolic syndrome (Mets) and its components and to investigate the risk factors associated with metabolic syndrome in US workers both men and women.

Methods. This is a secondary data analysis study using the data from the National Health and Nutrition Examination Survey (2009-2012). A total of 4,155 adults workers aged 20 and more (2,006 men and 2,149 women) were chosen for this study. Depression was defined from the patient health questionnaire (PHQ). The prevalence of metabolic syndrome and its components was determined using the National Cholesterol Education Program Adult Treatment Panel III criteria (1). The definition of metabolic syndrome was based on the presence of three or more of the following signs: (1) waist circumference ≥40 inches for men or ≥35 inches for women, (2) triglycerides (TG) levels ≥150 mg/dl, (3) high-density lipoprotein cholesterol (HDL-C) levels, ≤40 mg/dl for men or ≤50 mg/dl for women, (4) hypertension, defined as systolic blood pressure (BP) ≥130 mmHg, diastolic BP ≥85 mmHg, or if the subject was under active antihypertensive drug therapy, and (5) fasting blood glucose (FBG) ≥100 mg/dl, or if the subject was actively using oral anti-diabetic medication or insulin.

Results. The overall prevalence of metabolic syndrome among US workers was 35.5%. In weighted multivariate logistic regression analysis, men workers with high sodium intake were significantly associated with the Mets (OR=12.43, 95% CI:1.13-136.69). In women, depression symptom increased the risk of metabolic syndrome with odd ratio 4.9 (95% CI:1.25-19.43). The risk of developing of metabolic syndrome is

strongly associated with level of psychological factor like depression in only women workers.

Conclusions. It is important to better understand the depression may play in the effort to reduce the prevalence metabolic syndrome and its health consequence. These findings suggest that psychological modification or intervention including depression in the workplace should be considered for the prevention and management of metabolic syndrome in US women workers. Further studies are warranted for US workforce in association between psychological factors and cardiovascular disease risk.

Salon 3 & 4

Predictors of Burnout

PAPER SESSION

Electronic Medical Records: Cause of Provider Burn-out or Scapegoat?

Bengt Arnetz (Michigan State University)

Problem: World-wide, low-energy syndrome ("burnout") is an increasing challenge to workforce health and the delivery of high quality care. Originally, burnout was attributable to provider-patient/client-specific processes. As researched evolved, it became clear that organizational level factors play a critical role in the burnout process. In the United States, as many as 60% of providers are reported to have at least one or two symptoms of burnout. Practitioners and researchers believe that provider stress related to the use of Electronic Medical Records (EMR) might be a key culprit. However, there has been little research as to the role of EMR vs other known workplace stressors in terms of causing law-energy in providers.

The purpose of the present study was to determine the associations between provider and organization-specific factors, patient load, and use of EMR as it related to provider energy.

Procedure: A survey was distributed to 13 primary care clinics across the State of Michigan. A total of 139 providers responded to the survey. The survey contained questions on provider characteristics, e g, age and gender, organizational and leadership characteristics, number of patients seen per day, and hours working with the EMR per day. Responses were not traceable to individual providers. Only grouped data was reported back to our state-wide primary care network. The study was reviewed by the Michigan State University's Institutional Review Board and determined not to fulfil the criteria for human subjects research.

Analysis: The first step entailed bivariate analysis between purported exposure factors and energy. Co-variance between exposure variables were reviewed. In the second step, provider, organizational, patient load and EMR use were used to model provider energy. We were especially interested in identifying exposures or provider characteristics that predicted lower provider energy. Significance was set at a two-sided p value of <.05.

Results. Mean provider energy was 5.61 (S.D. 2.37), with a median of 6. Acceptable energy levels for sustainable worker well-being is 7 or higher, out of a maximum of 10. Mean organizational energy was 76.75 (15.73), which is above the established cut-off of 70 on a scale ranging between 1 - 100. The mean use of EMR was 29.42 (S.D. 16.79) hours/week. There was a significant and reverse associaiton between energy levels and burnout scores. Increasing number of patients seen during the day (beta = -.25, p=.09) and hours of EMR use (-.17, p=.05) were inversely associated with provider energy. Linear regression analysis, controlling for provider age and sex, showed that number of patients seen (beta = -.23, p<0.1) and lack of organizational efficiency (-.38, p<.01), but not proportion of the workday spent in the clinic, nor hours of EMR use, predicted provider energy.

Practical implications. The study shines further light on the complex relationship between organizational charactertistics and technology (here EMR) as it relates to stress and burnout. Healthcare organizations that want to effectively address low energy and burnout need to look at organizaitonal and technological contributors and not merely individual level factors. Such an a approach will also offer a more broad set of interventions.

Conclusion. low energy in providers is an increasing concerns in healthcare organizations. The current study of primary care providers points to the importance of looking at both EMR and organizational factors when addressing provider burnout.

The Social Dimension of Burnout

Maria Umaña Ruiz (University of the Andes)

Introduction. Job burnout is a chronic and severe consequence of emotional and interpersonal stressors in the job (Maslach, Schaufeli, & Leiter, 2001). The Job Demands-Resources theory posits that burnout is a consequence of untenable working conditions in which the demands placed on an employee are unbalanced compared to the resources that the employee can access to accomplish her work (Bakker & Demerouti, 2017). This theory has spurred fruitful lines of research focusing on understanding the role of working conditions related to the tasks that employees accomplish as predictors of burnout. However, while the theory posits that interpersonal stressors are relevant for the experience of burnout, few studies focus on how interpersonal relations in the organization affect burnout. Moreover, these studies focus on specific aspects of some social relations, for example social support or feedback (Halbesleben, 2006), but do not provide a more comprehensive understanding of the multiple social relations that employees need to establish as part of their work in an organization, notably in order to accomplish their tasks and goals.

In this project, we build on the Job Demands-Resources model to propose that employees' position in the network of social relations is related to burnout. More specifically, we aim to examine how the social structure of a health care organization is related to the risk of employees experiencing burnout. By social structure we refer to the network of interconnected social relations that employees establish both because their work demands them to (task related social relations), and because of individual preference (affective relations). We draw from previous research to understand the role of affective relations, therefore we hypothesize that employees with more social support-relationships are protected from burnout (Halbesleben, 2006) while employees who deal with incivil relations would have a higher risk of the syndrome (Leiter, Nicholson, Patterson, & Spence, 2011). As a new direction in burnout research, we focus on task related social relations and hypothesize that employees who sustain multiple social relations with coworkers that are based on task interdependencies will have to cope with higher social demands, which makes them more likely to experience burnout.

By examining the individual consequences of the structure of social relations at work, we contribute to the extent literature in three ways.

First, we expand the theoretical literature on burnout by highlighting the role of the social dimension of work as the set of relations that individuals establish because of their work. Second, we highlight the role of job design as a burnout prevention mechanism by focusing on task interdependence relations, which are established because of the organization of work. Third, we apply novel methods to burnout literature, specifically social network analysis, to account for the social dimension of work, which allows understanding not only the quality, but also the structure of social relations.

Methods. We conducted a two wave social network cohort study (Borgatti, Mehra, Brass, & Labianca, 2009) in a large hospital with nine months of difference between them. We received approval from the institutional review board at the hospital and explained the study to potential participants. Anonymity and confidentiality of their responses was guaranteed. In the first wave, the sample included 182 health care employees from five different departments: Oncology, nephrology, infectiology, psychiatry and a memory clinic, each department had a response rate higher than 70% of its employees. A wide range of clinical, administrative and technology support areas were included within each department. We assessed burnout syndrome (MBI), social networks of task interdependence, instrumental and emotional social support and incivility, Job Demands and Control (JCQ), positive and negative affect, self-monitoring personality trait as well as organizational and demographic control variables. The second wave of data was collected until December 2018. We broadened our sample to include also in-hospital workers such as intensive care unit, palliative care unit and internal medicine. In this wave, we data of 405 participants.

Results. Preliminary results from Quadratic Assignment Procedure regressions in the first wave of data, show that employees occupying positions where they must interact with coworkers who do not depend on each other are at higher risk of experiencing burnout, even after controlling for individual demands, resources, the number of social support and incivility relations at work. These results suggest that the social dimension of work, understood as the task interdependence relations, act as a different set of demands and resources, which affect individual burnout. We expect to replicate these analyses with the larger sample from the second wave of data and perform longitudinal analyses that also allow us to understand how the change of social relations over time can be related to the experience of burnout. These results will be available for the moment of the conference.

Lead with a little help from my friends: Relatedness frustration as a predictor of amotivation for transformational leadership

Stephanie Gilbert (Cape Breton University)

Much of the organizational leadership literature assumes that leaders are motivated to be effective (Gilbert & Kelloway, 2014), but leaders' motivation may vary, leading to different levels of performance. Motivation for transformational leadership (Gilbert & Kelloway, 2014) integrates transformational leadership theory (Bass, 1985) and self-determination theory (Deci & Ryan, 1985) to examine leaders' motivation to engage in effective leadership behaviours. Leaders may be unmotivated to engage in transformational leadership (as in amotivation), or experience motivation that ranges from being completely controlled by external factors to freely choosing to engage in effective leadership behaviours (as in autonomous motivation). Previous research on this construct has linked levels of leader motivation to transformational leadership behaviours as rated by the leader and by subordinates (Gilbert, 2015; Gilbert, Horsman, & Kelloway, 2016, Gilbert & Kelloway, in press), suggesting that the leaders' type of motivation may predict the style of leadership that they adopt.

Self Determination Theory (Deci & Ryan, 1985) suggests that psychological needs (need for autonomy, competence and relatedness) predict self-determined motivation, but little data supports this link longitudinally, and no literature has looked at predictors of motivation for transformational leadership. This study examined whether psychological needs satisfaction and frustration (Chen et al., 2015) predicted motivation for transformational leadership over time using a three-wave longitudinal study design.

Leaders in the United States with at least one subordinate at work were recruited using a market research firm and were assessed via an online survey at three time points, each four months apart, for a final longitudinal matched sample of 111 participants. Participants were between the ages of 25 and 64 (M = 46.93, SD = 10.98), had been in their job for an average of 11 years (SD = 8.01), were mostly male (57%), working mainly in private corporations (67%) and 82.2% of participants had a post-secondary education (college or higher). Cross-lagged panel analyses were conducted using Mplus v. 7.0 to examine psychological needs satisfaction and frustration (Chen et al., 2015) as predictors of the types of motivation for transformational leadership (Gilbert et al., 2016), specifically autonomous and controlled regulation as well as amotivation.

To test the hypotheses that psychological needs satisfaction and frustration would predict amotivation, controlled and autonomous motivation three sets of nested analyses were conducted. For each, the autoregressive model was tested first, where each variable was regressed onto the same variable at the previous time point. Next, the cross-lagged effects of interest were added into the model. The autoregressive model where relatedness frustration predicted amotivation was not a good fit ($\chi2(1, N = 111) = 31.64$, $p = 0.00$; CFI = 0.95, RMSEA = 0.18, pclose = 0.00, 90% C.I. = 0.12 - 0.24), but adding in the cross-lagged effects where relatedness frustration predicted amotivation at subsequent time points resulted in an excellent fit ($\chi2(7, N = 111) = .33$, $p = 0.56$; CFI = 1.00, RMSEA = 0.00, pclose = 0.62, 90% C.I. = 0.000 - 0.208). Further, amotivation was predicted by relatedness frustration at preceding time points, but relatedness frustration was not predicted by amotivation at preceding time points, as expected. All other models tested where psychological needs satisfaction and frustration subscales predicted autonomous or controlled regulations longitudinally resulted in a poor fit. These results suggest that when leaders feel isolated, disliked, or excluded from others at work, in other words when they feel relatedness frustration, they may become amotivated over time as a result.

The results of this study suggest that while competence and autonomy satisfaction and frustration may not predict self-determined leader motivation, relatedness frustration may be a key predictor in leaders becoming amotivated over time. Amotivation refers to a complete lack of intent to engage in any behavior and it may develop as a result of lack of control and alienation (Gagne & Deci, 2005). Amotivation for transformational leadership has been positively related to poor leadership (laissez-faire leadership) and negatively related to positive leadership styles such as contingent reward and transformational leadership (Gilbert, 2015; Gilbert et al., 2016). Thus, to promote positive leadership behaviours it may be of utmost importance prevent leaders from developing amotivation over time. Minimizing relatedness frustration may be one strategy to prevent the development of amotivation over time.

Relatedness refers to feeling connected and interdependent with others and feeling a sense of belonging to a group (Deci & Ryan, 2002).

Zumatea (2019) suggested that loneliness was a sort of 'professional hazard' for top leaders, and that emphasizing key coping strategies, such as obtaining social support from the leader's network and organizational strategies such as developing a low power distance culture might reduce loneliness in leaders. These and other strategies to prevent relatedness frustration may serve to reduce the development of amotivation in leaders over time, which may lead to more positive leadership behaviours as a result.

Predicting Early Stages of Burnout: A longitudinal study of the relationships between workplace stressors, email communication patterns and burnout

Viviola Gómez Ortiz (University of the Andes)

Introduction. Burnout is a key issue for organizations and their employees. Employees experiencing burnout demonstrate decreased performance at work, increased absenteeism, deterioration of mental and physical health, and of their personal and family life. While tests and questionnaires exist to diagnose burnout and engage in a course of corrective action, most employees become aware of the need to address burnout only very late, often when seeking medical attention. At a late stage, employees need drastic changes in their work routines in order to recover and are at significant risk of depression.

Leiter, Bakker and Maslach (2014) argue that understanding the process through which burnout develops and the role of social relationships in employees' experience of burnout is a key priority in order to develop preventive strategies. While a few studies have shown the importance of workplace social relations as related to burnout the way in which social relationships can affect burnout is not well understood. A key dimension of social relationships in the workplace is communication, because communication between employees is the way in which social relations can provide support or add additional demands to the worker, which affect the experience of burnout. One of the multiple means of communications that workers use on an everyday basis has been singled out for its potential contribution to stress and worker overload: email communication.

This 2-year project aims to develop an early warning system to identify employees at risk of developing burnout by monitoring the traffic of email communication (without looking into the content of the emails) for specific patterns that signal an increased risk of developing burnout. Results of a pilot study in which we collected email communications and burnout (via survey) showed that certain email communication patterns are associated with an increased risk of burnout. The primary research goal of this project is to replicate the pilot study in a larger sample to identify patterns of email communication that can be used as predictors of burnout.

Methods. We are developing a 2-year prospective cohort study to identify early indicators of burnout in the patterns of email communications at three time points: baseline, 10 months, and 18 months follow up among approximately 2000 employees. Our industry partner contacted companies that could participate during the project. Upon agreement, we explained the project to the organization's workforce and employees were sent via email an approximately 30-minute online survey that can be completed at the worksite. Follow up information was collected at baseline and stored for the duration of the cohort study including the worker's name, email address and permission to send email reminders. During each follow up time-period (i.e.,10- and 18-months), workers will be contacted to complete a follow up survey. We will remind workers that survey data are de-identified, used for research purposes only, and will not be individually shared with superiors or colleagues. For this longitudinal cohort study, we administer the following survey instruments: MBI (Maslach Burnout Inventory-GS; JCQ (Job Content Questionnaire), ERI (Effort-Reward Imbalance Questionnaire) and PANAS (Affectivity Trait). We choose organizations in which email usage is likely to be a reliable measure of the overall communication structure by conducting interviews to selected members of the organizations' management team. We are collecting e-mail communications of all employees selected in the sample over the full observation period (2 years), starting with the baseline survey and co-terminating with the third survey. Working with the IT department of the organization, we are recording the traffic (excluding the content) of email communications of employees. The email traffic files are securely transferred to the research team and loaded onto a database using a custom build software application. Emails to and from employees outside the organization will be removed from the sample. In line with previous literature, mass mailings, defined as messages with more than four recipients, will also be removed.

Results. Since January 2018 we have collected email log information for wave 1 and currently, we are collecting data for wave 2. The total sample is larger than 3000 workers in three medium- large companies. We also have cleaned over 1 million per week emails database and calculate email indicators to use in the predictive models. Descriptive statistics have been calculated for wave 1. Over 500 email communication indicators have been calculated. We need to keep working on cleaning the database and selecting indicators. We have analyzed data from a bivariate perspective finding the expected Results. psychosocial work stressors, especially demands, control, job strain, effort and reward are related to burnout dimensions. To examine the impact of psychosocial work stressors on the relationship between email communication patterns and burnout, we need to keep working on cleaning the database and selecting communication pattern indicators. The results of wave 1 and 2 will be available for the moment of the conference.

Philadelphia Ballroom South

20/20 Vision Session: What Does the Future Hold for...

Chair: Lisa Kath (San Diego State University)

Join us for a fast-paced look into the future, as eight speakers present on a variety of topics using only 20 slides that auto-advance every 20 seconds. This "20/20" session aims to provide a clear vision for blurry concepts in occupational safety and health research in an entertainingly kinetic presentation format.

Economic Stress

Bob Sinclair (Clemson University)

Sleep

Tori Crain (Colorado State University)

Cyberloafing/Technology Counterproductive Work Behaviors

Shani Pindek (University of Haifa)

Stress Recovery

Chris Cunningham (The University of Tennessee at Chattanooga)

The Role of Time in Research
Mike Ford (University of Alabama)

Positive Psychology
Gloria Gonzalez-Morales (University of Guelph)

Safety
Emily Huang (Drexel University)

Chronic Health Conditions
Alyssa McGonagle (University of North Caroline Charlotte)

Independence Ballroom A

Total Worker Health: Rationale and Application

PAPER SESSION

Safety and Health Innovation in Preschools (SHIP)

Charlotte Farewell (University of Colorado Denver)

Working in early childhood education (ECE) is a stressful profession. The inherent challenges of the profession and the work conditions within ECE settings effect providers' psychological, emotional and physical health and well-being. Challenges of the early childcare workforce include: low pay (the average yearly salary for an early educator is $21,000 (Linnan et al., 2017); poor working conditions, including long hours, high job demands (especially among directors and administration), and low job control (with teachers and classroom workers reporting the lowest levels of job control) (Linnan et al., 2017). Additionally, early childcare providers are at increased risk of infectious disease; increased risk of injury and falls due to lifting and moving children regularly; and increased risk of encountering environmental hazards (Shuai, Yue, Li, Liu, & Wang, 2014). Despite the importance of the health and well-being of those responsible for providing safe, stable, and nurturing environments for children, it is often overlooked. These studies highlight the need to foster innovative strategies to improve the safety, health and well-being of the early childcare workforce.

Total Worker Health (TWH) is an emerging field that promotes a holistic approach to worker health, safety, and well-being by protecting and advancing health and productivity (NIOSH Total Worker Health Program, 2012). While traditional occupational health focuses on workers' safety, TWH emphasizes the importance of making integrated systems-level improvements to address job-related factors that contribute to poor health outcomes and the overall well-being of the workforce (Chan, Mclellan, Moore, Nagler, & Sorensen, 2017).

The objective of the Safety and Health Innovation in Preschools (SHIP) pilot study is to improve TWH among the early childcare workforce in six Head Start childcare centers in Denver, Colorado (October 2018-August 2019). The primary strategy is to implement (and study) the use of a evidence-based strategic planning process to make policy, system and environmental (PSE) changes related to improving the health, well-being and safety of ECE providers in 6 Head Start centers. Activities associated with the strategic planning process include the creation of a center-based wellness team (a multi-disciplinary team that might include the center director, teachers, administrators and/or parents). In a six-meeting process, the wellness team will assess strengths and needs related to health and wellness best practices, identify and prioritize PSE changes related to TWH that they can make at their center, and plan for implementation and sustainability of the TWH changes selected.

The evaluation of the SHIP project includes both a process and outcomes evaluation (to understand the quality of implementation to inform scalability, as well as the achieved benefits to participants). The targeted outcome of the SHIP pilot grant activities will be the number of evidence-based center-level PSE changes aimed at increasing TWH in these six ECE settings. Data collection and analyses using mixed-methods are currently in process. A brief survey will be administered to directors at each center after completion of the planning process and 3-months after the PSE process to assess implementation and sustainability of PSE changes. A pre-/post- Quality of Worklife Survey is also being administered to all ECE providers (n=105). Data will be exported in SPSS version 25 for analyses. Univariate and bivariate analyses will be run to explore the number of PSE changes implemented and sustained after completion of the strategic planning process. Paired sample t-tests will be utilized to analyze differences in the pre- and post- Quality of Worklife Survey responses. Finally, focus groups with each wellness team will inform barriers and facilitators related to adaptation of the planning process to promote TWH. Qualitative data from the focus groups will be coded and analyzed using NVIVO software (NVIVO, 2018).

The SHIP project represents an innovative approach to improving TWH of the early childcare workforce. The model is based on six key characteristics that lead to healthier and safer employees, as well as improved operating outcomes. These include, 1) leadership commitment, 2) participation from stakeholders at all levels within a childcare center, 3) policies and practices focused on improving working conditions, 4) comprehensive and collaborative strategies, 5) Adherence, and 6) data-driven change (Chan et al., 2017; Deborah McLellan, Elizabeth Harden, Pia Markkanen, & Sorensen, 2012). Organizations that have used this integrated system-levels approach to improving workforce well-being have found advancements related to safety, health, and productivity in the workplace (Shaw, Robertson, McLellan, Verma, & Pransky, 2006; Shaw, Robertson, Pransky, & McLellan, 2003). The SHIP project may improve working conditions for the early childcare workforce as well as recruitment and retention of early educators.

Validation of the Workplace Integrated Safety and Health (WISH) Assessment

María Andrée López Gómez (Harvard University School of Public Health)

Problem. The Workplace Integrated Safety and Health (WISH) Assessment was designed to measure the extent to which workplaces implement integrated system approaches to protect and promote worker health, safety and well-being. Integrated system approaches are central to the Total Worker Health® (TWH) program implemented by the National Institute of Occupational Health and Safety (NIOSH). The program is defined as "policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being". The WISH Assessment responds to the need of measuring TWH concepts and it builds upon a previous measure called the Indicators of Integration that was created to measure the level of integration of protection and promotion of worker health. The WISH Assessment

places a stronger focus on the central role of working conditions and expands the assessment of best practices by including a broader definition of protecting and promoting worker safety, health and well-being than the Indicators. It is designed to be completed at the organizational level by employer representatives who are knowledgeable on policies, programs and practices related to worker health, safety and well-being and consists of six constructs: 1) Leadership Commitment, 2) Participation, 3) Policies, programs and practices that foster supportive working conditions, 4) Comprehensive and collaborative strategies, 5) Adherence and 6) Data-driven change.

The objective of this study is to validate the WISH assessment metric properties in the nursing home industry as part of a NIOSH funded study to assess TWH® implementation in nursing homes, an industry that disproportionately employs groups identified as at-risk for occupational health disparities, 49% of the workforce is composed of underrepresented minorities and 70% are low-wage workers.

Methods. The WISH assessment was sent to nurse directors of a random sample of nursing homes in Ohio and California and a sample of nursing homes in Massachusetts affiliated with the Massachusetts Senior Care Foundation. Previous evidence showed that nurse directors are the best choice for responding to an organizational tool as they provided richer information, than managers or executives, about policies, programs and practices and on workers and patients in nursing homes. Surveys were sent via email in November and December 2018. A mailed version of the survey for non-respondents is currently in progress. Data collection will finalize in February 2019. We expect that 350 surveys will be completed across the three states. Results from cognitive interviews will be presented to show construct validity. Exploratory factor analysis will be conducted to assess the dimensionality of the WISH assessment. Descriptive statistics and calculations of the Cronbach's alpha will be performed to assess the distribution of responses and internal consistency of the tool. Items from the Indicators of Integration and The Workplace Health in America Survey were included in the survey and will be used to evaluate the convergent validity of the tool.

Preliminary Results. The initial attempts by email showed a response rate of 18%. Paper mailing follow-ups are currently in progress. We are also in the process of expanding the original sample to a full census of nursing homes in each state to gain a more accurate representation of nursing homes.

Practical implications. The WISH assessment represents a mean to measure integrated approaches that align with the TWH® initiative by NIOSH. It has the potential of informing priority-setting and decision-making for researchers, policy-makers and employers and understanding relationships between working conditions and worker safety and health outcomes. Later validation with occupational injury rates and patient care outcomes will clarify the value of worker health in terms of patient care. Furthermore, this paper will provide evidence of TWH® implementation in an industry group that predominately includes low wage workers.

The NIOSH Total Worker Health® Hierarchy of Controls: Applications of the Model

CDR Heidi Hudson (NIOSH)

The Total Worker Health® (TWH) concept explores opportunities to both protect workers and advance their health and well-being by improving the conditions of their work, primarily through workplace policies, programs, and practices. A TWH approach prioritizes a hazard-free work environment for all workers. It applies a prevention approach that is consistent with traditional occupational safety and health prevention principles of the Hierarchy of Controls.

Eliminating or reducing recognized hazards in the workplace first, including those related to the organization of work itself, is the most effective means of prevention and thus is foundational to all TWH approaches. Although some hazards can be eliminated from the work environment, others (such as shift work) are more difficult to change. These must be managed through various engineering, administrative, or (as the very last resort) individual-level changes. Workplace programs that adopt a TWH approach emphasize elimination or control of workplace hazards and other contributors to poor safety, health, and well-being. This emphasis on addressing environmental determinants of health is a crucial concept for TWH programs.

The Hierarchy of Controls Applied to NIOSH Total Worker Health is a conceptual model for prioritizing efforts to advance worker safety, health and well-being and of relevance to employers and other professionals interested in implementing workplace safety and health programs aligned with TWH approaches (Lee, et al., 2017). This applied model is based on the traditional Hierarchy of Controls (NIOSH, 2016), well-known to occupational safety and health professionals. The Hierarchy of Controls Applied to NIOSH Total Worker Health expands the traditional hierarchy from occupational safety and health to include controls and strategies that more broadly advance worker well-being. The Hierarchy of Controls Applied to NIOSH Total Worker Health is not meant to replace the traditional Hierarchy of Controls, but rather is a companion to this important occupational safety and health model. The Hierarchy of Controls Applied to NIOSH Total Worker Health serves to illustrate how TWH approaches emphasize organizational-level interventions to protect workers' safety, health, and well-being. As in the traditional hierarchy, the controls and strategies are presented in descending order of anticipated effectiveness and protectiveness.

- Begin by eliminating workplace conditions that cause or contribute to worker illness and injury, or otherwise negatively impact well-being. This includes factors related to supervision throughout the management chain.
- Second, replace unsafe, unhealthy working conditions or practices with safer, health-enhancing policies, programs, and management practices that improve the culture of safety and health in the workplace.
- Next, redesign the work environment, where needed, for safety, health and well-being. Remove impediments to well-being, enhance employer-sponsored benefits, and provide flexible work schedules.
- Then, provide safety and health education and resources to enhance individual knowledge for all workers.
- Lastly, encourage personal change for improvements to health, safety and well-being. Assist workers with individual risks and challenges; provide support for healthier choice-making.

The goals of this presentation are to familiarize researchers and practitioners with the NIOSH TWH Hierarchy of Controls model and provide examples (e.g. tobacco control, sedentary work, fatigue and work-related stress) of how researchers and practitioners can apply policies, programs, and practices that incorporate each of the controls. The presenters will briefly discuss potential obstacles to program implementation as well as cautions to consider when implementing TWH approaches in an organization. Additionally, the presenters will discuss key resources that address application of the TWH Hierarchy of Controls model to assist with intervention planning and implementation efforts.

Flourishing in life and well-being at work. Longitudinal evidence from manufacturing and apparel industry, office and manufacturing workers

Dorota Weziak-Bialowolska (Harvard University School of Public Health)

A growing body of research recognizes substantial role of companies in shaping employee health and well-being (ILO and IFC 2016; World Bank 2015). We argue that high levels of employee flourishing improve performance and productivity, outcomes vital to business performance (e.g., literature shows that job satisfaction and job embedment are antecedents of turnover (Griffeth et al. 2000; Hancock et al. 2013; Hom et al. 2017)). To date, well-being in the workplace has been mainly examined through the lenses of disease and disability or restricted to human rights, rather than human flourishing in general. Although new constructs that combine life and workplace well-being in a more comprehensive setting, such as employee well-being, have been proposed (Weziak-Bialowolska et al. 2017; Zheng et al. 2015), the evidence of the causal relationships between well-being at work and well-being in life remain limited also because the majority of studies on the association between the two have been cross-sectional. Consequently, the issues of reverse causation, and feedback between life and work outcomes could not have been ruled out. We overcome these problems by explicitly accounting for feedback with potential effects in both directions, providing evidence for the more likely causal link between well-being in life and at work.

Three case studies will be presented. Each case study uses a longitudinal dataset of working adults who participated in two waves of the survey that was part of a project aimed to examine either employee or community well-being. Data on flourishing, health, physical activity, physical and psychosocial working conditions and work attitudes and performance were collected along with major demographic information.

Case study 1: 842 employees of a US Fortune 500 manufacturing company who provided data on well-being in life and at work in 2014 and in 2018.

Case study 2: 954 working adults from two apparel factories in Mexico who participated in a survey in February 2017 and March 2018.

Case study 3: 1486 working adults, residents of a county in North Carolina, USA, who participated in a survey in July 2017 and September 2018.

To measure human flourishing in life, the flourish index (FI) (VanderWeele 2017) was used. FI consists of 10 questions covering five domains (i) happiness and life satisfaction; (ii) physical and mental health; (iii) meaning and purpose; (iv) character and virtue; and (v) close social relationships. Well-being at work was assessed with a set of questions regarding (i) job satisfaction, (ii) work engagement, (iii) meaningful job, (iv) quality of performance, and (v) limited ability days.

As our goal is to investigate the causal link between well-being in life and well-being at work in both directions (i.e. how human flourishing influences job-related flourishing and the other way around), the longitudinal datasets are used and statistical modeling techniques for longitudinal data are applied. Contrary to analyses conducted on cross-sectional data, our approach offers a more reliable causal findings by the virtue of depiction of the logical temporal sequence of cause and effect. However, as most of the empirical evidence in the field is based on the cross-sectional data, we also conduct analyses on cross-sectional data to show the magnitude of inflated relationship in such a case.

The relationships are modelled using either the lagged linear regression model (for continuous outcomes), or the lagged logistic regression model (for dichotomous outcomes). Continuous variables are standardized to report standardized effect sizes. With respect to dichotomous outcomes, odds ratios are reported.

Covariates of job and life satisfaction usually include gender, age, education, and labor market status (Tenney et al., 2016). All these factors are reflected in the study. Specifically, we control for: (1) demographic variables: gender, age, marital status, education, having children below 18 at home, taking care of an elderly; and (2) job characteristics: industry, job tenure, job demand, job control, and work shift. These variables were measured and are controlled prior outcomes, in order to ensure that they were confounders and not mediators. Sensitivity analysis – E-values (Ding & Vanderweele, 2016; VanderWeele & Ding, 2017) – is applied to assess the extent to which an unmeasured confounder would need to be associated with both the exposure and the outcome to explain away the observed association.

Evidence for potential effects running in both directions are presented. Differences between evidence based on cross-sectional data and the longitudinal results are highlighted, indicating weaker or no relationships when based on the longitudinal data than the respective cross-sectional associations. This conclusion has been already formulated with respect to the relationship between life satisfaction and job satisfaction (Keon and McDonald 1982; Rode 2004; Tenney et al. 2016) but has not been thoroughly examined for other work and life related outcomes.

Philadelphia Ballroom North

Improving Employees' Health Through Supervisor Support

CEP

SYMPOSIUM

Chair: Brad Wipfli (Oregon Health & Science University)

This symposium focuses on the role of supervisor support as a predictor of employees' health and well-being. In the context of the demands of contemporary working life, supervisor support is an important resource to manage the risks related to impaired health at work and at home. Supervisors play a major role in structuring the work environment, providing information and feedback to employees, and deciding how formal HR policies are carried out in practice. Given the importance of supervisors' role at workplaces, it is important to examine how supervisor support relates to employee health.

The studies presented in this symposium focus on topical health concerns, that is, sleep, sedentary behavior, healthy eating, and body weight, and examine how specific forms of supervisor support may influence these employee outcomes. Short sleep duration, sedentary behavior, and high body weight are all significant public health concerns. The Centers for Disease Control and Prevention (CDC) estimate that 83.6 million adults in the U.S. sleep less than the recommended 7 hours per night (Liu et al., 2016), over 30 million adults in the U.S. work in a sedentary environment (Bureau of Labor Statistics, 2018; Church et al., 2011), and CDC lists obesity as one of the ten most important health concerns in the U.S. Work influences all these outcomes, for example, shift work increases the likelihood of having diagnosed sleep problems (Akerstedt & Wright, 2009). We present data that have been collected data among risk populations, such as truck drivers, who experience an obesity prevalence twice of that of the general U.S. population (Sieber

et al., 2014), and military service members, who suffer from increased risk of sleep problems due to deployments (Hoge et al., 2008).

During this symposium, we will discuss various specific forms of supervisor support, such as family-supportive supervisor behaviors (FSSB). Family-supportive supervisors exhibit behaviors that are supportive of employees' families and non-work lives, and help employees to manage both work and non-work responsibilities (Hammer, Kossek, Yragui, Bodner, & Hanson, 2009). Earlier studies suggest that specific forms of supervisor support may be more important in bringing out wanted outcomes than general supervisors support (Kossek, Pichler, Bodner, & Hammer, 2011). Furthermore, specific supervisor behaviors, rather than general supervisor support, are meaningful as they provide clear indication of how supervisors should act. Our studies incorporate advanced methodological approaches by including both employee and supervisor reports of supervisor support and carrying out complex intervention designs.

The first paper focuses on the impact of supervisor support on commercial truck drivers' health. More specifically, researchers examined whether support from supervisors and support from employees' families moderated the effects of an occupational body weight management intervention on weight loss and health behaviors. The results highlight the importance of supervisor support, as FSSB was the only significant moderating variable predicting long-term intervention effect on body weight. Truck drivers whose supervisor showed a high level of family-supportive behaviors had achieved a greater weight loss at 18 months post-baseline compared to truck drivers whose supervisors showed lower levels of FSSB.

The second paper examines the influence of supervisor support and role-modeling in reducing sedentary behavior at work. This study compares the effectiveness of an intervention that solely focuses on supervisor support and supervisor behavior to a more extensive intervention that aims to decrease sedentary behaviors through environmental, organizational, and individual support. The intervention that only focuses on supervisor support would be significantly more cost effective than the broader intervention if results show equal benefits of these two interventions. Researchers will complete data collection and analysis before the conference and present results during the symposium.

The third paper focuses on the role of supervisor support in improving employees' sleep. Using a sample of full-time National Guard military service members, this study examined the relationship of sleep leadership and FSSB to employees' sleep. Sleep leadership refers to supervisor behaviors that specifically aim to improve employees' sleep, such as showing concern for the quantity of employees' sleep (Gunia, Sipos, LoPresti, & Adler, 2015). Contributing to the current literature, this study included both employees' and supervisors' ratings of supervisor behaviors. The results show that sleep-leadership, as assessed by employees, and FSSB, as assessed by supervisors, are promising ways to improve employees' sleep hygiene and sleep quality.

Taken together, this symposium highlights the important role of supervisor support for employees' weight loss, sedentary behaviors, and sleep. After presentations, our discussant who is a leading researcher in FSSB and supervisor supportive policies at workplaces, will facilitate a discussion among the participants and the audience. The discussion will provide the audience with an opportunity to engage in a broad discussion about supervisors' role in improving employees' health and well-being at work. Furthermore, this symposium will generate discussion on the differences between employee and supervisor ratings in measuring supervisor support, and taking supervisor support into account in complex intervention designs.

Supportive supervision moderates commercial truck drivers' long term-success in a health intervention

Ryan Olson (Oregon Health & Science University)

Commercial truck drivers experience an obesity prevalence that is twice that of the general US population[1]. However, body weight management intervention research with commercial truck drivers is exceedingly scarce. To our knowledge, only two interventions evaluated with randomized controlled designs have produced medically meaningful and statistically significant weight loss among commercial truck drivers[2, 3]. The LIFE intervention with commercial truck and bus drivers (n=113) in Finland involved monthly health counseling sessions (in person and on the phone) over a 12-month period, and produced a mean difference between groups of -4.0 kg post-intervention. A cross-over design prevented between groups comparisons at follow-up, but the within-group effect for original intervention participants at one year follow-up (24 months) was -3.1 kg. The SHIFT intervention with commercial truck drivers in the US (n=452) involved a 6-month weight loss competition supported with behavior and body weight self-monitoring, online training, and four motivational interviews with a health coach. The post-intervention difference between groups was -3.3 kg. The current paper reports preliminary results of SHIFT randomized trial participants at one-year follow-up (NHLBI grant R01 HL105495). We also tested our a priori hypotheses that stress and social support factors would moderate intervention effects on primary outcomes. Commercial truck drivers enrolled in the SHIFT trial (n=452) completed measurements at baseline, post-intervention (6-months), and one-year post-intervention (18 months). Primary outcome measures included body weight (resolution 0.5 lb; Tanita TBF-310GS scale, Tanita Corporation, Tokyo, Japan); weekly exercise[4]; consumption of fruits and vegetables[5]; and consumption of sugary snacks, drinks, and fast food[6]. Hypothesized moderating variables of 18-month outcomes included driver ratings of job stress[7], work-family and family-work conflict[8], general supervisor support, family supportive supervisory behaviors[9], family support for exercise and healthy diet, and others' support for exercise and healthy diet (adapted from [10]). In an intent-to-treat analysis, the difference between groups at 18-months in mean body weight changes was -0.92 kg (p=0.328; intervention=0.00, control=+0.92). Moderation analyses for body weight outcomes revealed a significant 18-month intervention effect on body weight for drivers reporting high levels (¬ one SD above the mean) of family-supportive supervision at the same time point (p=.033; intervention vs control difference=-2.74 kg). Intent-to-treat analyses for differences between groups in dietary and exercise behaviors were inconclusive (p value range 0.17 to 0.80). However, a number of significant moderated intervention effects were observed. The effects of the intervention on exercise at 18 months were moderated by 6-month levels of family support for exercise and healthy diet (B = 0.03, p = 0.025), general supervisor support (B = 0.16, p = 0.008), and family supportive supervisor behaviors (B = 0.50, p = .003). Exercise effects at 18 months were also moderated by 18-month levels of reported family support for exercise and healthy diet (B = 0.03, p = 0.007) and other support for exercise and a healthy diet (B = 0.06, p = .008). Across these moderated exercise effects the intervention resulted in increased physical activity for drivers reporting higher levels of supportive factors (e.g., ¬one SD above sample means) and reduced

physical activity at lower levels of support (e.g., ¬ one SD below the sample means). The intervention had a detrimental effect on sugary snack and drink consumption (increased) for drivers reporting lower levels of family support for dietary and exercise behaviors (B = -0.03, p = .034). And lastly, we observed a significant moderated effect for fruit and vegetable consumption in an unexpected direction. Specifically, the intervention had a beneficial effect on fruit and vegetable consumption at 18 months for drivers reporting higher levels of work-family conflict at the prior 6-month time point (B=0.71, p=0.006). In conclusion, a health intervention for commercial truck drivers produced significant long-term weight loss, but only for those who reported having a family-supportive supervisor at work. Additional moderated intervention effects for behavioral outcomes provide further general evidence for the importance of social support at work and at home for drivers' long term success making health changes. These findings are notable for a population that spends most of their time physically isolated from friends, family, and supervisors. This suggests that social support and stress factors are transmitted to drivers remotely through mobile communication channels, supervisors' management of driver schedules and requests, and/or that abbreviated in person time at home or at the terminal have meaningful (perhaps magnified) impacts. The need for support may be particularly acute for occupational drivers who are attempting to make and maintain health behavior changes under challenging working conditions that include long sedentary work hours and exposure to food swamps at truck stops. Employers can help by fostering and promoting family supportive supervision, which was associated with very positive long-term outcomes for drivers following their participation in a health intervention.

Diffusing a Sedentary Behavior Intervention Through Supervisors

Brad Wipfli (Oregon Health & Science University)

The Active Workplace Study is a six-month intervention that targets sedentary behavior in the workplace by providing active workstations to employees, along with environmental, organizational, and individual level support. The effectiveness of the intervention is currently being evaluated in a randomized controlled trial. During this study of intervention effectiveness, we are simultaneously conducting secondary studies of alternative intervention approaches. The alternative approaches are designed to reduce organizational and researcher time and effort required to implement the intervention, while still providing a similar intervention dose. If the effectiveness of these alternative models is similar to that of the full intervention it would represent a higher return on investment for an organization, and therefore may be more feasible for dissemination. One alternative intervention model we are implementing is focused on the role of supervisors in sedentary workplaces. This model of intervention delivery is based on diffusion of innovations theory, which describes how the flow of information about a new idea within a social environment influences the adoption of the new product or service. A key component of the theory is that opinion leaders, such as supervisors in a workplace setting, play a pivotal role in diffusing an innovation within a social system (Rogers, 2003). Evidence suggests that training supervisors in safety and family-supportive behaviors improves employee safety, health, and well-being (e.g. Hammer et al., 2015; Hammer et al, 2019; Kelly et al., 2014). Modeling has been shown to be important for safety related behaviors (Olson et al., 2009). As key influencers and role models in the workplace, supervisors may be important targets for workplace sedentary behavior interventions that involve new environmental components like sit-stand desks and active workstations. In the spring of 2019, we will enroll supervisors and employees from a sedentary worksite to participate in the supervisor-oriented model of the Active Workplace Study. The intervention will span three months. Everyone at the worksite will have access to Desk Cycle pedal stands, which are active workstations that allows workers to engage in light physical activity while working. Supervisors will complete four computer-based trainings. Training will focus on the importance of supervisor support and role-modeling, the impact of sedentary behavior at work, what supervisors can do to make their workplace less sedentary, ergonomics and injury, and stress management. After each training supervisors will set goals and self-monitor a behavior related to the training topic. Once a month, supervisors will also lead a scripted health and safety discussion with employees that is aligned with that month's training topic. Employees will have access to pedal stands but will not participate in any intervention activities other than the group discussions that are led by supervisors. Supervisors and employees will complete assessments at baseline and after the three-month intervention. Assessments will include a survey with health, safety, psychosocial, and behavioral measures, and employee ratings of supervisor support. Supervisors and employees will wear ActiGraph accelerometers for one week at each assessment period to measure sitting time, standing time, and physical activity at work. During the intervention we will measure pedal stand use by attaching Fitbits to each pedal stand. Statistical analyses will evaluate the effectiveness of the supervisor-oriented model of the intervention on both supervisor and employee outcomes. We will also compare results from this study to results from the primary intervention. We hypothesize that the supervisor-oriented intervention will produce similar but slightly smaller improvements in health, safety, and well-being, and reduce workplace sedentary behavior in comparison to the full intervention. We also hypothesize that employee ratings of supervisor support will moderate the effects of the intervention on employee-level outcomes. Results from this study will inform dissemination methods of the Active Workplace Study and workplace intervention research to practice in general.

The Relationship Between Supervisor Support and Employee Sleep

Leslie Hammer (Portland State University)

Sleep is important for employees' well-being and health, safety, and performance at work (Barnes, 2012; Brossoit et al., in press; Litwiller, Snyder, Taylor, & Steele, 2017; Watson et al., 2015). As psychosocial factors at work are known to influence sleep (e.g., Linton et al., 2015), a promising approach to improving employee sleep is to increase job resources, such as supervisor support at work. Recent studies have identified sleep leadership and family-supportive supervisor behaviors (FSSB) as two specific types of supportive supervisor behaviors that contribute to sleep (Crain et al., 2014; Crain, Brossoit, & Fisher, 2017; Gunia, Sipos, LoPresti, & Adler, 2015). Sleep leadership refers to supportive supervisor behaviors that aim directly at improving employees' sleep such as encouraging employees to get adequate sleep. Sleep leadership has been shown to contribute to employees' sleep duration and sleep quality beyond general leadership support among soldiers on peacekeeping and combat missions (Gunia et al., 2015). In addition to sleep leadership, FSSB is a promising approach to improving employees' sleep (Berkman, Buxton, Ertel, & Okechukwu, 2010; Crain et al., 2014). Family-supportive supervisors exhibit behaviors that are supportive of employees' families and non-work lives, and help employees to manage both work and non-work responsibilities (Hammer, Kossek,

Yragui, Bodner, & Hanson, 2009). Therefore, having a family supportive supervisor increases employees' resources and reduces stress thus improving sleep. We examine the effects of sleep leadership and FSSB on employees' sleep in the Oregon National Guard (see Figure 1 for study design). Understanding how work relates to sleep is particularly important among certain high-risk occupations, such as military employees. Service members often face poor sleeping conditions during deployments, and it has been found that 30% of the service members report sleep complaints even months after the deployment (Hoge et al., 2008). This study makes a unique contribution to the existing literature by using both employees' and supervisors' reports of supervisor behaviors and linking them to employees' reports of sleep. Additionally we include sleep hygiene as a novel outcome reflecting employees' sleep related habits, and test it as a mediator between supervisor behaviors and employee sleep. Questionnaire data were collected from employees and their supervisors in the Oregon National Guard. Final sample with matched employee-supervisor dyads consisted of 182 employees and their 91 supervisors. Both employees and supervisors were asked to rate supervisors' engagement in sleep leadership (Gunia et al., 2015) and FSSB (Hammer et al., 2009). Examples of items include "[Supervisor name] asks subordinates about their sleeping habits" and "[Supervisor name] makes you feel comfortable talking to him/her about your conflicts between work and non-work". The stems of these items were adapted for supervisors' self-reports (e.g., "I ask my subordinates..."). Employees provided self-reports of sleep duration, sleep disturbance, sleep-related impairment, and sleep hygiene. We conducted regression analyses using a model specification that estimates model parameters and adjusts standard errors for the non-independence of observations. Both employees and supervisors reported that supervisors engage seldom or sometimes in sleep leadership behaviors and agreed that supervisors typically engage in FSSB. Even though the level of employee and supervisor-rated supervisor behaviors were similar overall, surprisingly the employee rating of sleep leadership was not significantly correlated with the supervisor rating of sleep leadership, nor was the employee rating of FSSB correlated with the supervisor rating of FSSB. The regression models showed that sleep leadership, as rated by the supervisors, is not related to employees sleep. However, employees' higher ratings of their supervisors' sleep leadership were related to less sleep disturbance ($\beta = -.29$, $p < .01$) and less sleep-related impairment ($\beta = -.19$, $p < .05$) among employees. When predicting employee sleep with FSSB, supervisors' higher self-ratings of FSSB were related to better sleep hygiene ($\beta = .18$, $p < .05$), lower sleep disturbance ($\beta = -.17$, $p < .05$), and lower sleep-related impairment ($\beta = -.21$, $p < .01$) among employees. Furthermore, sleep hygiene mediated the relationship between supervisors' self-ratings of FSSB and employees' sleep disturbance and sleep-related impairment. Contradictory to these findings, employees' ratings of their supervisors' FSSB were not related to employees' sleep outcomes. Our results show that sleep-leadership, as assessed by employees, and FSSB, as assessed by supervisors, are promising ways to improve employees' sleep hygiene and sleep quality. It may be particularly interesting for organizations that both of these supportive supervisor behaviors are associated with lower levels of employees' sleep-related impairment. This measure assessed employees' day-to-day functioning such as trouble concentrating during the day and not getting things done due to sleepiness. Overall, given the importance of sleep for employees' well-being and functioning at work, it is important for organizations to recognize the potential of supervisor supportive behaviors in improving employees' sleep.

Discussant: Leslie Hammer (Portland State University)

Salon 5 & 6

Individual Differences

PAPER SESSION

Gender, age, and immigration background interaction: impact on work-life balance satisfaction and employee mental health

Maude Boulet (ENAP University of Public Administration)

Context: Some workplaces adhere to the "ideal worker norm" associated with the image of the white male worker (Kelly et al. 2010). This theory suggests that workplaces are organized as if paid employment is the only obligation of workers, which makes them to value more employees who work long hours, shape their personal lives around their work and are inclined to travel and relocate for their job (Kelly et al., 2010). Since women still carry a greater share of family responsibilities in dual-earner couples (Bianchi et al., 2012; Boulet and Le Bourdais, 2018), it is more difficult for them to comply with this norm. In addition, research shows that young generations (X and Y) of workers place greater importance on work flexibility than the Baby Boomers (Cennamo and Gardner, 2008; Guillot-Soulez et al. 2014). Younger workers also value more leisure time (Twenge et al. 2010). Moreover, Roehling et al. (2005) found that gender and ethnicity interact in the work to the family spillover. Thus, given that gender, age, and ethnic origin affect worker preferences regarding the work-family interface, it becomes relevant to study the satisfaction with work-family balance and employee well-being with a perspective of diversity.

Objective: Since the workforce is not a homogenous whole and following the suggestion of Özbilgin et al. (2011) to examine the work-family balance with an intersectional approach (Crenshaw, 1991) based on workforce diversity, this study aims to explore the interaction between gender, age and immigration to ascertain how it affects employee work-family balance satisfaction and mental health. This analysis is relevant in a context of increasing labor force diversity (Shore et al. 2018) and considering that experiencing work-family conflict causes stress, reduces well-being and harms the mental health of workers (Allen et al. 2000). Barak and Levin (2002) have also shown that women and members of ethnic minorities are more likely to feel excluded in their organization, leading to lower job satisfaction and reduced well-being.

Method: Using Canadian data from the 2011 General Social Survey, we examined the satisfaction with work-life balance (satisfied, neutral or dissatisfied) and psychological health (excellent, very good, good, average or bad) through the lens of gender (male or female), age (young: 18 to 34; prime working age: 35 to 54; older : 55 and over) and immigration background (native or immigrant). The originality of our approach is to combine the three aspects of diversity to form a single variable in order to capture the differences between population groups. Our final sample consisted of 10 306 Canadians workers aged between 18 and 65 years old.

Results. Our results indicate that, compared to the reference category (native male aged between 35 and 54), almost all groups show a lower level of satisfaction with the work-family balance. Based on an ordered logistic regression model, we found that Canadian-born older male workers are the only category that tends to be more satisfied with

their work-life balance compared to the reference group. The intersections of the female sex with the other diversity variables appear particularly penalizing. For example, immigrant women aged 18 to 34 are 75% more likely to be dissatisfied with their work-life balance than the reference category, compared to 68% for women of prime working age and 55% young native women. Regarding psychological health, native women of prime working age and immigrant women aged 55 and over are less likely to report excellent mental health than the reference category. Finally, the observed odds ratios are higher when gender, age, and immigration are combined than when these variables are accounted for separately in our models, which suggests that the situation experienced by a specific group is different from that experienced by another group as indicated by the intersectional approach.

Conclusion. These first results show the relevance of using the intersectional approach to study the work-family balance and psychological health since the combined effect of gender, age and immigration is stronger than their individual effect. This approach, therefore, seems promising to understand the challenges underlying the growing diversity of the workforce, since it does not focus on identifying general trends that ultimately reflect poorly the reality of all the population groups.

Risk Perception, Work Stress and Personality Traits as Predictors of Psychological Well-being

Dare Fagbenro (Obafemi Awolowo University Ile-Ife)

Psychological well-being and health in the workplace have become common topics in the mainstream media, practitioner-oriented magazines and increasingly, in scholarly research journals. This is because the well-being and safety of the employees have implications on performance, turnover, and on attractiveness into the organization, among others. One Para-military agency in Nigeria that psychological well-being of its workers has been affected is the Nigeria Security and Civil Defence Corps (NSCDC). This agency is saddled with the constitutional responsibility of providing security and defence for the citizens and broad based information network monitoring of movement of persons and importantly, the prohibition of vandalism of government properties. The frequent criminal activities of vandal have posed serious threats to the well-being of the workers in this agency. This has made many of the workers have many psychological problems such as depression, insomnia, anxiety, post-traumatic stress disorders while others have been reportedly killed on duty. This study investigates the predictive role of risk perception, work stress and personality traits as predictors of psychological well-being among Nigeria Security and Civil Defence Corps (NSCDC). Self-determination theory was used as a theoretical framework for this study. The theory focused on the factors that enable individuals to meet their psychological needs when they are in a lower-power position. The study adopted cross sectional survey research design. Two hundred and ninety-six (N =296) officers of Nigeria Security and Civil Defence Corps (Males = 151, Female = 129, Mean age = 34.20years SD = 3.67) constitute the respondents using purposive sampling technique. Four instruments – 18 item Psychological well-being scale (PWB-S) by Ryff (1995), 30 item Risk Perception questionnaire (Gilkey & Lopez del Puerto, 2011), 13 item Job Stress Scale by Parker and DeCotiis, (1983) and 10-item BFI Big Five model of personality traits (Rammstedt & John, 2007) were used for data collection. Two hypotheses were tested using the zero-order correlation and multiple regression techniques. Results showed that, there was significant negative relationship between risk perception and psychological well-being($r = -.588$, $p < .01$). There was also significant negative relationship between work stress and psychological well-being ($r = -.343$, $p < .01$). Also, personality trait has significant positive relationship with psychological well-being ($r = .401$, $p < .01$).There was significant joint prediction of risk perception, work stress and personality trait on psychological well-being among NSCDC officers, ($R2 = .362$, $F (3,291) = 54.953$, $p < .01$). The study concludes that risk perception, personality and job stress have predictive role on psychological well-being among NSCDC personnel in Ogun state, Nigeria. The study finding implies that for NSCDC officers to have a healthy psychological well-being, psychological factors such as risk perception, personality and job stress need to be seriously considered when given intervention programme. It therefore means that professional psychologists should develop psychological intervention programme for NSCDC management tailored towards reducing risk perception, job stress and personality. This invariably could improve psychological well-being of NSCDC personnel. The management should at every point in time organise seminars and workshop on strategies that NSCDC personnel can adopt in order to reduce job related stress which invariably will improve their well-being. It is also recommended that Federal government of Nigeria should evolve policies that are aimed at reducing job stress in order to have a better service and improved psychological well-being among these personnel.

Multidimensional perfectionism and a vacation from work: Does perfectionism help or hinder school teachers during a half-term break?

Shannon Horan (City University of London)

It has been widely accepted that recovering from workplace stress during non-work time is a fundamental element for maintaining employees' psychological and physical health. Both the Effort-Recovery (Meijman & Mulder, 1998) and Allostatic Load (McEwen, 1998) theories explain that incomplete recovery during respites can lead to more chronic illnesses, such as burnout. Since vacations, unlike evenings and weekends, offer a longer alleviation from work-related stress, they are optimal periods for replenishing employees' resources (de Bloom, Geurts, & Kompier, 2012; de Bloom, Radstaak, & Geurts, 2014).

Although, even if employees do recover over a vacation period, the positive benefits gained during the vacation begin to fade out once they return to work (de Bloom, Kompier, Geurts, Weerth, Taris, & Sonnentag, 2009). Employees are re-introduced to their typical working routine which leads to a decline of vacation effects, known as the 'fade out' of vacation benefits. A meta-analysis conducted by de Bloom and colleagues (2009), found that it takes between two and four weeks for vacation benefits to fade out (de Bloom et al., 2009).

Most vacation researchers explore general vacation experiences, but researchers are starting to investigate whether there are individual differences in vacation experiences. De Bloom and colleagues (2011) looked at whether all employees experienced benefits during a vacation and found that only 60% of their sample had improved over the vacation (de Bloom, Geurts, Sonnentag, de Weerth, & Kompier, 2011). A handful of studies have begun to explore if different types of workers experience differing vacation effects. Personality types have been suggested as possible predictors for the dissimilarities in the benefits gained from a vacation; one such personality is multidimensional perfectionism (Flaxman, Menard, Bond, & Kinman, 2012).

Previous research has found perfectionism to be a multi-faceted or multidimensional personality trait. It contains a variety of facets

that when combined describe two higher-order dimensions: perfectionistic concerns and perfectionistic strivings (Hill & Curran, 2016). Perfectionistic concerns (PC) include socially-prescribed perfectionism, concerns over mistakes, and doubts about actions (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b; Stoeber & Rennert, 2008). This dimension has been associated with higher levels of fear, depression, stress, anxiety, and burnout (Moate, Gnilka, West, & Bruns, 2016; Stoeber & Rennert, 2008; Stoeber et al., 2016). Perfectionistic strivings (PS), on the other hand, include self-oriented perfectionism and high personal standards (Frost et al., 1990; Hewitt & Flett, 1991b; Stoeber & Rennert, 2008). This dimension has been associated with higher levels of self-confidence, motivation, and goal-directed behaviour (Moate et al., 2016; Stoeber & Rennert, 2008).

Perfectionistic concerns and perfectionistic strivings have been shown to have large positive correlations with each other (Stoeber & Gaudreau, 2017). This indicates that those who have high levels of perfectionistic strivings also have high levels of perfectionistic concerns, and vice versa. In order to investigate the overlap between the two dimensions, the 2x2 model of perfectionism was theorised to allow exploration into the within-person combinations of perfectionism (Gaudreau, 2012). Figure 1 represents how the four different combinations of perfectionism (including Pure PS, Pure PC, Mixed Perfectionists, and Non Perfectionists) are organised.

To further the understanding of individual factors contributing to vacation experiences and expand on previous research into perfectionism, this current research will explore whether multidimensional perfectionism helps or hinders one's vacation recovery and fade out.

This seven-week longitudinal study examines the relationship between the 2x2 model of perfectionism and school teachers' rate of recovery and fade out experienced over a half-term vacation. A sample of 280 school teachers from the United Kingdom and the United States filled in measures of burnout (emotional exhaustion and cynicism) and affective well-being (anxious and depressed affect) on two occasions before the half-term, at one point during the half-term, and for four consecutive weeks following the half-term.

To date, all data has been collected, but is currently being analysed. The analysis will involve two main analyses. First, a k-means cluster analysis will be used to determine how each participant is organised within the 2x2 model of perfectionism. This analysis will categorize each participant into each of the four combinations of perfectionism based off of how they scored on the Multidimensional Perfectionism Scales (Frost et al, 1990; Hewitt & Flett, 1991b). Second, a series of multi-level growth curve analyses will be utilized to establish the shape of growth over the seven weeks. The repeated measurements at each seven occasions (level 1) are nested within each participant (level 2; Singer & Willett, 2003). This will allow for an investigation into how each combination of perfectionism recovers during the half-term and the rate in which they fade-out when work resumes.

Salon 10

Research Methodology to Investigate Factors that Impact Worker Safety, Health, and Well-being

PAPER SESSION

Measurement of employment arrangements in the contemporary U.S. labor market: A typological approach

Trevor Peckham (University of Washington)

Problem. Economic, social, technological, and political trends have caused a number of changes in the labor market, especially the shift away from job security toward more "flexible" employment practices[1–3]. Consequently, there has been a decline in the so-called Standard Employment Relationship (SER; i.e., permanent, full-time, regularly-scheduled work, with secure wages and benefits) and concurrent rise in non-standard employment arrangements. Estimates suggest that tens of millions workers are currently classified as contract, contingent, fixed-term, or temporary[4]. Further, these arrangements are socially distributed such that women, people of color, immigrants, younger workers, and lower-skilled and lower-educated workers are disproportionately represented[5–7]. Yet our ability to understand the health risks associated with 'de-standardized' employment arrangements has been hampered by a lack of clear definitions regarding employment arrangement measures. Previous research on the health consequences of non-standard employment have mostly used single-dimensional constructs (e.g., temporary contract or perceived job insecurity)[8]. However, the multidimensional construct of employment quality (EQ), defined as the terms and conditions of the employer-employee relationship, is increasingly being identified as an important work-related determinant of health[9]. EQ components include contract type, material benefits, hours/schedule, mobility opportunities, and workplace power dynamics. Health studies using multidimensional EQ constructs have mostly been restricted to Europe and Canada, yet this research may have limited generalizability to the U.S. context due to differences in respective labor markets and social safety nets. Thus, there is a pressing need to develop approaches that better characterize contemporary employment arrangements so that we can better understand the population health implications, including specifically within the U.S.

Procedures and Analyses. To advance understanding of employment arrangements within the U.S. labor market, we first develop a multidimensional measure of EQ using latent class analysis (LCA), a modeling approach to identify latent subgroups within heterogeneous populations. To operationalize EQ we leverage data from ~6,000 workers in the General Social Survey, which includes rich information on employment conditions within the Quality of Work Life module. The EQ typology is based on similarity in workers' responses to 11 indicators of EQ. The conceptualization and choice of EQ indicators is guided by an established framework[9], and available indicators are similar to prior studies of EQ in Europe[7,10,11]. We evaluate wage earning and self-employed worker populations separately. We then assess the utility of the EQ typology as a measurement instrument by which we can identify stratification of the labor market by employment conditions. Using LCA with covariates, which treats class membership as the response in a multinomial logistic regression model, we examine

whether several sociodemographic (e.g., gender, nativity) and labor market-related (e.g., industry, firm size) indicators are correlated with EQ type.

Results. Based on assessment of both formal fit indices and conceptual interpretation of LCA models, we find that the U.S. workforce can be grouped into eight classes of EQ (six within wage earners, two within self-employed working populations). One class resembles the historical conception of SER employment (an estimated 22% of all workers), while other classes represent different configurations of EQ conditions. Importantly, evaluation of the structure and character of the eight EQ types challenges a dichotomy of standard vs. non-standard employment types. For example, our 'Dead-end' job type is characterized by full-time, permanent working arrangements with adequate wages, but with low opportunity and poor interpersonal and collective power relations; while the 'Optimistic Precarious' job type has a high probability of being non-permanent and having low wages, but also high opportunity to develop and strong interpersonal power relations. Further, we find that EQ classes are correlated with several sociodemographic and labor market indicators. Generally, poorer EQ is associated with (a) younger, less-educated, immigrant, and non-white workers; and (b) retail and service occupations, and transportation and manufacturing industries.

Conclusions and practical implications. This study advances the conceptualization and measurement of employment arrangements in the U.S. context. Overall, our results suggest substantial heterogeneity in labor market experiences of U.S. workers, and that types of employment arrangements vary across social groups and occupations/labor market sectors. While studies have used typically used unidimensional constructs such as job security and non-permanent contracts, we believe our more nuanced and better-theorized approach will support improved understanding of the role of employment arrangements in influencing health. Importantly, the LCA approach allows for a conception of jobs as packages of different employment features, and theorizes that health consequences of EQ will depend on the specific pattern of conditions to which one is exposed—a potential innovation over single-item measures or approaches that assume EQ can be operationalized as a gradual scale from low to high EQ. The modifiable nature of the employment relationship makes it a critical and deserving determinant of health for future study. Improving precarious employment conditions may improve the health of millions of Americans, and particularly benefit demographic groups that are disproportionately impacted by poor EQ conditions.

What can we impute from O*NET? An exploratory study on the correspondence between O*NET and self-reported data on psychosocial job characteristics

Franziska Kößler (Berlin Social Science Center)

Various studies have used the Occupational Information Network (O*NET) to obtain information on psychosocial job characteristics (Cifuentes et al., 2007; Fujishiro et al., 2018). While this might be an economical solution especially in large-scale studies, the systematic evaluation of such imputation is still limited (Cifuentes et al., 2007; Meyer, Cifuentes, & Warren, 2011). This study examines the utility of O*NET data by comparing it with self-reported data from a large sample of workers in the General Social Survey (GSS), a nationally representative, repeated cross-sectional survey of the US population.

Starting in 2002, GSS included the Quality of Work Life (QWL)-module to collect data on work-related experiences including psychosocial job characteristics. GSS also includes U.S. Census Occupation Codes for each respondent. Between 2002 and 2014, a total of nearly 6000 workers completed the QWL module. After excluding those in military jobs and in five jobs for which O*NET data were unavailable, we had a sample of 5738 workers in 409 jobs. Although O*NET uses the Standard Occupation Code (SOC), a crosswalk developed by NIOSH (see the appendix of Fujishiro et al., 2017) made it possible to link O*NET and GSS-QWL.

Following previous studies (e.g., Cifuentes et al., 2007; Meyer et al. 2011), we constructed psychological job demands (six items) and job control (seven items) from O*NET. From the QWL-module we composed psychological job demands (five items) and job control (six items). Because O*NET provides job-level data whereas QWL is at the individual level, we explored the latter both as individual and job levels (aggregated). Intraclass correlation (ICC) by job title was 0.05 for psychological job demands and 0.17 for job control. First, we examined correlation between the O*NET and QWL measures in three ways: at the individual level (i.e., treated O*NET measures at the individual level), at the job level (i.e., aggregated QWL measures to the job level), and cross-level (i.e., treated each measure at its original level). The latter was done by fitting a two-level regression with QWL measures as the dependent variable and O*NET measures as the independent variable. The results showed that the psychological job demands measures did not correlated with each other regardless of the level of analysis. We did not proceed further with the construct. As for the job control measures, the correlation coefficients between O*NET and QWL were significant at all levels of analyses, but job-level and cross-level correlations were more highly significant (e.g., $r = 0.52$, $p < .001$ at the job level vs. $r = 0.36$, $p < .05$ at the individual level).

Next we compared O*NET and QWL job control measures as independent variables in individual-level and mixed (2-level) regression analyses, adjusted for age only. For the dependent variable we chose three commonly used indicators of work-related well-being: general job satisfaction ("very satisfied" – "not at all satisfied," a 4-point scale), self-rated health (fair/poor = 1, good/very good/excellent = 0), and the number of days of poor mental health in the last month (0 days, 1-13 days, 14-30 days). ICCs for these outcome variables by job title were 0.05 for job satisfaction, 0.30 for self-rated health, and 0.25 for unhealthy days.

Most individual level regression models with O*NET job control as predictors led to the same conclusions as the ones with QWL job control as predictor: the higher the job control, the higher the job satisfaction, the lower the odds of reporting poor health and frequent mental distress. However, we observed some differences between O*NET and QWL measures. QWL job control explained considerably more variance in job satisfaction ($R^2 = .23$) than O*NET job control ($R^2 = .05$), whereas O*NET job control explained more variance in self-rated health (McFadden's $R^2 = 0.07$) than QWL job control (McFadden's $R^2 = 0.02$). As for mental distress, both O*NET and QWL job control were associated with >13 unhealthy days, but only O*NET job control was also associated with 1-13 unhealthy days. In the two-level mixed models, O*NET and QWL (aggregated) job control measures generally led to the same conclusions. Additional adjustments for gender and race/ethnicity did not change the regression findings.

To summarize, O*NET seems to be a useful source of data for job control but not psychological job demands. Regression analyses at both individual level and 2-level mixed models lead to similar conclusions for O*NET and QWL, but for self-rated health O*NET job control measure explained a greater portion of the variance. A major strength of this study is the large sample of workers in a wide range of jobs. The utility

of O*NET may vary if the sample is small or the number of jobs included is limited. However, if large-scale population health studies include job titles, O*NET data imputation may expand the possibility of examining psychosocial job characteristics in relation to health.

The development of a set of proactive indicators for safety, health and well-being for Vision Zero

Stavroula Leka (University College Cork)

Current indicators of occupational safety, health and well-being (SHW) are often reactive, negative and with a long follow-up time, such as accidents, injuries, sickness-absence, ill health and disease. Proactive management of SHW requires new types of performance indicators, with an emphasis on positive or leading indicators. There is currently no broadly accepted set of occupational safety and health (OSH) or SHW leading indicators, and as a result, proactive companies define their own sets of indicators. The variety of indicators hinders benchmarking and mutual learning.

More than 2000 organizations are already participating in the International Social Security Association's (ISSA) Vision Zero (VZ) strategy. Several of them have suggested to ISSA to provide guidance for the use of both leading and lagging indicators.

This presentation will provide preliminary results from a project aimed at defining a limited set of proactive leading indicators, which are recognised as useful by ISSA and a reference group of organizations that participate in the global ISSA campaign. The set is to be useful for organizations in a variety of industrial sectors and jurisdictions, and relevant for large, medium and smaller enterprises. The set indicators will build on ISSA's Seven Golden Rules for VZ, but also on research on VZ and OSH indicators.

The project will use input from: 1) frontrunner organizations (practical experiences) participating in the ISSA VZ strategy, 2) scientific and grey literature, and 3) the ISSA steering committee. The project is organised into four phases. Phase one is to define a set of basic principles and criteria that are important for the set of indicators, and to attain the cooperation of a limited and diverse set of organizations. The principles and indicators should have a clear potential to contribute to significant progress in the VZ process. Phase two is focussed on attaining and analysing inputs from VZ committed companies, from earlier papers and research of the members of the project team, and literature research and review and results in the definition of a draft set of SHW indicators useful for implementing VZ. Phase 3 is about getting and processing feedback from potential users and involved stakeholders through semi-structured interviews, and defining and finalising a set of indicators. Phase 4 will provide recommendations for follow-up and benchmarking.

Validation of the Japanese Version of the Burnout Assessment Tool

Keiko Sakakibara (Tokyo University)

Problem. Burnout is a serious problem in today's society. To assess burnout, the Maslach Burnout Inventory (MBI, Maslach, 1981) has been used extensively worldwide. Despite its popularity, the MBI has some flaws, as follows: it lacks a theoretical basis; its contents are not up-to-date; it suffers from technical and psychometric shortcomings; and the practical applicability of the MBI is poor. Therefore, Professor Schaufeli of Leuven University is overseeing development of a new instrument, the Burnout Assessment Tool (BAT). The aim of this study was to validate the Japanese version of the Burnout Assessment Tool (BAT-J).

Procedures. BAT consists of two sub-scales. One is BAT-23, which includes 23 items measuring early symptoms of burnout, based on four factors: exhaustion, mental distance, impaired emotional control, and impaired cognitive control. The other, BAT Secondary Symptoms (BAT-SS), measures 12 secondary symptoms of burnout based on two factors: psychological distress and psychosomatic complaints.

The English version of BAT was translated into Japanese by the Japanese authors of this study. Next, back translation (from Japanese to English) was conducted by English-speaking professionals who had not read the original items. We compared the English and back-translated versions, harmonizing them into the preliminary Japanese version. We conducted cognitive interviews with corporate employees and finalized BAT-J. The survey was then conducted via the Internet, using registered monitors from a Japanese survey company. The first survey, conducted in May of 2018, utilized 1,032 monitors. Of these, 498 participated in the second survey in June of 2018 to confirm test-retest reliability.

The measures used in this study were BAT-J and MBI-J. Variables were as follows: 1) job-related well-being (i.e., job satisfaction, work engagement, workaholism); 2) potential predictors such as job demands (i.e., quantitative and qualitative job demands, role conflicts); 3) job resources (i.e., job control, social support); and 4) potential consequences (i.e., turnover intention, psychological stress, work performance). Demographic variables (gender, marriage, education, occupation, shift work, and hours worked per week) were included as possible confounders in the analyses.

Analyses. In evaluating factorial validity, we first conducted exploratory factor analyses (EFA). For BAT-23, all 23 items were entered using the maximum likelihood method. We extracted factors with eigenvalues greater than one, as well as specifying the expected number of factors as four. We then obtained factor structures via Promax rotation. We performed these same analyses for BAT-SS. Next, we conducted confirmative factor analyses (CFA). We compared the goodness-of-fit index of four-factor (hypothesized) model and one-factor model for BAT-23, and two-factor (hypothesized) model and one-factor model for BAT-SS.

In evaluating construct validity, we investigated the relationship of BAT-23 and BAT-SS to job-related well-being, possible predictors, and possible consequences. To evaluate internal consistency, we calculated values for Cronbach's alpha.

Results. Results of EFA showed that three factors with eigenvalues of greater than one were extracted for BAT-23 and one factor was extracted for BAT-SS. When we conducted EFA by specifying the number of factors, four factors were extracted for BAT-23 and two factors were extracted for BAT-SS (as hypothesized). For both BAT-23 and BAT-SS, total variances were slightly higher when we specified the number of factors than when using eigenvalues greater than one.

CFA results showed high goodness-of-fit index of four-factor model for BAT-23 and two-factor model for BAT-SS.

Cronbach's alpha coefficients were 0.96 for BAT-23, and 0.92 for BAT-SS. Factors for BAT-23 were 0.93 for exhaustion, 0.85 for mental distance, 0.91 for impaired emotional control, and 0.93 for impaired cognitive control. Factors for BAT-SS were 0.88 for psychological distress, and 0.87 for psychosomatic complaints.

Investigating the relationship of BAT-23 and BAT-SS with other variables revealed the following: both BAT-23 and BAT-SS showed significant positive relationships with MBI and its subscales. Regarding job-related well-being, BAT-23 and BAT-SS showed significant negative

relationships to job satisfaction and work engagement, and positive ones to workaholism. For potential predictors, both scales showed significant positive relationships to job demands (i.e., quantitative and qualitative job demands, role conflict) and negative ones to job resources (i.e., job control and social support). Regarding potential consequences, both scales showed significant positive relationships to turnover intention and psychological stress, and negative ones to work performance. All relationships were exhibited as hypothesized.

The first and second surveys showed significantly positive relationships between all factors of BAT-23 and BAT-SS; thus, test-retest reliability was confirmed.

Discussion. Conducting EFA with eigenvalues greater than one, we could not extract the hypothesized number of factors. Further investigation is needed to generalize our findings to other participants. However, BAT-J was largely confirmed as an adequate measure of burnout that can be used in Japanese contexts.

2:30–3:45 p.m.

Concurrent Sessions 11

Independence Ballroom A

Models and Measures

PAPER SESSION

Verbalizing stress in the workplace: Friend or foe?

Mari-Amanda Dyal (Kennesaw State University)

A statement of the problem: Everyday stresses are unavoidable, which has been the case since the formal identification and introduction of stress in the early 1900s by pioneer researchers. Even so, these everyday stresses easily become a focal point of idle conversation; verbalized to a higher degree in modern society. Stress verbalization is a relatively recent development, as earlier generations did not speak of everyday stresses in a social context. In fact, there has been a palpable shift from stress suppression to stress expression.

All settings (physical and digital) are perfect breeding grounds for stress verbalization, but the workplace presents a unique combination of circumstances where 1) stress is to blame for workplace absenteeism, and 2) social interactions are a coping mechanism for stress. Social interactions focused on stress create a shared space for relation, commiseration, and victimization, which seem harmless. However, this behavior has positioned stress as an unyielding force that grows stronger with each stress-focused discussion. That is, stress is spoken into a place of power.

This behavior is in need of a theoretical framework by which explanation and prediction can occur. The transactional model of stress describes the cognition of stressful events as they relate to 1) an appraisal process and 2) a coping response. This theory posits that the act of thinking about stressful events and the subsequent response removes the power of stress. Through cognition, the verbalization of stress will undergo an appraisal process that yields an appropriate coping response negating the vicious cycle of stress begetting stress.

Methods. A conceptual model is proposed that reframes the transactional model of stress specific to the stressful event, the appraisal process, and the coping response. This model reframing is based upon an extensive literature review of the current state of 1) the transactional model of stress and 2) the concept of stress verbalization in an effort to establish their relevance to each other.

Results. The reframing of the transactional model of stress is based upon the literature review findings: 1) verbalization activates the traditional stress response, 2) social interactions are not necessarily symbiotic, and 3) self-talk is a powerful regulator. Therefore, the model reframing proposes that the act of verbalization is indeed the stressful event that initiates a cognitive appraisal process that 1) determines the role of verbalization and 2) qualifies the course of shared verbalization versus self-verbalization as a coping response.

Conclusions. The verbalization of stress has become so commonplace that it goes unnoticed, much like any automatic behavior (maladaptive or adaptive). This behavior requires a theoretical discussion in order to establish explanation and estimation from both a maladaptive and adaptive perspective, especially in the workplace setting where social interactions can and do impact employee health. That is not to say that social interactions pose a threat, but the current research does suggest that caution be taken when stress is a focus of these interactions. The proposed conceptual model provides a starting point for this discussion.

Using Worker Personality Profiles to Predict Burnout and Engagement

Claire Smith (Bowling Green State University)

Organizations are continually looking to increase employee engagement and decrease burnout. Unfortunately, these goals may be more difficult to achieve than most realize. According to recent surveys, an estimated 28% of working Americans experience burnout (Shanafelt et al., 2015) while only 34% are truly engaged in their work (Harter, 2018). Engagement describes a state of vigor, dedication, and absorption in work (Schaufeli et al., 2002) whereas burnout is defined as a persistent state of exhaustion and detachment from work (Maslach et al., 2001). As such, they have historically been viewed as opposite ends of one continuum. However, more recent work examining the correlates of burnout and engagement are calling this single continuum into question, instead describing them as separate, but related, constructs (e.g., Schaufeli et al., 2008).

One commonly studied antecedent that has demonstrated discrepant findings is that of personality. Commonly measured via the Big Five personality traits (conscientiousness, extraversion, agreeableness, openness, and neuroticism), a fuzzy picture has emerged as to which traits significantly predict burnout and engagement. While most studies point to neuroticism as the prominent predictor of burnout (Kim, Shin, & Swanger, 2009), Madnawat and Mehta (2012) suggest that burnout is influenced by a combination of all five traits. Research examining personality and engagement provides similarly unclear conclusions. Studies have related engagement to conscientiousness and neuroticism (Kim et al., 2009), openness (Akhtar et al., 2015), neuroticism and extraversion (Langelaan et al., 2006), and all five traits (Zaidi et al., 2013). This confusion not only leads to practical questions about how to maximize engagement and minimize burnout among workers but contributes to the historically-rooted conceptual overlap between the two constructs.

In this study, we use a personality profile approach to clarify how various configurations of Big Five traits relate to burnout and engagement. Despite the demonstrated utility of personality profiles in predicting health-related outcomes (e.g., Kinnunen et al., 2012; Zhang et al., 2015), very few studies have studied personality profiles with engagement or burnout, let alone both simultaneously. In doing so, we give a more robust picture of these constructs and the people who experience them.

665 participants recruited from Amazon's Mechanical Turk (MTurk) were included in the analyses (working 24+ hours per week, employed in America, 98% or higher MTurk rating). All constructs were measured in a one-time survey measuring personality (20-item Mini-International Personality Item Pool; Donnellan et al., 2006), burnout (16-item Oldenburg Burnout Inventory; Demerouti et al. 2003), and engagement (17-tem Utrecht Work Engagement Scale; Schaufeli et al., 2002)

Sample information, variable descriptive statistics, and correlations are reported in Table 1. Latent profile analyses were conducted using Mplus 7 (Muthén & Muthén, 2012), informed by Asparouhouv and Muthén's (2014) three-step process. First, based on a variety of fit statistics, the optimal model included four profiles (see Table 2), which were named using post-hoc comparisons (see Figure 1). In line with past personality profile research using the Big Five, our results revealed four of the five most common profiles: resilient, overcontroller, undercontroller, and reserved (Herzberg et al., 2006; Kinnunen et al., 2012; Rammstedt et al., 2004).

Next, we used the posterior distribution to determine likely profile membership for each participant (see Table 3). Finally, we used a one-way ANOVA to determine that the profiles were indeed significantly different in their levels of burnout ($F(3,661)=45.60$, $p<.001$) and engagement ($F(3,661)=25.4$, $p<.001$). Specifically, using $\chi 2$ statistic to compare equality of means across the profiles, resilients were more likely to be engaged than any of the remaining three profiles whereas both overcontrollers and undercontrollers were more likely than those categorized as reserved or resilient to be burned out (see Table 4).

Based on our findings, it appears that a combination of conscientiousness and neuroticism drives both burnout and engagement. In other words, employees who are high in conscientiousness and low in neuroticism tend to be less burned out and more engaged at work. However, in comparing the reserved and resilient profiles, it seems that high extraversion, as part of a larger trait configuration, may be important to boosting engagement but unrelated to burnout.

These results demonstrate that a profile approach to personality is important to parsing out the differences between burnout and engagement and provide further support for the conceptualization of the two as separate constructs rather than opposite poles of a spectrum. Practically, assessment of personality profiles in pre-hire stages may help organizations select engaged employees (i.e., resilient) rather than those who are simply not burned out (i.e., reserved). However, given the prevalence of burnout, organizations should also use personality profiles to identify employees at risk for burnout post-hire and provide tailored interventions, as early interventions reduce the risk of health impairments and increase motivation, satisfaction, and efficiency at work (Jacobs & Dodd, 2003).

The Relationship Between the Maslach Burnout Inventory and Depressive Symptom Scales: The Last Thirty Years

Irvin Schonfeld (City University of New York)

Burnout is one of the most important dependent variables in research in occupational health psychology. Maslach, Leiter, and Jackson (2016) defined burnout as a job-induced syndrome combining emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. These dimensions of burnout are reflected in the Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA) subscales of the Maslach Burnout Inventory (MBI). It should be noted that in some versions of the MBI, the allied terms Exhaustion, Cynicism, and Efficacy are used. In this submission, we will use the abbreviations EE, DP, and PA to reflect the related subscales of any version of the MBI.

The EE subscale was designed to assess the core of burnout as manifest in an individual's feeling stressed out and drained of energy. The DP subscale was designed is thought to assess withdrawal and distancing oneself from others connected to one's job. Depersonalization is viewed as a way of coping with exhaustion. The items on the PA subscale assess self-evaluations of what the worker feels he or she accomplishes at work. Feelings of reduced accomplishment are thought to be a consequence of exhaustion (Maslach, Schaufeli, & Leiter, 2001).

It has been suggested that burnout measures have problematic construct validity (Schonfeld & Bianchi, 2016). Two important features of construct validity are convergent and discriminant validity. Burnout scales tend to have reasonable convergent validity with one burnout scale correlating highly with different burnout scale (Demerouti, Bakker, Vardakou, & Kantas, 2003; Halbesleben & Demerouti, 2005; Shirom & Melamed, 2006). There is, however, a question regarding the discriminant validity of burnout scales (Ahola, Hakanen, Perhoniemia, & Mutanen, 2014; Bianchi, Schonfeld, & Laurent, 2014; Schonfeld & Bianchi, 2016; Schonfeld, Verkuilen, & Bianchi, 2017; Wurm et al., 2016). Because burnout is conceived of as a syndrome encompassing EE, DP, and reduced PA, it should be expected that scores on the subscales of instruments such as the MBI would be more highly correlated with each other than with measures of a different construct. Some researchers have contended that the EE core of burnout is more highly related to depressive symptom scales than to DP and PA (Bianchi, Schonfeld, & Laurent, 2018).

In this study we concentrate on research that employed the MBI because it is most commonly used measure of burnout in the world. In a recent search of PsycInfo, the MBI showed up in 4,375 times. In other words, the MBI showed up at least 21 times more often than any of the three other leading burnout measures: the Oldenburg Burnout Inventory (207 hits), the Copenhagen Burnout Inventory (154 hits), and the Shirom-Melamed Burnout Measure/Questionnaire (178 hits).

In this report we review research conducted over the last 30 years in which the findings that bear on the correlations among scores on EE, DP, PA, and depressive symptoms scales. A pattern of results emerges from these past studies. The pattern suggests that EE scores, on average, correlates more highly with depressive symptom scores than EE scores correlate with DP and PA scores. An implication of the pattern of findings is that the EE subscale reflects something other than the core of burnout, namely, that it is measuring much the same thing that depressive symptom scales measure.

Notably, EE contains a number of fatigue items. Fatigue is a symptom of depression. The DSM-5 indicates that in depression "often insomnia or fatigue is the presenting complaint" (American Psychiatric Association, 2013, p. 162). A skilled clinician can recognize the underlying depression, including a work-related depression (Kahn, 2008). When burnout first began to appear in the literature, Oswin (1978) identified a problem she identified as "professional depression," a form of depression that is caused by exposure to highly aversive working conditions.

Depression has been conceptualized both categorically (diagnostically) and dimensionally. Advances in research on psychopathology suggest that depression is better conceptualized as dimensional, that is on a continuum (Caspi et al., 2014; Kotov et al., 2017). Some have termed that continuum psychological distress (Dohrenwend et al., 1980). We advance the view that dimensional measures of distress such as depressive (and anxiety) symptom scales provide a window into the process by which job stressors give rise to clinically significant problems. Elevations in scores on such dimensional measures alert us to the potential for an onset of a mental health problem and help clinicians provide sufferers appropriate treatments. By contrast, elevations in burnout scales suggest that a worker is tired and may need a vacation. The half-life of vacation is about two weeks (Westman & Eden, 1997), and is likely not to be sufficient to help the suffering worker.

Challenge, Hindrance, and Threat Stressors: A Within- and Between-Persons Examination of General and Specific Stressor Appraisal Tendencies and A Priori Categorizations

Lisa Brady (The University of Tennessee at Chattanooga)

Researchers often label work-related stressors associated with positive outcomes as challenges, and those associated with negative outcomes as hindrances (Cavanaugh et al., 2000). This challenge-hindrance stressor framework is an extension of Lazarus and Folkman's (1984) transactional theory of stress, which suggests that appraisals of stressors mediate the effect(s) of stressors. Despite the popularity of this challenge-hindrance perspective in work-related stress research, questions linger about its theoretical foundation and functional utility. With few exceptions (e.g., Bhagat et al., 1985; Scheck et al., 1995; 1997), researchers tend not to actually measure participants' stressor appraisals (Crawford et al., 2010; Podsakoff et al., 2007; Webster et al., 2011), but instead categorize stressors a priori based on theory or stressors' known relationships with certain outcomes. This approach perpetuates a theoretically, rather than empirically derived understanding of stressors and their impacts on workers, and it limits our understanding of the complex, multidimensional way in which stressors may be appraised.

In this presentation we will present findings from a study in which we explored whether common work-related stressors are appraised in different ways—either within and/or between people. If so, then we should not assume that a priori categorizations of stimuli accurately reflect an individual's appraisal of those stimuli. Evidence is mounting that this is the case. Researchers have found that some work-related stressors (e.g., workload) are perceived as a challenge (e.g., Cavanaugh et al., 2000), hindrance (e.g., Bakker & Sanz-Vergel, 2013; Drach-Zahavy & Freund, 2007), and as both s challenge and hindrance simultaneously (e.g., Webster et al., 2011; Widmer, Semmer, Kalin, Jacobshagen, & Meier, 2012). Our driving hypotheses were:

H1: Common job stressors may be simultaneously appraised as a challenge, hindrance, and a threat. This is true at the (a) sample level and (b) person level.

H2: Individuals' appraisal ratings of stressors as challenges, hindrances, and threats are positively aligned with a priori categorizations of common job stressors.

H3: An individuals' dominant appraisal style is positively correlated with general appraisal tendency scores.

Method. Participants included non-student adults employed full-time and graduate students with paid work (N=591). Data were gathered via internet survey including measures of general stressor appraisal tendencies (for challenge and hindrance, adapted from Searle & Auton, 2015; and threat, adapted from Feldman, Cohen, Hamrick, & Lepore, 2004). A subset of common work-related stressors (Table 1) was identified (from Wiegand et al., 2012 and others) as target stimuli to which participants indicated: (a) the extent to which each stressor was prevalent in their work environment, and the extent to which they would perceive each stressor as (b) a challenge, (c) a hindrance, and (d) a threat.

Findings. Summarized in Table 2, median and interquartile range (IQR) data indicate that common work-related stressors were simultaneously appraised as challenges, hindrances, and threats, supporting H1a. To test H1b, we examined the number of individuals who indicated appraising each stressor with ratings of at least 50 out of 100 on two or more of the three forms of appraisal. Eleven of the 17 common stressors (64.7%) were associated with some combination of challenge, hindrance, and/or threat appraisal rating (of 50 or more) by at least 25% of respondents (Table 3).

We tested H2 by identifying the highest median appraisal likelihood rating for each of the common work-related stressors that was also greater than 50 out of 100 (identified in bold, underline in Table 2). We then compared the appraisal form associated with this highest rating with how stressors are typically categorized a priori. Out of these 17 stressors, empirical appraisal likelihoods cleanly aligned with typical a priori stressor classifications for 11 of the 17 stressors (64.7%), supporting H2. It should be noted, however, that the remainder of participants' ratings were either opposite to or unclearly aligned with either challenge or hindrance stressor classification.

We tested H3 by correlating overall appraisal tendency scores with participants' within-person average appraisal likelihood ratings across the common stressors. The resulting correlational values are positive for each of these pairings, though only the correlation between average hindrance appraisal likelihood ratings and general hindrance appraisal tendency reached statistical significance ($r = .23$, $p < .05$).

Discussion. These findings have important implications for how we approach the study of stressors in the workplace. First, the findings that common job stressors can be simultaneously appraised as a challenge, a hindrance, and a threat provides support for the central tenet of the transactional theory of stress: the importance of one's appraisal of a stimulus in determining its effects. Of the 17 stressors, 64.7% of a priori categorizations aligned with the way in which individuals in this study appraised the stressor. Additionally, results show a significant positive relationship between general hindrance appraisal tendency and average hindrance appraisal rating. Finally, we will discuss the implications for future research regarding targeting specific stressors, rather than approaching work situations with generalized assessments.

Philadelphia Ballroom North

Young Workers and Occupational Health and Safety

SYMPOSIUM

Chair: Nick Turner (University of Calgary)

The vast majority of young workers, variously defined as employees between the ages of 15 and 24 years, experience paid employment within the formal economy. Research has long examined features of early employment, one of which is occupational safety (Loughlin & Barling, 2001). Young workers, like older ('adult') workers, encounter physically hazardous work, have the potential for or experience on-the-job injuries, and participate in efforts to protect the safety of themselves and others (Koehoorn, Breslin, & Xu, 2008). However, the young worker population faces a number of obstacles in using affordances typically provided in many employment systems, such as the right to know about physical hazards, the right to refuse dangerous work, and the right to participate in safety practices (Gray, 2009; Raykov & Taylor, 2013). These obstacles are rooted in the differentiating qualities of young worker populations in comparison to adult worker populations. These variously include: (1) the nature and experience of work that young workers typically undertake compared to adult workers, (2) the comparatively limited life and work experience of young worker populations, (3) the typical state and variation in physical and psychological

development of young workers between the ages of 15 and 24, and (4) the range of social and organizational influences that may affect young workers' attitudes and behaviors towards work.

The presentations in this symposium individually and collectively explore these four features of young worker populations as a way of explaining what we know about young workers and occupational health and safety, situating the symposium squarely in the "What does the future hold?" theme of the Work, Stress, and Health 2019 conference. The first presentation by [redacted], PhD, and colleagues explores young workers' experience of workplace aggression. One objective of the authors' national survey was to learn how experiences of workplace violence negatively affect young workers' mental health, work life, and school life. The findings from this study urge employers to take preventative action such as instituting a workplace violence prevention programs and providing age-appropriate training to young workers.

Following this, the second presentation by [redacted], PhD, and [redacted], PhD, builds on the focus of the experience of workplace aggression among young workers. In particular, the authors focus on young workers' willingness to report physical hazards, correct safety problems in the workplace, and refuse to work in unsafe conditions by examining the potential for coworkers' behaviors as potential moderators. The authors find that that when coworkers exhibit aggressive behavior, the effect is to dissuade young workers from acting on their knowledge and reducing the likelihood that young workers will undertake safety-related reporting. The findings point to the importance of the social context in determining young workers' safety-related behaviors and experiences, and suggest that the effectiveness of safety programs may be enhanced if they move beyond a narrow focus on safety to include consideration of the broader psychosocial work environment.

In the third presentation, the symposium further explores the likelihood of young workers speaking up about safety-related issues (i.e., safety voice). [redacted], MSc, and colleagues examine the relationship between young worker perceptions of invulnerability and safety voice through the development and testing of a model in two studies about the relationship between perceptions of physical danger at work and safety voice—mediated by the fear of injury and moderated by perceptions of invulnerability. The results from the two studies suggest that young workers who perceive themselves as invulnerable to physical injuries at work are less likely than their more vulnerable counterparts to speak up about safety concerns especially when the work environment is not particularly hazardous.

In the fourth presentation, [redacted], PhD, and colleagues look at how institutions can train young workers about hazard identification and control, emergencies at work, rights and responsibilities, and communication in an online format. The authors investigate an extension of NIOSH's Youth@Work: Talking Safety curriculum called Promoting U through Safety and Health (PUSH). The authors found that although PUSH training was effective in increasing the health and safety knowledge among young workers from different backgrounds and that young workers reported liking the training, the knowledge increases were not maintained at follow-up. This research tasks employers with the challenge of designing training to reflect the needs of a young audience, and more generally to increase the health and safety training provided to their young employees.

Finally, building on these presentations, [redacted], PhD, Coordinator of [redacted], is well qualified to bring these studies together by critically evaluating common themes and highlighting issues for future research that are not addressed in the current presentations. Examples of such issues include a greater understanding of the contexts in which young workers work, as well as important research questions about the various social and organizational influences that affect young workers' health and safety behaviors.

Workplace Violence Against Youth: Characteristics and Consequences

Kimberly Rauscher(West Virginia University)

Workers under the age of 25 are at risk for workplace violence (US Bureau of Labor Statistics, 2014a, 2014b). This includes bullying, verbal abuse, sexual harassment, threats, physical attacks and even homicide. Given their predominant employment in the high-risk retail and service industries, their lack of violence prevention training and the fact that they may be uniquely affected by workplace violence due to their ongoing physical and psychological development, young workers are a vulnerable population when it comes to workplace violence. Despite this, little research attention has been directed at this group of workers. To help fill this gap, we conducted a national study of workplace violence among youth ages 14-24. The main objective of which was to improve our understanding of young workers' experiences with workplace violence and to learn how these experiences negatively affect their mental health, work life and school life. We collected data from 1,017 workers ages 14 to 24 across the US, via telephone interview. Data collection occurred between July 2017 and January 2019. Respondents were asked about their experiences with workplace violence in the 12 months prior to the day of their interview. Eligible participants had to have held a formal civilian job in which they earned a paycheck in the previous 12 months. Babysitting, lawn mowing, and other odd jobs done for cash on an informal basis were not included. For the present analysis, we used descriptive statistics to characterize reports of workplace violence including the forms experienced, the perpetrators, and the consequences suffered as a result. These included various forms of mental distress (e.g., anxiety) as well as negative impacts on their work life (e.g., productivity) and school life (e.g., grades). We collected details of the cases by asking respondents about the last event in which they suffered workplace violence. When a respondent reported experiencing multiple forms of violence, interviewers randomly selected one form and asked the respondent to talk about the last time they experienced that form of violence. Our sample included 491 (48%) 14- to 17-year-olds and 526 (52%) 18- to 24-year olds. Just over 53% were male, 77% were white, and 14% identified as Hispanic/Latino. Approximately 80% were students at the time of the interview, mainly in middle/high school (n = 296) or a 4-year college/graduate school (n = 218). Just over 57% (n = 577) reported experiencing some form of workplace violence at least once in the 12-month study period. The forms experienced were as follows: verbal abuse (50%), sexual harassment (22%); threats (15%); physical attacks (6%) and sexual assaults (5%) (categories are not mutually exclusive). When asked about their last experience with workplace violence, respondents named customers (53%) as the most common perpetrator, followed by co-workers (34%) and supervisors (20%) (not mutually exclusive). The most frequently reported mental health affects resulting from their experience included the following: increased stress (41%), increased anxiety (39%), increased insecurity (26%), decreased self-esteem/confidence (22%), and increased distrust of people (21%). Effects on school life were limited with few respondents reporting seeing their grades drop (5%), skipping classes more often (3%), or showing up late for classes more often (3%) after their experience with workplace violence. Work

life effects were more common. After the event, 27% said they cared less about their job, 16% said they stopped trying to do their best work, and 13% said their productivity decreased. Just over 29% quit or considered quitting their job in reaction to the event, while 17% changed their schedule and 14% cut back their hours. Our study finds that workplace violence is common among young people in the United States and that it can have significant impacts on their mental health. Our finding that nearly one-quarter of youth experience sexual harassment or assault at work demonstrates that such issues are not "adult" problems and even girls as young as 14 are at risk - a particularly salient finding in this time of heightened awareness of gender harassment and inequality at work. Because of their vulnerabilities, both internal (e.g., ongoing development) and external (e.g., high-risk jobs), young people are a particularly vulnerable group who deserve more attention when it comes to workplace violence. While our study did not determine long-term effects, there was evidence that workplace violence has numerous immediate negative impacts on the mental well-being of young victims. Further studies should attempt to understand whether these impacts may be prolonged and under what conditions, specifically the severity and type of violence is likely to play a role and should be examined. In the meantime, we should work to raise awareness among youth and their parents, teachers, mentors and doctors of the problem of workplace violence and urge employers to take preventative actions such as instituting a workplace violence prevention program and providing age appropriate training to young workers.

From Knowledge to Action: How Workplace Aggression Affects Safety Behaviors in Young Workers

Stephanie Gilbert (Canadian Bankers Association)

A great deal of attention has been focused on issues of young workers' safety given the consistent finding that young workers experience more injuries than do their older counterparts. Tucker, Turner and Kelloway (2015), for example, found that approximately 30% of their sample of just under 20,000 young workers had experienced at least one minor injury in the month preceding their study. Efforts to reduce the injury rate among young workers have focused largely on educational and awareness campaigns (Kelloway, Francis & Gatien, 2013). Although training is recognized to be an effective intervention in occupational health and safety, recent research suggests that increasing knowledge may not be enough. Kao et al. (2019), for example, found that the link between safety knowledge and safety behavior was moderated by supervisors' support for safety. Similarly, Mullen (2005) reported that reporting of safety issues was predicted by management openness and norms supporting reporting. In the current study, we focus on young workers' willingness to report hazards, correct safety problems in the workplace and refuse unsafe work—these behaviors are the root of the internal responsibility system that underpins much of Canadian safety legislation and regulation (Kelloway et al., 2013). Moreover, we extend previous findings by focusing on the potential for coworkers', rather than supervisors', behaviors as a potential moderator of the knowledge-behavior link. In particular, we suggest that when coworkers exhibit aggression in the workplace (Schat & Kelloway, 2005) the effect is to dissuade young workers from acting on their knowledge and engaging in safety related reporting. Aggression from peers maybe particularly relevant for young workers given high rates of teenage aggression in general (Dupré et al., 2006). Empirically, Tucker et al. (2014) reported that young workers under-reported injuries at least partially because of the negative reactions of others in the workplace. Similarly, Mullen (2004) found that individuals did not engage in safe work practices or wearing personal protective equipment as a result of teasing or harassment from their coworkers. We surveyed 177 young workers who were also university students. At the time of the survey, all participants were also working part-time. The majority of respondent were female (n=143, 81%) and all were between the ages of 18 and 25 (Mean =20.17 years; SD =1.68 years). All respondents completed Mullen's (2005) three item measure of willingness to address safety problems in the workplace ($\alpha = .95$), as well as single items assessing their willingness to report hazards and to refuse unsafe work. Safety knowledge was measured with a seven item ($\alpha = .77$) measure adapted from Barling, Loughlin & Kelloway (2002). Finally aggression was assessed with the coworker (10 items, $\alpha = .96$) subscale of the Workplace Aggression Scale (Schat, Desmarais & Kelloway, 2006). Hypotheses were tested with moderated regression analyses with all analyses controlling for both age and gender. Aggression from coworkers moderated the effect of safety knowledge on willingness to address safety problems ($R2 = .034$, $p < .01$), willingness to report safety hazards ($R2 = .035$, $p < .01$), but not on willingness to refuse unsafe work ($R2 = .005$, ns). Analysis of simple slopes suggested that when coworker aggression was high safety knowledge had a smaller effect on willingness to address safety problems ($b = .04$) than when coworker aggression was low ($b = .11$). Similarly, safety knowledge had a smaller effect on respondents' willingness to report safety hazards when coworker aggression was high ($b = .06$) than when coworker aggression was low ($b = .14$). These findings point to the importance of the social context in determining young workers' safety-related behaviors and experiences. The effect of safety knowledge on respondents reporting of safety events was considerably smaller when respondents also reported experiencing workplace aggression than when they did not. Our results suggest that the effectiveness of safety programs may be enhanced if they move beyond a narrow focus on safety to include consideration of the broader psychosocial work environment.

Hazardous Work, Fear of Injury, and Safety Voice: The Role of Invulnerability Among Young Workers

Nick Turner (University of Calgary)

Statistics indicate that young workers (15-24 years old) are 50% more likely to sustain an injury at work than their older counterparts are (Breslin & Smith, 2005), with young males being four times more likely than older males to sustain an injury at work (Breslin, Koehoorn, Smith, & Manno, 2003). According to researchers and government safety councils, young workers as a group possess many characteristics that put them at a high risk of injury, including relative inexperience, limited knowledge of their rights and responsibilities, and their eagerness to please adult co-workers (Breslin, Koehoorn, Smith, & Manno, 2003). Other research has shown that young workers are at a heightened risk of injury due to their anatomical, physiological, and psychological characteristics (e.g., Alsop, Gifford, Langley, Beg, & Firth, 2000; Anderson, Hannif, & Lamm, 2011; Windau & Meyer, 2005). Furthermore, young people are at a greater risk of harm from exposure to hazardous substances, and can develop cumulative trauma disorders due to rapid growth and development of musculoskeletal systems and organs (Linker, Miller, Freeman, & Burbacher, 2005). While the occupational health and safety literature includes extensive research on injury rates, safety climates, and management strategies (Lavack et al., 2008), there exists a gap in the literature on how invulnerability affects young workers' occupational safety. Teenagers and young

adults are more likely than adults to believe that they are invincible and that they will not get hurt when taking risks (Lapsley, Aalsma, & Halpern-Felsher, 2005) because of perceived invulnerability to injury, harm, and danger (Lapsley & Hill, 2010). One perspective is that young workers feel impervious to physical danger at work, blinding them to potential hazards, dampening their motivation to speak up about potential hazards, or both. While the broader literature on the relationship between invulnerability and risk-taking has produced inconsistent results, there is a gap in the literature on the relationship between invulnerability and preventative behaviors such as safety voice (i.e., speaking out and challenging the status quo with the intent of improving the safety of the work situation; Tucker, Chmiel, Turner, Hershcovis, & Stride, 2008). The present study examines the relationship between young worker invulnerability and safety voice through the development of a model about the perceptions of safety, and safety voice mediated by the fear of injury, and moderated by invulnerability. The current paper investigates in two studies the role of invulnerability in predicting young workers' intentions to speak up about hazardous work (safety voice). We propose a moderated-mediation model in which perceptions of hazardous work are related to safety voice intentions via fear of injury, and that higher perceptions of invulnerability buffer (a) the extent to which potential hazards generate fear of injury and (b) the extent to which fear of injury motivates safety voice intentions. In Study 1, we randomly assigned participants (n = 115, aged 15-25) to either an unsafe or safe scenario depicting working conditions in an industrial kitchen. Participants with lower perceptions of invulnerability reported higher safety voice intentions across all levels of fear of injury. Participants with higher invulnerability perceptions reported as high safety voice intentions only when fear of injury was high, and reported much lower safety voice intentions than those with low levels of invulnerability when fear of injury was low. Study 2 replicates this model using three waves of field data from young workers (n = 67) in the Canadian province of Manitoba, each of whom kept the same job throughout the 2012 summer vacation. Overall, the results from the 2 studies suggest that young workers who perceive themselves as invulnerable to physical injuries at work are less likely than their more vulnerable counterparts to speak up about safety concerns especially when the work environment is not particularly hazardous.

Evaluating a Total Worker Health Training for Young Workers: Generalizability and Durability

Diane Rohlman (University of Iowa)

There are many benefits to employment for young workers, including increased self-esteem, autonomy, responsibility, and the development of job skills as well as bringing in income (Baron, 2005). However, young workers (under age 25) have limited job experience and often engage in unsafe, risky behaviors. Several factors that increase young workers' risk of injury have been identified, including hazards found in the workplace (e.g., knives, ladders), perceived workload (e.g., pressure to complete work more quickly), and minority status. Young workers, particularly those in their first job, may be at greater risk because of lack of training and skills that may make them less likely to recognize hazards, speak up regarding safety concerns, and less aware of their legal rights as workers (Estes, Jackson, & Castillo, 2010). Injury and illness are not the only risks to teenage workers. A study of high school students found that working 20 hours or more a week during the school year was associated with higher levels of emotional distress, more substance abuse, and earlier onset of sexual activity than experienced by students working less than 20 hours a week or not at all (Teixeira, Fischer, Nagai, & Turte, 2004). Several studies have shown that working adolescents wake up earlier, have a shorter nocturnal sleep duration, and a higher level of sleepiness during wake time during the week than nonworking students (Teixeira, Fischer, & Lowden, 2006). Although many protections are in place for adolescent workers through regulation of hours of employment and limiting contact with dangerous machinery and hazardous exposures, the non-fatal injury rate in young workers is twice the rate of older workers (Estes et al., 2010). The National Institute for Occupational Safety and Health (NIOSH) developed the Youth@Work: Talking Safety curriculum to address the needs of young workers (http://www.cdc.gov/niosh/talkingsafety/). This classroom-based training addresses hazard identification and control, emergencies at work, rights and responsibilities, and communication. Promoting U through Safety and Health (PUSH) expanded the content of the Youth@Work curriculum to include information addressing health, safety, and communication in an online format (Rohlman et al., 2016). Total Worker Health® is a strategy that integrates health promotion with injury prevention. Interventions addressing TWH improve workplace health effectively and more rapidly than wellness programs focused only on health promotion (Anger et al., 2015). Occupational training is designed to protect workers from hazards in the workplace. Employers are required to provide workers with a safe workplace through training and personal protective equipment; job tasks should be carefully assigned based on physical capabilities and age, and supervised to ensure proper performance. However, approximately half of young workers report receiving no safety education (Chin et al., 2010) and no studies have evaluated durability, retention or training effectiveness in younger workers. PUSH was found to be effective in increasing the safety and health knowledge among young adults working as lifeguards in a parks and recreation department, although this initial increase in knowledge did not remain at follow-up three months later (Rohlman, Parish, Elliot, Hanson, & Perrin, 2016). To examine generalizability, the training was evaluated among food service workers and young workers working in a range of industries recruited via Amazon Mechanical Turk (MTurk). A similar increase in knowledge was found immediately after the training was completed, followed by a decrease at follow-up. However, the majority of both the MTurk and parks and recreation participants reported liking the training content and the format. An open-ended question at follow-up was used to assess if the PUSH training prepared them to handle situations at work. Thirty percent provided an example of how the training increased awareness or changed their behavior. Several specifically indicated being more willing to speak-up about safety. In addition, during 2014 to 2016, new seasonal workers in a parks and recreation program completed the training. This cohort was followed each year to examine the duration of knowledge and impact of training on behavior; data analysis examining retention of knowledge and changes in attitudes and behaviors is in progress. These findings demonstrate that the PUSH training was effective in increasing the safety and health knowledge among young workers from different backgrounds. Although knowledge increases were not maintained at follow-up, young workers reported liking the training and several provided examples of how the training changed their awareness of safety and health hazards or their behaviors at work. Although employers are tasked with providing safety training to their employees, such training is not always well accepted or appropriately designed to reflect the needs of a young audience new to the workplace. Additionally, scientific research and practical experience demonstrates that comprehensive practices and policies that take into account the

work environment while also addressing the personal health of individuals, are more effective in preventing disease and promoting health and safety than adopting separate approaches.

Discussant: Rebecca Guerin (NIOSH)

Independence Ballroom B

Surveillance Among High Risk Workers

PAPER SESSION

Healthy Work Collaborative: Addressing Precarious Work through Social Change

Christina Welter (University of Illinois at Chicago)

Problem. Characterized by low wages, no termination protection or benefits, and limited workplace rights, precarious employment does not have a consistent label, and is variously referred to as non-standard, contingent, and insecure; and precarious workers are referred to as vulnerable and disposable. Limited available data suggest that precarious jobs are more dangerous at work and adversely impact health away from work.

Precarious employment is complex in nature and an unexplored area of research. There are limited sources of data about the health impacts of precarious employment. Additionally, there is no clear definition or guidance on the implementation of Total Worker Health® programs in the context of precarious employment. Due to its uncertain nature, precarious employment precludes the workplace as a point of intervention. Workplace-based interventions also disregard political, economic and social factors fracturing traditional employer-employee relationships.

Procedures. To address structural and systems-level barriers and facilitators to healthy work, the UIC Center for Healthy Work's, Healthy Communities through Healthy Work (HCHW) project, has taken a novel integrated systems-based, capacity-building approach to learning about and addressing precarious work. HCHW works to create a system to generate and support healthy work in the context of precarious employment by (a) assessing existing systems and their capacities for supporting healthy work and (b) developing organizational and systems structures to facilitate continuous learning.

HCHW is an action research (AR) project which includes multiple rounds of systematic inquiry. HCHW developed a systematic approach for undertaking an environmental scan through the use of semi-structured qualitative interviews. Environmental scan (ES) questions addressed organizational perceptions of worker health: strengths, opportunities, challenges and threats related to health in the context of precarious work; existing business and employment networks that support worker health promotion and protection; policy level proposals underway that might be leveraged to address precarious work; initiatives that promote skills and the knowledge base of workers to increase self-efficacy for healthy work; and communication channels that exist for distribution and the two-way exchange of inquiry and information sharing.

HCHW researchers analyzed and interpreted the data collected in the interviews through the development of a priori and emergent codes for thematic analysis. Through analysis of ES findings, HCHW researchers identified a lack of collaboration between public health, healthcare, and labor sectors, despite their understanding that work is a social determinant of health. Findings helped develop the next AR phase, a multi-sectoral capacity-building initiative, titled the Healthy Work Collaborative to Map Action for Social Change (HWC).

The HWC invited public health and healthcare organizations to engage with labor, government, and non-profit organizations to address a work-related issue affecting the communities they serve. Through an application process, the HWC invited public health and healthcare organizations to engage with labor advocacy organizations to address a work-related issue affecting the communities they serve. Eight teams of multi-sectoral partners participated in the six-session exploratory process. Representatives from the labor sector provided technical assistance and facilitated training on Power Mapping, Theory of Change, and Action Planning. Technical assistance and training helped public health and healthcare organizations define precarious work and build organizational capacity to create policy, systems, and environmental change.

Analyses. An essential feature of action research is the value of reflection, dialogue, and learning (Ivankova, 2015). Multiple reflection methods were used to evaluate increased knowledge, capacity, and partnership of HWC participants. Participants were asked to complete a pre- and post- evaluation at the beginning and end of the six-session process. The pre- and post-evaluation was focused on their understanding of precarious work, action learning, their relationship with their project partners, skills built through tools and approaches presented, the provision of technical assistance, and connections and partnerships made throughout the HWC. Participants were also asked to complete surveys every two weeks prompting HCHW researchers to review/adapt the HWC curriculum as needed.

Results. Analysis of quantitative and qualitative evaluation data indicates HWC participants had an improved understanding of precarious work and its relationship to health; improved critical thinking and strategic planning skills; and ability to analyze power dynamics and identify potential allies. Notably, participating organizations described enhanced collaborating and networking relationships following the HWC.

Practical Implications. Results from the HWC were used to develop the next phase of the collaborative. HWC Phase 2 includes nine worker center, worker advocacy and/or union representatives paired with or working on public health or healthcare-centered policy and systems change initiatives. Case studies and dissemination projects, in addition to evaluation results, will build the evidence for approaches to address precarious work through multi-sectoral partnerships undertaking policy and systems change.

Occupational health risks in agriculture: An experience sampling investigation for public health disease control

Mahima Saxena (Illinois Institute of Technology)

Problem. Research in our field has explored health, well-being, and safety outcomes for workers (Tetrick & Quick, 2011). However, an examination of health and well-being for non-standard workers is limited. Such an examination in industries and cultural settings that are outside of typically WEIRD (western, educated, industrialized, rich, democratic; Henrich, Heine, & Norenzayan, 2010) "organizational" setups is even more rare. Recently, calls have been made to include workers that are outside of the mainstream (Bergman & Jean, 2015; Saxena, 2017) and represent work in unique and relatively understudied domains. For non-standard workers particularly, there is a high risk

of work-related accidents, spread of disease, poor working conditions, and exploitative employment policies (ILO, 2013). This study is a step in the aforesaid direction. It examines occupational health risks that are experienced by workers in the agriculture and farming industry.

Vector-borne communicable diseases are a major public health concern around the world. It is well-known that rice farmers in South Asia have a high risk of contracting Japanese encephalitis (JE) through mosquito bites, which is known to be endemic to this region, exposing over 3 billion individuals to the infection (CDC, 2014). 1 in 4 cases of JE infection can be fatal with permanent neurological and intellectual damage in those who survive (WHO, 2014). There is no antiviral cure or specific treatment for JE fever. Prevention of JE fever can be done through preventing mosquito bites in the first place.

Despite its widespread association with rice farming, work-behaviors that predispose farmers to the virus are not well understood. This study aims to uncover daily behaviors of rural workers in South Asia that puts individuals at risk of JE during farming activities. Taking a person-centric stance, modified ecological momentary assessment (EMA) was utilized in order to identify and understand behaviors that are specifically tied to the communicable disease life cycle. The overall guiding research question for this investigation was:

What are the daily behaviors and lifestyle practices in rice farming that expose agricultural workers to the spread of communicable disease, specifically, Japanese Encephalitis?

The study uses modified EMA, thereby illustrating the use of this technique for gathering ecologically valid data in field research studies in contexts that are challenging for data-collection.

Method. Given the nature of the research site, vastly different work and cultural context, major modifications were made in deploying the EMA schedule (Beal & Weiss, 2003). The schedule of questions was matched to the work and life experiences of rural participants, necessitating open-ended questions multiple times a day and at night. Participants were instructed to provide as much detail as possible about their experiences and the thought process behind their behaviors. Questions was adapted to the local cultural context (Schein, 2012). Preliminary interviews and follow-up focus-group discussions were conducted in order to establish the validity of the data.

Participants were a total of 20 men and 11 women who were sampled over the course of 10 days. Assessments were conducted in the local language and in keeping with cultural sensitivity necessary for investigations of this nature. Participants were asked to describe their activities since the last assessment. Farming was found to be 24-hour activity, that bled into non-work life. Questions gauged the extent to which participant behaviors exposed them to infected mosquitoes through the day and night.

Results. Data were analyzed using an iterative process of theme generation in an inductive manner and explanations were drawn abductively (Spector, 2017). An intersection of farmer work-hours, lifestyles, and mosquito feeding times appeared to be a key factor in maintaining JE endemicity. Three key themes emerged that appeared to place farmers at risk.

Farmers worked in the field at dawn and in the evening after dusk to avoid incredibly high temperatures in the peak daytime and afternoon hours. This daily work-schedule coincided with the feeding cycle of the carrier mosquito. This is a key occupational hazard with a localized environmental risk factor that exposes rice farmers to peak mosquito activity, thereby increasing the likelihood of contracting JE.

Second, due to the nature of rice farming requiring irrigating and specific sowing and soil preparation stages, participants often chose to sleep at or near the fields. Poor economic conditions prohibited travel to-and-fro from the village. The proximity to the rice fields and consequently the mosquito population, combined with the working hours, pose an increased threat of JE to the farmers and their families.

Third, households possessed a single mosquito bed-net due to economic reasons, protecting a single member at a time and risking those who were unable to seek shelter. Of the days that participants were surveyed, different members of the family unit were found to use the bed-net on different nights of the week, thereby exposing almost everyone by the end of the weekly data-collection period to JE.

Implication/Conclusion. Policy-recommendations for agriculture will be discussed.

Occupational health and decent work for informal workers: Findings and policy implications of a field study in South Asia

Mahima Saxena (Illinois Institute of Technology)

Problem Statement. According to the World Bank, over half of the world's population lives and works within the informal employment sector (World Bank, 2002). Informal work is often fraught with dangerous and unsafe working conditions with a high risk of accident and injury. In 2002, the International Labor Organization (ILO) adopted a resolution to address the needs of workers in the informal economy around the world who are unable to break the cycle of poverty, "with emphasis on an integrated approach from a decent work perspective". The ILO puts forth "decent work" mandates for nations to provide dignified, healthy, and safe working conditions for workers around the world. These agendas often lack a psychological understanding of workers in poverty, and are created in a "top-down" approach by global policy makers.

The informal economic sector represents over 60% of the world's working population but is not part of mainstream scholarly discourse in our fields. Industrial and organizational psychology has only recently considered the role of non-standard and informal workers who are outside of traditional organizational setups (for instance, Gloss et al., 2017; Saxena, 2017).

Informal work presents economic and financial conditions that can lead to unique work and occupational health experiences that are important to understand, both from science and practice perspectives. The latter can provide meaningful directions to global policy makers at the World Bank and ILO.

This study is a step in this direction. The study focuses on highly skilled workers, specifically artisan weavers and potters in the informal economic sector in South Asia. In many parts of this geographical region, weaving and pottery tend to be the main source of livelihood for a large percentage of the population. For instance, weaving is the second largest occupational category in India (after agriculture).

Responding to recent calls by scholars in organizational sciences to have a person-centric examination of work-experiences focused on psychological process mechanisms (Weiss & Rupp, 2011; Spector, 2017), this study took an inductive and abductive approach to the guiding research questions and study analysis.

The broad guiding research questions were situated in local cultural customs and the financial hurdles associated with living and working below poverty lines. These were: a) What are the occupational safety and ergonomic difficulties experienced by informal workers?, b) What are the daily task-based challenges and hindrances experienced by informal workers?, and c) What is the nature of inner work-experiences of highly skilled workers in the informal economic sector?

Procedures. Data were collected across multiple villages in several districts in South Asia from highly skilled informal workers (N=50) engaged in pottery, weaving, and handicraft, ranging in age from 25 to 60 years. Data were collected through in-depth, face-to-face semi-structured interviews lasting approximately 1.5 to 2 hours each.

Given the nature of the research site, vastly different work and cultural context, participants were instructed to provide as much detail as possible about their experiences and the thought process behind their behaviors.

In order to get to the phenomenological reality and in keeping with the spirit of qualitative inquiry (Spector, 2017), this approach helped foster candid conversations about the issues at hand. Questions was adapted to the local cultural context and conducted in the local language in accordance with local norms (Schein, 2012).

Questions assessed the nature of daily tasks (task difficulty, task importance, and autonomy), associated psychological experiences (fatigue and emotional states), and occupational safety and ergonomic difficulties associated with daily work.

Results. It was found that artisan work in a unique micro-entrepreneurial set-up involving high levels of skill, physical labor, and cognitive effort. Through an iterative process of data-analysis by three independent trained coders, multiple themes emerged:

Contextual Work Characteristics and Ergonomics. This theme sheds light on the physical characteristics of extremely challenging work while living in abject levels of poverty. Each of the sub-themes that emerged in this category will be discussed in detail: Ergonomic difficulties (back and musculoskeletal disorders), cognitive and physical fatigue, task-characteristics, and inclement weather as a hindrance to daily work.

Personal identity. Strong personal identities existed surrounding the area of skill and expertise for the sample. These provide deep personal meaning and a sense of empowerment to the workers. This was an interesting finding given the lack of organizational identities and the nature of informal work.

Pride as a self-descriptive emotion. 100% of the sample mentioned experiencing deep levels of pride in their work along with high levels of work-satisfaction. Additional sub-themes suggest high levels of flow and work-engagement.

Implications and Conclusions. In a first study of its kind in our field, the findings present the "voice" of a skilled community of informal workers. These first-person experiential accounts can help inform decent work, health, and well-being agendas that seek to improve the living and working conditions of workers at an international level.

Extending Self-Determination and Worker Dependence Theories to Rideshare Gig Workers

Alice Brawley Newlin (Gettysburg College)

Aided by the rapid advancement of technology, the gig economy—platform-based independent contracting work (e.g., Spreitzer, Cameron, & Garrett, 2017)—makes up 34% of the U.S. workforce and is estimated to eclipse 40% by the year 2020 (e.g., BLS, 2018; Gillespie, 2017). In addition to sheer size, the gig economy poses a number of changes to our fundamental assumptions about work (Brawley, 2017). A large portion of this work falls under the category of ridesharing (BLS, 2018), in which drivers use their personal vehicles to provide rides to users matched to them through an app.

What is it about ridesharing that has attracted so many workers? We examine this question using the theoretical frameworks of attraction-selection-attrition (ASA; Schneider, 1987) and self-determination theory (SDT; e.g., Deci, Olafsen, & Ryan, 2017). Recent research (Brawley, 2017) indicates that the association of SDT needs satisfaction with turnover and satisfaction is moderated by gig workers' level of seriousness—defined as including their financial dependence and hours worked on the platform. We will examine this moderator in more depth, operationalizing its components separately, in order to provide a richer understanding of the features of gig work that satisfy rideshare drivers' psychological needs.

Rooted in vocational psychology, ASA argues that workers join, stay at, and leave certain organizations based on the match between their personal values with the work setting (Schneider, 1987). This framework is especially relevant to rideshare drivers given the few formal barriers to joining or leaving the rideshare workforce. Considering the work itself specifically, we also draw on SDT, which posits that humans have fundamental needs for feelings of competence, autonomy, and relatedness that may be fulfilled at work (e.g., Deci et al., 2017). As with ASA, these constructs may be especially relevant to a skilled task such as driving (competence) a variety of automatically-matched clients (relatedness) as an independent contractor (autonomy). The satisfaction of all three SDT needs meta-analytically correlates with both increased job satisfaction and decreased turnover intentions, with the exception of the competence-turnover association (Van den Brock, Ferris, Chang, & Rosen, 2016). However, this sixth association was also significant in a study specific to gig workers on MTurk (Brawley, 2017). In addition to both meta-analytic and more specific support among gig workers, satisfaction and turnover outcomes are also selected for this study given that they reflect components of ASA. We propose that these associations generalize to the rideshare setting.

Hypotheses 1-2: Competence, autonomy, and relatedness needs satisfaction will (1) significantly positively correlate with satisfaction and (2) negatively with turnover intentions.

In addition to extending this finding to a new gig work setting, we further propose a more thorough examination of the moderation effects observed by Brawley (2017), in which worker seriousness attenuated the effects of competence and autonomy needs satisfaction on the same two outcomes of satisfaction and turnover intention. Worker seriousness, therefore, is essential to determining the effects of SDT needs in understanding rideshare driver motivation. However, Brawley's (2017) worker seriousness construct combined multiple possible explanatory factors, including financial dependence and number of hours worked. Examining these variables separately will result in a more refined understanding of the source of this moderating effect. Additionally, we can determine whether the effects of an objective index of dependence (i.e., hours worked) correspond with drivers' subjective experiences of financial dependence on the platform. Based on the prior empirical findings, we propose that the effects of SDT needs satisfaction will be attenuated when each factor is increased (see Figure 1).

Hypotheses 3-4: The associations of competence, autonomy, and relatedness needs satisfaction with satisfaction and turnover intentions will be attenuated as (a) financial dependence and (b) number of hours worked increase.

Paid survey responses (target N = 800) are currently being collected from rideshare drivers for Uber, Lyft, or other similar platforms. Survey items include personal and work demographics (e.g., hours worked), SDT needs satisfaction, subjective financial dependence (specific to rideshare driving), job satisfaction, and turnover intentions. Regression analyses will examine the bivariate associations

between the variables (Hypotheses 1-2) as well as the moderating effects of both indices of worker seriousness (Hypotheses 3-4; using the PROCESS macro, Hayes, 2013). A path model analysis will also be conducted examine the simultaneous effects of all variables.

This study provides an extension of prior research on SDT needs among gig economy workers—now a non-negligible portion of and a major shift for the US workforce—to the largest sector of this type of work. Our findings will provide a more nuanced understanding of the reasons why workers may be choosing this type of work, which will lay a foundation for more informed investigations of current workers' experiences.

Training Strategies for Promoting Health and Safety for Nurses

PAPER SESSION

Identifying and understanding safety education gaps and transfer challenges experienced by practicing nurses

Christopher Cunningham (The University of Tennessee at Chattanooga)

Transfer of training regarding safety behaviors for nurses is a major concern. Though nursing employers expect nurses to safely and competently fulfill their job duties upon graduation from nursing school, new nursing program graduates often feel unprepared to meet the demands placed on them by the healthcare industry (Benner et al., 2010). Despite an increase in practical experiences meant to boost confidence and performance for new graduates, research has yet to establish the effectiveness of these experiences upon entry into healthcare settings (Blum & Parcells, 2012). Duhn et al. (2012) even found that, as students progress through the nursing curriculum and spend more time in clinical settings, their confidence regarding patient safety may actually decrease. Unfortunately, nursing curricula do not always include clear learning outcomes regarding how to practice personal and even patient-focused safety (Tella et al., 2014).

The present ongoing study is exploring this possibility that nurses may not be receiving training they need or that is optimized to ultimately improve their ability to safely care for themselves and their patients in actual healthcare settings. Ginsburg, Castle, Tregunno, and Norton (2012) suggested that research is needed to understand the extent of patient safety competency among health professionals around the time of entry to practice. The present study is being done in partial response to this call, but also to better understand the possible magnitude of gaps nurses perceive between what they were taught and what they can practice regarding safety in their work.

The purpose of the present study is to evaluate the extent to which work-related safety topics are being taught and effectively transferred from nursing education programs into actual healthcare settings. This is an exploratory study to establish a baseline of sorts, regarding practicing nurses' levels of confidence in knowledge, attitudes, and behaviors associated with best-practice guidance for nursing safety. The focus here is on identifying possible gaps between what is being taught and what is being practiced regarding safe nursing. The goal with this survey of working nurses is to gather data to help us establish the magnitude of these possible gaps in knowledge and transfer. This information could then be useful in developing and pursuing a larger investigation along these lines. The ultimate aim of this work is to help nursing education programs and healthcare practice organizations (e.g., hospitals, nursing homes) to maximize the transfer of safety knowledge and skills training from classroom to work setting.

Method. Participants for the first wave of this mixed method study were 112 working nurses (with at least 1 year of tenure) who were able to reflect and comment on their training and confidence in their abilities to work safely as a nurse. Participants were recruited through regional nursing education programs' alumni list and current student rosters, so many of these participants were also pursuing advanced education in nursing at the time of survey administration. These nurses responded to an internet survey composed of, in addition to basic demographic questions for sample description, several measures we adapted or created from existing curricular materials to evaluate nurses' confidence in their safety-related competencies. These measures were adapted from the quality and safety education for nurses framework confidence survey (Cronenwett et al., 2007); Health Professional Education in Patient Safety Survey (H-PEPSS; Ginsburg et al., 2012); and Waters et al.'s (2009) safe patient handling curricular materials. These three measures were each administered with three sets of framing instructions: (a) to respond based on current perceptions, (b) to respond as one would have when starting work as a nurse in a healthcare setting, and (c) to respond as one would when starting nursing education. Following these measures, participants were asked to respond briefly to five open-ended prompts included in Table 1.

Findings and Discussion. All scalar measures demonstrated high internal consistency reliabilities (alpha > .85). Although analyses are still underway with these data (to be complete by March 2019), preliminary findings clearly indicate that nurses perceive a significant shift in their safety-related competence and confidence from when they entered nursing education, to when they began working as a nurse, to their current point in time. These trends (across the different quantitative measures) paired with the qualitative responses (main themes summarized in Table 1), also highlight several areas in which nursing education (either in school or provided by a hospital employer) appears to be deficient with respect to safety-related topics. These findings support an extension of the present work and also offer tangible guidance to nursing education programs and hospital nursing executives regarding ways to directly and positively impact nurses' perceptions of efficacy when navigating potentially unsafe work-related scenarios.

Training personal resilience in oncology nurses through momentary and cross-domain recovery: A mixed-method approach

Chloe Wilson (Clemson University)

Problem. Oncology nurses provide direct care for cancer patients by performing highly skilled medical tasks, providing emotional support, and coordinating complex treatments. Due to the long hours and patient population, oncology nurses can experience secondary trauma from exposure to continuous stressful events, such as patient suffering and death, resulting in increased risk for compassion fatigue and burnout (Potter et al., 2010). These demands, coupled with minimal psychological recovery, can lead to poor outcomes for both nurses and the organization (Sonnentag & Fritz, 2015). As the work environment, culture, and nature of job stressors can vary within a single medical institution (Huang et al., 2007), a mixed-method approach was adopted. The present study seeks to mitigate the negative effects of stressors encountered in oncology nursing by identifying and implementing, through a stress management intervention, appropriate coping mechanisms to increase nurse resilience during and after work shifts.

Procedure. Using a mixed-methods approach, 30 structured interviews and observations were conducted of inpatient and outpatient nursing units. Emergent themes included difficult patient interactions, workload interruptions, limited recovery during shifts, lack of psychological detachment, and negative impacts on non-work life (Table 1). To understand the severity and frequency of these themes, a baseline survey was administered. 100 oncology nurses from 9 locations and 14 departments (tenure M=8.5 years, SD=8.83) completed the survey (95% female, 90% white). Baseline results indicated that 85% were above average on compassion satisfaction (M=41.70, SD=5.06); indicating increased pleasure from the ability to be an effective caregiver. Supporting prior literature, this affective investment in work comes at a cost: 97% of participants reported above average levels of compassion fatigue, and 80% scored in the top quartile (M=22.95, SD=6.50; Stamm, 2005). Additionally, 56% of participants reported experiencing physical, mental, and/or emotional fatigue at least once a week. Finally, 40% of participants were in the top quartile of burnout (M=24.88, SD=4.94). Results showed positive relationships between compassion fatigue and felt difficulty providing emotional support to fellow nurses ($r=.38$, $p<.01$), and surprisingly, willingness to provide peer support ($r=.36$, $p<.01$). This supports prior literature that a significant cause of compassion fatigue is an inability to say no (Skovholt, Grier & Hanson, 2001). Participants reported they engaged in some coping strategies that were effective 74% of the time.

Intervention Design. Results from the qualitative and quantitative studies informed the development of a monthly 6-month stress management intervention. Each month, participants will engage in a one-hour session designed to (1) educate participants on the symptoms and effects of compassion fatigue and burnout and (2) provide resources for in-the-moment coping and detaching from work. To address emergent stressor themes and incorporate evidence-based stress reduction techniques, three intervention components were selected: heart-rate variability (HRV) biofeedback training, journaling, and peer support. The goal of the intervention for nurses is to reduce compassion fatigue, burnout and work rumination while improving coping skills, psychological detachment, and resilience. Organizationally, the goal is to reduce adverse incidents, charting after hours and improve patient experience.

For work shift stress management, participants will be trained in the HRV technique of heart-focused breathing. Within minutes, this technique (focusing on the heart area while breathing deeply) can improve heart-rate variability and autonomic nervous system functioning in stressful situations (McCraty & Zayas, 2014), which has been shown to be negatively related to burnout (Lennartsson, Jonsdottir, & Sjörs, 2016). To address detachment from work and chronic effects of job stressors, participants will be provided journals and trained in expressive writing. Journaling, which increases psychological resilience by reducing the potency of difficult emotions, promoting cognitive restructuring, and strengthening self-regulation (Sexton et al., 2009), will be framed as a technique for disconnecting from work and processing emotions experienced at work. Finally, the intervention sessions are designed to encourage peer support and learning, which can positively impact nurse retention and burnout (Peterson et al., 2008). Each month, sessions will begin and end with HRV breathing practices and journal prompts as participants are invited to explore and discuss stressors that emerged from interview and survey data, such as when a patient codes, difficult conversations, emotional attachment to patients, and healthy boundaries.

Analysis Plan. To evaluate the effectiveness of the intervention at meeting the aforementioned goals (Kirkpatrick, 1995), longitudinal multisource data from intervention participants (N=40) and an oncology nurse control group (N=20) will be analyzed (Table 2). The combination of baseline, monthly, and follow-up surveys will assess subjective changes in participants' coping techniques (use and perceived effectiveness), compassion satisfaction, compassion fatigue, burnout, resilience and engagement. Objective archival data collected by the healthcare system before, during, and after the intervention will be analyzed to assess changes in patient experience scores, charting after hours, and adverse incident rates. Structural equation modeling and latent growth curve modeling analyses will be conducted to incorporate temporal effects and potential mediators and moderators of key study variables.

Building Resilience to Combat Stress in Nurse Executives

Sandra Galura (University of Central Florida)

Problem: Physiological and psychological stress has been identified as a critical issue faced by nurse executives, often resulting in adverse cognitive effects with potential to threaten individual well-being, performance, and organizational effectiveness.

Relevant Literature / Research Context: Over half of adults living the US cite work as one of the five most common sources of stress (American Psychological Association, 2017). Held accountable for safety, quality, financial stewardship, and patient satisfaction, nurse administrators experience stress due to role overload, role ambiguity, and organizational constraints, often resulting in adverse cognitive effects such as inattention to detail, less flexibility in decision making, and an increase in fear-based decision making (Shirey, Ebright, & McDaniel, 2013; Udod, Cummings, Care, & Jenkins, 2017). While working conditions play a primary role in organizational stress, individual traits such as resilience can be strengthened to weaken the influence of job-related stressors.

Exposure to stress is often associated with an increase in negative emotions which can enhance the adverse cognitive effects further compromising health, well-being, and job performance. Unlike negative emotions, positive emotions have been shown to be beneficial in times of stress or adversity. Fredrickson's broaden and build theory (2004) hypothesizes that positive emotions can broaden the mindset, enhance creativity, and shift an individual to a more creative way of thinking and acting, moving beyond the cognitive limiting effects of negative emotions. Positive emotions may have the ability to enhance adaptive coping and build resiliency (Gloria & Steinhardt, 2014).

Emotions have been recognized as key drivers of physiological processes. Research suggests that the ability to build and sustain resilience is related to an individual's ability to self-manage their emotions (McCraty, 2015). Studies have demonstrated that the ability to self – activate and generate sustained positive emotions using self-regulating techniques helps the body achieve a state of psychophysiological harmony (coherence) in both physiological and psychological processes, resulting in higher cognitive function, greater emotional stability, and states of calm (McCraty & Zayas, 2014).

Procedures. To control for organizational events, a quasi-experimental, mixed methods, waitlist control group design was used to explore the effects of resiliency training, incorporating self-regulating techniques and facilitated by technology, on stress and coherence in a sample of nurse administrators working in a large, multi-campus hospital system in the southeast. Experimental (n=20) and waiting control

group participants (n=23) each received group didactic and individual training that focused on self-regulating techniques to reduce stress. All participants received a portable device for measuring heart rate variability with instructions to practice the self-regulating techniques, facilitated by the device, for 5 minutes each day. Self-regulating techniques, provided by certified trainers from the HeartMath Institute, included: Inner-Ease™, Quick Coherence™, Freeze Frame™, and the Heart Lock-In™ technique which consisted of deep breathing and positive cognition exercises. Study instruments included a demographic questionnaire and the Personal and Organizational Quality Assessment (POQA-R4), a self-report measure of factors that influence organizational performance (emotional vitality, organizational stress, emotional stress, physical stress). Physiological measures included coherence, assessed by changes in heart rate variability, and blood pressure. Study measures were obtained at baseline, prior to each group training session, and at 7 months. Open-ended questions were used to explore the effects of training on workplace productivity and agility in thinking.

Analyses. Categorical variables were summarized with counts and percentages. Pearson's Chi-square was used to assess for demographic differences between groups. Repeated measures ANOVA was used to evaluate within group differences in mean subscale scores for the POQA4 and normalized coherence. ANCOVA was used to evaluated between group differences controlling for baseline measures and participant age.

Results. The average participant was female, ages to 51-60, working 51-59 hours/week., employed within the organization for over 10 years, and 3-4 years in their current role. There were no significant differences in demographic characteristics between groups. POQA – R4 scores related to organizational stress ($p < 0.05$) and physical stress ($p < 0.05$) were significantly lower in the experimental group. When comparing pre-training POQA-R4 mean group scores to scores obtained at 7 months, both groups experienced significant improvement. The experimental group experienced increased emotional vitality ($p < 0.01$), reduced emotional stress ($p < 0.001$), and lower organizational stress ($p < 0.001$) and less physical stress ($p < 0.001$). The waiting control group experienced improvement in emotional vitality ($p < 0.001$), decreased organizational stress ($p < 0.001$) and less physical stress ($p < 0.001$). Normalized coherence was higher in the experimental group ($p < 0.001$) and was maintained at 7 months ($p < 0.001$). No significant differences in group mean blood pressure values were found. Participants reported the ability to focus and/or refocus more clearly as positively affecting workplace productivity.

Implications. The health and well-being of nurse executives is critical to organizational success. Individual factors can be strengthened to weaken the influence of organizational stress.

Conclusions. Experienced nurse executives benefitted from self-regulating interventions to reduce stress which was sustained over time.

Salon 5 & 6

Intervention Approaches for Sedentary Occupations

SYMPOSIUM

Chair: Brad Wipfli (Oregon Health & Science University)

The number of sedentary jobs in the workforce has steadily increased over the past 60 years, a trend that appears likely to continue (Church et al., 2011). This increase presents an occupational safety and health risk factor for workers, as sedentary behavior and prolonged sitting are related an increased risk for adverse outcomes including cardiovascular disease; diabetes; obesity and related issues like sleep apnea; musculoskeletal pain; and injury (e.g., Beach et al., 2005; Chau et al., 2013; Wilmot et al., 2012). Solutions that reduce exposure to sedentary behavior are therefore important to develop and evaluate. While there are shared factors across sedentary jobs, in many cases the organization of work and the working conditions are distinct, and approaches need to be tailored for different populations to be effective. In this symposium we present intervention approaches from three rigorous studies that each address a population of sedentary workers that has distinct and unique job characteristics: long-haul team truck drivers, call-center workers, and urban bus operators. Presenters will discuss intervention strategies for these populations, the rationale behind these strategies, and preliminary results of intervention effectiveness.

The first study, Tech4Rest, evaluates an intervention designed to improve the sleep, health, and well-being of commercial long-haul team truck drivers who work long sedentary shifts. Informed by a Total Worker Health® approach, the Tech4Rest intervention combines an enhanced truck mattress and seat, with a 3-month behavioral sleep health program called Fit4Sleep. By promoting physical activity through a web-based walking competition, Fit4Sleep attempts to improve team driver sleep by increasing physical activity and reducing sedentary time. Authors will present within-subject, post-intervention results from the Tech4Rest pilot study. The presentation will focus on objective and self-reported sleep outcomes, including sleep duration, fatigue measured by Psychomotor Vigilance Task, sleep quality, mattress comfort, and driver whole body vibration exposures.

The second study, the Active Workplace Study, examines an intervention using pedal stands and sit-stand desks to promote physical activity and reduce sedentary behavior in call centers. The intervention is also based on the Total Worker Health® approach, and includes organizational, environmental, and individual level strategies to improve worker health, safety, and well-being, reduce musculoskeletal pain, and reduce lost work time due to injury or illness. The study is a six-month intervention with measurements at baseline, post-intervention, and follow-up. In this symposium authors will present intervention outcomes from post-intervention measurements in intervention and control conditions. Outcomes will include physical activity data from accelerometers, pedal stand data collected with Fitbits, physical and physiological health data, and survey measures of psychosocial outcomes, workplace factors, and musculoskeletal pain and injury.

The final study examines an intervention aimed at preventing weight gain and supporting job success among new urban bus operators. The SHIFT Onboard study (Success and Health Impacts for new bus operators during Onboarding) takes a primary prevention approach to protect and support new bus operators as they transition into an occupation with known health hazards (e.g., sedentary, shift work, stress). Integrated into the organizations' new employee training and onboarding program SHIFT Onboard will intervene as employees are establishing new personal and work habits thus providing an opportunity to change the career trajectory of potential health impacts within the occupation. In a randomized controlled trial, the control arm of the study will study working conditions and health trajectories of operators. In the intervention arm, the SHIFT Onboard intervention will equip new bus operators with resources meant to prevent weight gain, reduce

stress, and increase job performance and satisfaction through several main tactics; collaborative gamified challenges supported with training, behavioral goal setting and tracking, and group coaching sessions. The authors will describe the overall study plan, present findings from preliminary research with archival medical certificates of new operators (n=55) and a survey of bus operators (n=266), and preliminary findings from a pilot study of SHIFT Onboard.

The Tech4Rest Intervention for Team Truck Driver Sleep: A Pilot Study

Ryan Olson (Oregon Health & Science University)

The Federal Motor Carrier Safety Administration (FMCSA), caps commercial drivers at 11 driving hours per day 1. Because compensation is dependent on miles traveled, drivers are fiscally incentivized to reach their 11hr limit. Increased driving time means increased sedentary time which is inversely associated with sleep quality 2. On average commercial drivers get 1-2 hrs less sleep in the truck berth (≈ 6 hrs) compared to at-home 3-6. 7-8 hrs of sleep is needed to avoid fatigue and performance deficits 7. Although commercial drivers crash only 50% as often as passenger drivers, research shows a clear correlation between fatigue and crash risk 8. Team truck drivers, that work in pairs where one person drives while the other sleeps, are at particularly high-risk for sleep disturbances and fatigue. Sleeping in the berth, team drivers experience four times more nightly awakenings than solo drivers 9. Teams spend most off-duty time in their truck, which can operate for 22/24 hrs daily, leaving minimal opportunities for physical activity. Extended sedentary time, shift work, and whole body vibrations (WBV) converge in a team trucking environment making sufficient sleep difficult to achieve. The health consequences of disturbed sleep and WBV exposure, coupled with the high-risk of fatigued driving, signal need for team driver sleep interventions. Tech4Rest is part of the Oregon Healthy Workforce Center (OHWC), a NIOSH center of excellence in Total Worker Health® (TWH). Informed by the hierarchy of controls for TWH 10, Tech4Rest (NIOSH U19OH010154) evaluates interventions to improve sleep, health, and well-being for team truck drivers, by assessing truck cab enhancements alone, and combined with a behavioral sleep/health program. The current presentation will report Tech4Rest pilot study results. Methods. Tech4Rest's pilot study had two phases. In phase one (data collection completed) team drivers (four teams; n=8) sequentially evaluated a new coil spring mattress then Thevorelief mattress for 2-3 weeks, with measurements at baseline and during/after each condition. In phase two (data collection underway) four additional teams (n=8) evaluate the mattresses in reverse order then spend 3 months in a multi-component phase including their preferred mattress, a ClearMotion Active Suspension Seat, and a sleep/health program named Fit4Sleep. Prior research has established this seat's vibration and fatigue reducing effects 11. Modeled on effective interventions 12-13, Fit4Sleep is a web-based walking competition involving behavioral self-monitoring (walking, sleep hygiene), health coaching calls, and online training. Measures include self-reported sleep (quality and quantity), fatigue, and well-being. Self-report measures included: PSQI 14, PROMIS Sleep Related Impairment (SRI) 15, Sleep Hygiene Index 16, PROMIS Global Health 17, Swedish Occupational Fatigue Inventory (SOFI) 18, Healthy Physical Activity (HPA) 19, and seat/mattress comfort items. Additionally, drivers complete daily pre and post shift surveys, 5-minute Psychomotor Vigilance Tasks (PVT), and wear accelerometers (model [wrist=wGT3x-BT] [hip=GT3X+], ActiGraph, Pensacola, FL) to measure sleep and physical activity. Axivity accelerometers (AX3, Axivity, Newcastle, UK) are placed on the Truck's seat cushion, floor, mattress frame, and mattress top to measure WBV exposures, and a GPS (CR-Q1100P GPS, QSTARZ, Taipei, Taiwan) is installed. Partner companies provide driving logs with work status (on/off duty, driving, sleeper berth), mileage, and potential indicators of performance or fatigue (e.g., miles per gallon, hard braking). Results. At the conference we will report results from the two phaseTech4Rest pilot study (n=16), and can currently report preliminary descriptive results from phase one (n=8). In self-report surveys, total sleep time (range = 6.23 hrs to 6.75 hrs) and sleep quality (range = 1.63 to 2.0 /3.0) were similar across conditions. Analyses of phase one sleep actigraphy and PVT data are underway. Although sleep duration/quality differences have yet to emerge, Thevorelief did reduce sleep related impairment (M=3.75, SD=3.33)) compared to the original (M=7.13, SD=3.64) or coil spring (M=6.88, SD=4.82). On average, participants found Thevorelief more comfortable on a seven point scale (M=6.06, SD=0.58) than the control (M=3.98, SD=1.87) or original mattress (M=2.85, SD=0.97). Additionally, all drivers have kept the Thevorelief, indicating it as their preference. Preliminary WBV results show that Thevorelief may attenuate WBV exposures at 2-4 hz, 12-14 hz, and 27-28 hz frequencies. Differences appear greatest at 12-14 hz. The second phase of the Tech4Rest pilot study, to evaluate the multi-component intervention, is currently underway. Data collection will be completed by May 2019, and results will be available for the conference. DISCUSSION: While preliminary, our results suggest that the Thevorelief mattress is preferred by teams and may reduce sleep related impairment during waking hours. This may be due to its impact on the profile of vibrations to which drivers are exposed, but more data and analyses is needed. With the additional intervention components (Seat, Fit4Sleep) in phase two, we hypothesis that beneficial effects will be additive. Discussion of pilot phase two will emphasize the additive effects of the seat and Fit4Sleep program.

Active Workplace Study: Methods, Rationale, and Intervention Outcomes

Brad Wipfli (Oregon Health & Science University)

The organization of work in call centers promotes sedentary behavior. Workers are scarcely able to leave their desks outside of scheduled breaks. Time pressures, driven by organizational demands for short customer wait times, limit the ability of workers to stand and move between calls. Employees at call centers are therefore some of the most sedentary workers worldwide, sitting for over 83% of work hours (Thorp et al., 2012). This level of sedentary behavior impacts health and safety of call center workers, including elevated levels of lower back and neck pain, increased risk for musculoskeletal problems in the wrist and arm (e.g., Bhuyar et al., 2008; Charbotel, 2009; Norman et al., 2004; Subbarayalu, 2013), and increased risk for chronic disease (e.g., Chau et al., 2013; Hamilton et al., 2007). The need for effective methods to reduce sedentary behavior is clear. However, the feasibility and therefore the effectiveness of such methods is largely determined by how they fit into the organization of work, without impacting the availability of employees to answer calls. Researchers have started to address sedentary behavior through interventions that promote sit-sand desk use, and, less frequently, promote the use of active workstations. The most common interventions provide equipment (e.g., sit-stand desks, treadmill desks, pedal stands) but offer limited training or motivational support. These interventions have generally been successful at decreasing sedentary behavior and increasing physical activity in the

short-term, but not sufficient for creating long-term changes (Martin et al., 2015; Neuhaus et al., 2014). The Active Workplace Study is a six-month intervention that targets sedentary behavior in call centers. The intervention incorporates the Total Worker Health® approach, focusing on connections between health, safety, and well-being and including organizational, environmental, and individual level strategies informed by Social Cognitive Theory and the Social Ecological Model (Bandura, 1991; McLeroy, 1988). The intervention introduces pedal stands, an active workstation that sits under a user's desk and allows the user to pedal without interrupting work time or productivity, into the work environment. Other elements of the intervention include computer-based training, goal setting, behavior tracking, scripted health and safety discussions guided by supervisors, team pedaling competitions, and health and safety messaging. Worksites that enroll in the study are required to have sit-stand desks available for all employees, and the intervention also promotes alternating between sitting and standing throughout the workday. The control condition is based on usual practices. Control worksites will receive pedal stands but no additional support or training. The study aims to reduce sedentary time and prolonged sitting at work, improve worker health, safety, and well-being, reduce musculoskeletal pain, and reduce lost work time due to injury or illness. By combining tactics at multiple levels the intervention also aims to increase the likelihood of long-term changes in sedentary behavior, prolonged sitting, and related outcomes. Intervention effectiveness will be evaluated by comparisons between intervention and control conditions at baseline, six-months (post-intervention), and twelve months (follow-up). The Active Workplace Study is currently enrolling participants and collecting data. In this symposium we will have collected baseline and six-month (post-intervention) data from control and intervention worksites and will present on primary intervention results. Outcomes will include physical activity data collected with accelerometers, data on pedal stand use collected with Fitbits, physical and physiological health outcomes (e.g., body weight, blood pressure, hemoglobin A1c, endothelial function), and survey measures of psychosocial outcomes, workplace factors, and musculoskeletal pain and injury. We will also use the unique combination of accelerometer data and physiological data to make empirical conclusions about the relationship between bouts of prolonged sitting and risk factors for cardiovascular disease and diabetes.

SHIFT Onboard: A Primary Intervention for Urban Bus Operators

Layla Mansfield (Oregon Health & Science University)

Sedentary time in all US jobs has increased over the past decades (Healy, et al., 2011) but is particularly high among occupational drivers, including urban bus operators. French et al., (2007) reported that transit workers spent just over 9 hours a day sedentary whereas Varela-Mato et al., (2016) found that bus operators were sedentary for 12 hours a day on workdays compared to 9 hours a day for non-work days. In general, prolonged sitting comes with increased health risks including an increased risk of diabetes, cardiovascular disease, and cardiovascular mortality and all-cause mortality (Thosar at al., 2014; Wilmot et al., 2012). Bus operators in particular have an excess risk of cardiovascular disease, hypertension, musculoskeletal symptoms, and gastrointestinal disorders (Tse et al., 2006; Winkleby et al., 1988). Bus drivers are also twice as likely to experience obesity compared to the general population (Escoto et al., 2012; Poulsen et al., 2007). Along with the health risks associated with being a bus operator, the job itself is highly stressful. Bus operators often experience conflicting work demands (Carrère et al., 1991). For example, operators may juggle the demand to remain customer service oriented while also keeping to a tight schedule in dense traffic while operating the bus safely. These stressors may be compounded early on in a bus operator's career. Organizational newcomers often experience stress as they navigate the uncertainty of their jobs and try to meet their task demands (Ellis et al., 2015). Our study, SHIFT Onboard (Success and Health Impacts for new bus operators during Onboarding; NHLBI grant# R01 HL105495) aims to mitigate occupational stressors and support job success, while also alerting new bus operators of the potential health hazards of their new occupation and protecting them against them. In the current presentation we will review data on new bus operators' work exposures and estimates of the magnitude of the weight gain, the intervention study plan, and preliminary findings from the SHIFT Onboard pilot. Our preliminary data are supportive of the hypothesis that new bus operators are at- risk for weight gain as they enter the profession due to working conditions and exposures, including sedentary time, shiftwork, and stress. Archival anonymized objective body weight data were obtained from medical certificates for 55 bus drivers. Among those with sufficient 2-year data (n=26), 2/3 gained weight (M=11.9 lbs, SD=12.01). We further explored estimates of weight gain and occupational exposures among bus operators with a survey study of members of the Amalgamated Transit Union Local 757 (n=266). In the survey study, the reported average weight change during their first year driving alone was +7.47 lbs (SD=16.27). Bus operators also reported being sedentary 79.9% of their work shifts. With regard to stressors of the job, 34.6% of bus operators reported experiencing conflicting job demands at least once a month with the majority reporting that they experienced conflicting job demands several times a day. The SHIFT Onboard intervention study will provide more conclusive evidence of work exposures and the magnitude of the hazard for new operators within the control arm of a randomized controlled intervention trial. In the intervention arm, the SHIFT Onboard intervention will equip new bus operators with resources meant to prevent weight gain, reduce stress, and increase job performance and satisfaction through several main tactics; collaborative gamified challenges supported with training, behavioral goal setting and tracking, and group coaching sessions. The SHIFT Onboard intervention that will be pilot tested, and then subsequently evaluated in a randomized controlled trial, is empirically informed and guided by our prior intervention work with commercial truck drivers (Olson et al., 2016). Integrated with established new bus operator training, SHIFT Onboard will be facilitated by a coach with several in-person sessions at key time points during a bus operators' first year on the job. Protocols for groups sessions are informed by group-based motivational interviewing techniques. In between in-person meetings with the facilitator, workers will participate in online collaborative challenges with their training cohort using a mobile adaptive website. These challenges are tailored to their time on the job, and are designed to prevent weight gain and support their job success. Operators will access our website to set their goals, complete behavioral self-monitoring and training modules, and receive feedback on individual and group progress in challenges. Challenges include game-like features and badges, and operators will earn pay/incentives for participation. At the time of the conference, preliminary findings from the SHIFT Onboard pilot study will be available. In the pilot we will evaluate the intervention with a cohort of newly hired operators with pre- and post- program measurements of changes in body weight, health behaviors (sleep, eating, exercise), and social adjustment (job efficacy, role clarity, job performance and satisfaction, and turnover intentions).

Philadelphia Ballroom South

CEP

Balancing Work and Life in Various Occupations

PAPER SESSION

Work-to-Life Conflict in the STEM Fields

Krista Lynn Minnotte (University of North Dakota)

Statement of the Problem: Faculty members face a dizzying array of job pressures that create stress. One form this stress takes is work-to-life conflict—the phenomenon of work interfering with the ability to meet responsibilities in one's personal life (Greenhaus & Beutell, 1985). Work-to-life conflict is endemic to academic contexts marked by norms encouraging long work hours and a seemingly never-ending set of obligations (Cech & Blair-Loy, 2014; Ecklund & Lincoln, 2016). In the STEM fields (Science, Technology, Engineering, and Mathematics) these conditions are intensified because laboratory work is often inflexible and expectations to obtain grant funding and pressures to disseminate work, are even greater than in other disciplines (Fox, Fonseca, & Bao, 2011; Wolf-Wendel & Ward, 2015). Work-to-life conflict is associated with a host of negative outcomes, highlighting the importance of better understanding work-to-life conflict to protect the well-being of faculty members on the job and beyond (e.g., Shockley & Singla, 2011; Wayne, Butts, Casper, & Allen, 2017). Existing research points to a number of factors that shape work-to-life conflict among faculty members, including gender, family characteristics, departmental environment, and institutional setting (e.g., Cech & Blair-Loy, 2014; Fox et al., 2011). Aspects central to academic work itself—research and teaching—remain under examined. In this study, we consider how elements of research (access to research resources and scholarly isolation), teaching (teaching support, teaching load satisfaction), and satisfaction with the tenure and promotion process are related to the work-to-life conflict reported by STEM faculty members.

Procedures. The research questions are addressed using survey data from STEM faculty members at a comprehensive research university in the Upper Midwest. Faculty members in the STEM fields across four colleges were invited to participate in the study, with questionnaires administered via Survey Monkey. To incentivize participation, faculty members were offered the option of entering a drawing to win one of fifty $50 gift certificates. The survey's response rate was just over 50 percent (N = 117 faculty members).

Analyses. Ordinary Least Squares (OLS) regression was used to address the research questions. We utilized two sets of equations—one set (two models) for the teaching-related variables and another set (two models) for the research-related variables. In each case, the first model contained the control variables: age, gender, parental status, marital status, tenure status, length of time at the institution, and the participant's college. The second model then added the primary independent variables. In both the teaching and research models, satisfaction with the tenure and promotion process was included because this variable encompasses both teaching and research. Missing data were replaced using mean substitution. Descriptive statistics are presented in Table 1.

Results. Turning to the findings related to research, Model 1 (control variables) did not reach statistical significance ($F = 1.822$, $p = .090$). Model 2, which added the research-related variables and satisfaction with the tenure and promotion process, reached statistical significance ($F = 4.399$, $p < .001$), and this change in F was significant ($p < .001$). Of the control variables, only years at institution was statistically significant, with those who have been at the institution longer reporting lower work-to-life conflict ($\beta = -.29$, $p < .001$). Additionally, there was a negative association between satisfaction with the tenure and promotion process and work-to-life conflict ($\beta = -.20$, $p < .05$). Access to research resources was negatively related to the dependent variable ($\beta = -.19$, $p < .05$), while scholarly isolation was associated with higher work-to-life conflict ($\beta = .22$, $p < .05$). Overall, Model 2 is estimated to explain 22.7% of the variance in work-to-life conflict. In contrast to these findings, there were no significant associations between the teaching variables and the dependent variable, although the relationship between teaching support and work-to-life conflict did approach statistical significance ($\beta = -.18$, $p = .06$). These results are displayed in Tables 2 and 3.

Practical implications. The findings point to the critical role played by satisfaction with the tenure and promotion process, along with research resources and scholarly isolation in predicting work-to-life conflict. Institutionally, colleges and departments can work to develop clear and objective guidelines for tenure, promotion, and evaluation that are openly shared with faculty. To enhance resourcing of scholarly work and prevent scholarly isolation, administrators can encourage and provide support for faculty networks devoted to fostering research collaboration, including grant writing. For emerging scholars, mentorship and training in negotiation may help prevent resource inequities at the departmental level, particularly among women faculty.

Conclusions. This study contributes to the literature by considering how three primary components of STEM faculty member's work lives predict work-to-life conflict—teaching, research, and the tenure and promotion process. Overall, the findings highlight the importance of research resources, scholarly isolation, and satisfaction with the tenure and promotion process for understanding STEM faculty's work-to-life conflict.

Shift working parents' work family conflict and mental health

Yixuan Zhao (Australian National University)

Statement of the problem. In recent years, the world has been transitioning to a 24hrs/7days labour market and global economy. This transition has been accompanied by an increasing demand for flexibility in work routines—including growing demand for shift workers (Presser, 2003). Shift work, also known as working a nonstandard schedule, typically means that a considerable proportion of work hours falls outside the typical 8/9 am to 4/5 pm, Monday to Friday, schedule (Presser, 2003). Surveys around the world demonstrate a substantial prevalence of shift work within the labour force (i.e. ABS, 2012; UK Office of National Statistics; Alterman et al., 2013). Evidence also suggests that the proportion of shift workers is higher among parents than non-parents (ABS, 2009). In some respects, shift work might assist parents to better accommodate both their work and child care responsibilities - given shift workers may have the option of staggering their work hours with their partner. However, shift work might also aggravate work-family conflict—given shift workers may frequently miss out on routine family events, such as meal times, weekend activities, school events, and family travel.

Important questions about whether shift work assists or disrupts work-family conflict (i.e. the extent to which both work and family responsibilities can be co-managed, Greenhaus & Beutell, 1985), and

how this might then impact on mental health remain unanswered. While work-family conflict has been found to be associated with increased mental health problems (Allen, Herst, Bruck, & Sutton, 2000; Frone, 2000; Frone & Russell, 1992; Wang et al., 2012), there is little research that has examined the relationship between shift work, work-family conflict and parental mental health inclusively. The current study aimed to investigate the association between shift work and mental health for parents and whether work-family conflict mediates this association.

Method – procedure and analyses. Data was drawn from the baseline dataset of the "Families at Work" survey, an online nationwide community-based survey about Australian parents' working conditions. The survey specifically focused on how parents integrate work with care and health/well-being. In total, 5163 eligible employed parents completed the survey. Given the sample size included far more individuals who were not shift workers than those who were, 10% of all non-shift workers were randomly selected to form a comparison group. The final sample included 1210 individuals: 343 non-shift workers, 359 regular shift workers, 209 rotating shift workers, and 299 irregular (or unpredictable) shift workers. There were 452 employed fathers and 756 employed mothers. The primary measures retained for the analyses included: shift work status (shift worker vs. non-shift worker), type of shift work undertaken (regular, rotating, irregular), work-family conflict (1-5 scale, Marshall & Barnett, 1993), psychological distress symptoms (K-6 10-50 scale, Kessler et al. 2002) and occupational stress (STAI adapted, 1-5 scale, Spielberger, 1983). The primary statistical analyses were Preacher and Hayes 'tests of mediation' (Preacher & Hayes, 2004; Hayes 2009). These tests were applied to assess the extent to which work-family conflict mediated the association between shift work and mental health, with separate analyses conducted for the outcomes psychological distress and occupational stress. Importantly, the variables controlled for in the mediation analyses included single parent status, income, number of children, job quality, work hours, occupation type and permanency. Separate analyses were conducted for mothers and fathers.

Results. For fathers, the total effect of shift work in association with psychological distress and occupational stress was not significant. However, both rotating and irregular shift work were found to have a significant indirect effect on fathers' psychological distress and occupational stress via increased levels of work-family conflict. For mothers, only regular shift work had a significant total effect in association with psychological distress, while there was a significant total effect of rotating and irregular shift work in association with occupational stress. However, work-family conflict was not found to mediate or explain the effect of shift work on mothers' psychological distress and occupational stress (i.e. the indirect effect was not significant). After accounting for work-family conflict both the direct effect of regular shift work in association with mothers' psychological distress, and the direct effect of rotating and irregular shift work on mothers' occupational stress remained significant.

Practical implications and conclusions. The findings from the current study suggest that for Australian mothers, while shift work is associated with higher levels of psychological and occupational distress, this is not due to increased work-family conflict. Other factors are likely to be responsible and require further investigation. For fathers, shift work does increase work-family conflict, but the potential negative effects on mental health are buffered by other associated factors. As the labour force becomes increasingly fractured, in terms of working schedules, work hours, and workplace locations, it is critical that the potential impacts of non-standard work hours on families and workers' mental health continues to be identified.

Work Family Conflict and Burnout Among Public School Teachers in Malaysia: The moderating effects of personality

Hazel Melanie Ramos (Nottingham University Malaysia)

The issue of Work-Family conflict (WFC) has been attracting great scholar interest in the past few years. Competing demands from work and family could bring a toll to the well-being of individuals who have to juggle between demanding roles at work and family within limited time and resources available. WFC is defined as a form of inter-role conflict in which the participation in the work (family) role is made more difficult by virtue of participation in the family (work) role (Greenhaus & Beutell, 1985). WFC is bidirectional can occur in both directions- work interfering with family (WIF) and family interfering with work (FIW).

Amongst teachers, WFC plays a significant role as the nature of their job contributes to spillover effects of work issues to family time. Teachers are often expected to take on diverse academic and non-academic roles and as a result leads them to experience increased job demands that could hinder job performance. Teachers' job demands include preparation for classroom activities, delivery of teaching, maintaining records, conferring with parents and school administrators etc, all of which require their attention even beyond the normal work hours (Al-Adwan, & Al-Khayat, 2016).

Shortage of teachers all over the world has always been a challenge. One most cited reason for people leaving the teaching profession has been stress and burnout experienced by teachers (Izzah, et al, 2010). Research has shown that burned out individuals who continue doing their work, may not only harm their own health but also negatively affect the well-being of others (Evers, et al 2004). Students need teachers who are mentally and physicaly fit to guide them as they navigate the world. Burned out teachers can be irritable inside the classroom which could lead to negative learning experiences.

The aim of this study to examine the relationship between WFC and job burnout among a sample of public primary and secondary school teachers in Malaysia as well as examine the moderating effects of personality on the WFC-Burnout relationship. Specifically we looked at three dimensions of burnout (Work, Personal and Client-Related). In 2013 the Malaysian government launched a national educational blueprint (2013-2025) with the aim of strengthening the country's educational system and promote it as an educational hub for the SEA region. Understanding the nature of role- related strain among teachers will help educators, ministers and other stakeholders better promote teacher well-being and in turn improve the country's educational sector.

Data was collected from 235 public school teachers from peninsular Malaysia using the WIF scale (Gryzwacz & Marks, 2000), Copenhagen Burnout Inventory (Kristensen et al, 2005) and the Big Five Inventory (John & Srivastava, 1999). Majority of the respondents were females with n = 186 (89.9%) and the mean age was 43.45 years (SD = 8.81). Over 90% were married with children and has been teaching for an average of 17.93 yers (SD= 8.26).

Using Structural Equations Modelling (SEM) to analyse the data, results showed both WIF and FIW positively increased all three dimensions of burnout (work, client and personal). Furthermore, significant interaction effects between three of five BFI personality traits were found. Extraversion was found to decrease the negative effects of FIW on Work-related burnout, while conscientiousness exacerbated the effects of FIW on personal burnout and low agreeableness buffered

the effects of FIW on personal burnout but increased the effects of FIW when agreeableness is high.

Areas for development and improvement of support for teachers will be presented further in detail. Implications of the study suggest that as burned out teachers negatively affect themselves, their co-workers, students and the educational system in general (Hughes, 2001), it is necessary to develop a greater understanding on how we can harness individual differences to reduce the deleterious effects of WFC amongst teachers. Specific personality traits can be harnessed to help promote better well-being amongst teacher and prepare them better for the challenges of the profession.

The mediating effects of psychological distress and emotional-demand ability fit in the relationship between job burnout and work-life balance among teaching hospital nurses

Abimbola Akannil (Obafemi Awolowo University, Ile-Ife)

Work-life balance has been described as proper prioritizing between work and life domains. This is crucial among nurses because they are responsible for the provision of healthcare to patients (Sakthivel & Jayakrishnan, 2012). However, the inability to balance work and life roles may portend negative consequences for both the individual and the organisations they work for (Tomazevic, Kozjek & Stere, 2014). A number of previous studies have examined factors that relate to work-life balance among nurses. For instance, job burnout and psychological distress have been found to be negatively related nurses' inability to balance work and life roles. Similarly, emotional demand ability fit has also been reported to be associated with work-life balance. Nonetheless, the process through which this association is possible has received insufficient research attention in literature. Therefore, this study investigated the indirect effects of psychological distress and emotional demand-ability fit in the relationship between job burnout and work-life balance among nurses. A sample of 226 nurses that were selected through the simple random sampling technique from a Teaching hospital in Nigeria responded to the Work-Life Balance Scale, Maslach Job Burnout Scale, Kessler Psychological Distress Scale and Emotional Demand-Ability fit Scale. Both the convergent and discriminant validity of the measurement model were conducted using the Structural Equation Modelling to establish the Confirmatory Factor Analysis (CFA) of the instruments while Hayes (2013) PROCESS Macro statistical tools was employed to test the hypotheses that were proposed for the mediation model. Results from the analyses revealed that job burnout did not predict nurses' work-life balance but predicted emotional demand-ability fit. In addition, psychological distress did not predict work-life balance. Emotional demand ability fit was found to predict work-life balance. Furthermore, job burnout had an indirect effect on work-life balance through emotional demand ability fit. The study recommended that employment of more nurses might reduce the extent of job burnout because of constant exposure to more workload. Recurrent training from psychologists on how nurses can develop emotional intelligence may also help to dampen the effect of burnout on the capacity to balance work and life roles.

Salon 10

Stress and Violence in Fire-Based EMS Responders (SAVER)

SYMPOSIUM

Chair: Jennifer Taylor (Drexel University)

Problem. Emergency Medical Service (EMS) responders deliver patient care in high-risk, high-stress, and highly variable scenarios. This unpredictable work environment exposes EMS responders to many risks, one of which is violence. Between 57 and 93% of EMS responders reported experiencing an act of verbal and/or physical violence from a patient or bystander at least once in their career. Furthermore, the EMS system is strained as they respond to increasing community demand. Of the 34.7 million calls to 9-1-1 in 2017, the majority (64%) were for medical assistance (Evarts, 2018). This represents a continually growing trend in the United States. Subsequently, a major challenge confronting EMS is understanding the organizational, mental health, and safety burden that EMS providers experience.

Procedures. The symposia will guide listeners through the progression of a FEMA-funded study, "Stress and Violence in fire-based EMS Responders (SAVER)." Presentations will describe the SAVER project, the development of a systems-level intervention, and consensus building process involving 41 diverse subject matter experts. We will also describe a collaborative multi-disciplinary event, the "Hackmanathon," which leveraged groups and teams scientists at the Interdisciplinary Network of Group Researchers' (INGRoup) to propose ideas that may provide solutions for mitigating violence against first responders. Lastly, we will have a key stakeholder speak to their first-hand experience with violence on the job, as well as their perspective of the SAVER project and the meaning and utility it holds for the fire and rescue service.

Analyses. These presentations use a combination of Quantitative, Qualitative, and Mixed Methods.

Results. In the first presentation, we will present the SAVER checklist, a comprehensive inventory of best practices, policies, and procedures for all levels of the fire department including dispatch, EMS responders, leadership, and union officials. A timeline for checklist implementation and mixed methods evaluation will also be discussed. The next presentation will describe solutions developed from the "Hackmanathon." We will present the results of the hackathon event including the potential solutions and ideas generated by the three interdisciplinary teams that offer unique interventions to improve first responder safety with the common thread of the multi-team system (MTS) framework. The final presentation will offer an example of first-hand experience with violence on job, reflections on the consensus conference, and the final SAVER checklist to be discussed by a front-line EMS provider.

Practical implications. The findings in this study have practical implications as researchers and first responders' work together to address stress and violence in EMS. The results of this work with the fire and rescue service hold potential influence for injury and violence prevention in other occupations as well.

Conclusions. To date, no evidence-based intervention exists to prepare EMS responders for violence on the job. This symposia will describe the issue of violence against EMS responders, as well as a developing systems-level intervention, and a crucial stakeholder

perspective. The systems checklist has the potential to reduce injury exposures from violence, impact self-reported mental health metrics, and improve organizational outcomes (e.g., burnout, job satisfaction, engagement). These improvements - intended to benefit the worker - may also lead to improved patient outcomes and quality of care. Additionally, the systems-approach to addressing stress and violence in EMS responders holds potential for injury and violence prevention across industries and disciplines.

Stress and Violence in fire-based Emergency Medical Services Responders: Developing a Systems-Level Checklist

Regan Murray (Drexel University)

A. Problem. In the United States, calls for emergency medical services (EMS) have increased approximately 20% each year. A major challenge confronting EMS is understanding the organizational, mental health, and safety burden that providers experience as they respond to increasing community demand. An understudied aspect of this demanding work is the impact of violence from patients against EMS responders. A multitude of best practices to address violence are outlined in industry trade journals, but none are organized in a way that first responders and leadership can readily implement. B. Procedures. A multi-level industry-specific systems-level checklist of policies and procedures for preventing and mitigating violence against fire-based EMS responders was informed by a previously published systematic literature review. Fire and EMS leaders, academic researchers, front line workers, and labor representatives were convened for a two-day consensus building conference to establish agreement on checklist items. ThinkTank and ThinkLets technology facilitated brainstorming, convergence, organization, evaluation, and consensus building activities. A brief processing period followed, and a final review of the checklist then proceeded amid a large-group facilitated session. C. Analyses. Audio and visual files from the interviews and focus groups were transcribed for data analysis, de-identified, and verified by a research team member for accuracy. A coding structure was developed to code the qualitative data using Nvivo 12, a qualitative data analysis software. As the transcripts were coded and analyzed, the researchers looked for patterns in attitudes and beliefs across emergent themes, as well as contrasting viewpoints. D. Results. We will present the resultant systems checklist, a comprehensive inventory of best practices, policies, and procedures for all levels of the fire department including dispatch, EMS responders, leadership, and union officials. Strategies and barriers to consensus building will be discussed as well as a timeline for checklist implementation and mixed methods evaluation. E. Practical implications. The findings in this study have practical implications as researchers and first responders' work together to address stress and violence in EMS. Our findings identify numerous items at the policy, training, and environmental levels that will help move the fire and rescue service from a reactionary viewpoint to prevention-oriented focus. F. Conclusions. To date, no evidence-based intervention exists to prepare EMS responders for violence on the job. A multi-disciplinary consensus building process led to a systems checklist that speaks to each phase of emergency response (1) traveling to the event, 2) scene arrival/prior to entry, 3) patient care, 4) transport to the hospital, 5) transfer to ED staff, and 6) assessing readiness to return to service), in addition to pre-event conditions and post-event follow-up. The checklist has the potential to reduce injury exposures from violence, impact self-reported mental health metrics, and improve organizational outcomes (e.g., burnout, job satisfaction, engagement). These improvements- intended to benefit the worker- may also lead to improved patient outcomes and quality of care.

Stakeholder Perspectives on Violence in EMS and Results of the "Systems Checklist Consensus Conference"

Benjamin Vernon (Technical Rescue Team, Hazmat Team and California Task Force 8—Urban Search and Rescue Team)

A. Problem. In the United States, calls for emergency medical services (EMS) increase approximately 20% each year. Increasing community demand for services presents major challenges for the organizational, mental health, and safety burden experienced by our nation's first responders. An understudied aspect of this demanding work is the impact of violence from patients against EMS responders. Between 57 and 93% of EMS responders reported having experienced verbal and/or physical violence at least once in their career. First responders are on the front line of patient care and service but research has also shown they are on the front line of exposure to violence. To date, there exist no evidence-based interventions that prepare first responders for handling violence on the job. B. Procedures. In July 2018, 41 diverse subject matter experts representing 27 different fire service and EMS organizations, government, academia, unions, and fire departments were invited to a two-day consensus conference. In order to ensure organizational and occupational representation from each of the four participating fire department study sites, one individual from each of the following fire department levels was invited: leadership, union, EMS field supervisor, and paramedic with 10-15 years of experience. We deployed a facilitated consensus-building collaboration method using a series of focus groups structured around three separate ThinkLet systems. The three ThinkLet systems were used to facilitate consensus-building, collaboration, and evaluation of the checklist. C. Analyses. The ThinkLets were designed to allow subject matter experts an opportunity to generate ideas, come to some convergence around the proposed modifications, and then vote on the feasibility of the resultant checklist. A process evaluation comprised of qualitative and quantitative measures was conducted to assess the effectiveness of the consensus processes. D. Results. We will present a compelling and emotional background to the issue of violence in EMS from a first-hand experience. We will then discuss the consensus building process results of the Systems Checklist Consensus Conference from a key stakeholder perspective. E. Practical implications. The SAVER Systems-level Checklist is an innovative application of traditional checklists, designed to shift the onus of safety and health from that of the individual first responder to the organization by focusing on actions that leadership can institute through training, policy, and environmental modifications. The checklist incorporates best practices compiled from 40 years of academic and industry publications, to codify in one place, strategies to keep EMS responders safe on the job. The checklist underscores important aspects of the EMS response that are critical to responder safety, as identified and supported by over 41 diverse subject matter experts. F. Conclusions. By utilizing the highly efficient ThinkLet process, key SMEs in the field of EMS were able to come to consensus within a two-day conference format to ensure the systems-level checklist was comprehensive for all phases of EMS response. With a focus on systems-level actions, the checklist requires leaders and representatives in both the department and union to work in collaboration with one another to maximize the acceptability and impact of the checklist upon implementation. The checklist should be used to promote dialogue, out-of-the box thinking, and goal setting for departments and union leadership over time. As

all checklist items have been developed within the systems framework, the organization and decision-makers must assess the facilitators and barriers to implementing each checklist item and incorporate this into their plan. This important dialogue will be crucial to the overall impact and support felt by the front-line providers, and will be discussed by a front-line provider.

Mitigating Violence against First Responder Teams: Results and Ideas from the "Hackmanathon"

Joseph Allen (University of Nebraska Omaha)

A. Problem. First responders are on the front line of patient care and service but research has also shown they are on the front line of exposure to violence. Currently, there is a lack of evidence-based interventions that prepare first responders for handling violence on the job. With the increase of Emergency Medical Services (EMS) calls and reports of at least 57% of EMS responders having experienced violence on the job there is a need to develop systematic solutions to improve emergency responder safety. B. Procedures. Using an adapted version of the hackathon method, academic scholar and practitioner conference attendees at the Interdisciplinary Network of Group Researchers' (INGRoup) Conference were deployed to analyze the issue and develop specific solutions for violence against first responders. Individuals and teams were recruited via an announcement to INGRoup membership via the member listserv and website. Each individual or team submitted applications for participation and the INGRoup Conference Program Director assembled the teams to provide an equal distribution of faculty and students. Hackmanathon participants were then organized into three teams of four individuals (N = 12). Teams were provided key information concerning the problem and then collaborated over three days before sharing their innovated ideas for evaluation by other groups and teams experts, as well as EMS researchers. C. Analyses. The goal of a hackathon is to create usable software or hardware with the goal of creating a functioning product by the end of the event. Hackathons tend to have a specific focus, in this case developing multi-disciplinary solutions to mitigate violence against first responders. D. Results. We will present the proposed ideas and potential solutions generated by the three interdisciplinary teams. We will correlate these results with the "Stress and Violence in fire-based EMS Responders (SAVER)" Systems Checklist Consensus Conference that occurred in July 2018. Additionally, a general discussion of the feasibility of the ideas and plans for intervention implementation will be discussed E. Practical implications. The Hackmanthon brought together EMS responders with teams and team dynamics researchers, to develop new ways to mitigate, reduce, or eliminate violence against first responder teams. The Hackmanathon teams considered both the organizational and environmental constraints. They considered the MTS in which these responder teams are embedded, and in some cases this impacted their final proposed approach/solution. Future steps involve presenting results to key stakeholders for further input on the design and implementation strategies of proposed interventions. F. Conclusions. Solutions from three multi-disciplinary teams are presented that offer unique interventions to improve first responder safety with the common thread of the multi-team system (MTS) framework. A multi-disciplinary hackathon event led to the development of creative potential solutions to the wicked problem of violence against first responders. These solutions have the potential to reduce injury and exposure to violence. Much work is needed to deploy these potential solutions and determine how effective these ideas may be. Additionally, if interventions developed by groups and teams scientists AND done so in a short, structured problem-solving event prove to be effective, additional hackathon-style events of this nature may be useful for other wicked problems related to injury and violence prevention.

Independence Ballroom CD

The New Trend in National Organizational Work Stress Assessment Tools: Challenges, Successes, and Lessons Learned

SYMPOSIUM

Chair: Naomi Swanson (NIOSH)

To address the "future of work" we must begin to address the importance of "healthy work," particularly what it is and how we can promote healthy work and reduce risks from the psychosocial work environment (stressors) that contribute to mental disorders (Theorell 2015) and chronic physical illnesses including high blood pressure (Landsbergis AJPH), diabetes, and cardiovascular disease. The APA-NIOSH Work, Stress and Health 2019 conference asks "What can organizations do to sustain the health and productivity of workers?" One way of answering this question is to assess whether or to what extent organizations' offer healthy work and to identify "unhealthy work" policies or practices that could be improved. While NIOSH measures "quality of work life" in a nationally representative sample every four years in the United States, this survey has not been validated as a standardized tool for organizations in the U.S. to easily assess the quality of their jobs or the level of work stress in their workforces.

Many other countries (United Kingdom, Canada, South Korea, Spain, Mexico, Colombia, and Chile) have instituted, to varying levels, national legislation, regulations or guidelines aimed at encouraging or requiring organizations to measure and address psychosocial work stressors to improve the (mental) health, safety and well-being of workers. In several cases this has resulted in the development of standardized work stress/organization assessment survey(s), some of which have been made available online for organizations to administer to their employees somewhat autonomously from experts. A previous international comparison study (Choi et al 2nd TWH Conference, 2018) found the most common domains in the instruments are as follows: job control, psychological job demands, coworker and supervisor support at work, quality of management and leadership, recognition and rewards, job insecurity, role conflict/clarity, bullying/harassment/discrimination, physical safety/violence, and work/family balance. A large quantity of (anonymous) individual employee and organizational data across most sectors have been collected on work stress exposures and health in several of these countries. However, the intent of these efforts is not just to collect surveillance data, but to prompt organizations to address and implement organizational changes that will address these work stressors and improve the mental and physical health and well-being of workers.

This symposium will present some of the varying psychosocial work stress assessment efforts that are occurring in Canada and Columbia and also the development of a similar tool for individuals or organizations to measure "healthy work" in the United States.

The first presenter, John Oudyk will discuss the development and current implementation of an online survey and app called

StressAssess which was jointly developed by the "Mental Injury Tool Group" which was a coalition of worker representatives, academics and the Occupational Health Clinics for Ontario Workers (OHCOW). Users (both individuals and workplaces) can complete StressAssess which consists of items from the Copenhagen Psychosocial Questionnaire (COPSOQ II) as well as other items, and have their responses automatically scored and receive a report which compares scores to a Canadian national population average and provides ideas for improving workplace psychosocial conditions.

Viviola Gómez will present on the legislation that was passed by the Colombian government (in 2008) that requires all companies to complete a standardized work stress assessment tool. The presentation also describe some problems of this tool and the development of an alternative instrument. This has led to the development of an online version which is more accessible to companies, overcome some of the limitations of the official tool and has resulted in the collection of data from over 300,000 Colombian workers across multiple sectors.

Finally, Dr. BongKyoo Choi will present on the development and validation of the NIOSH Quality of Work Life survey for use as a short work stress assessment tool (Healthy Work Survey) that will be provided to individuals and organizations as part of the Healthy Work Campaign, a public health campaign sponsored by the non-profit organization the Center for Social Epidemiology and a growing list of partners. The Healthy Work Survey will be an online survey that will be provided for free and will include an automated scoring and report similar to the Canadian StressAssess tool but will allow for comparisons to U.S. national averages in the major work stress domains.

The discussant, Dr. Peter Schnall, will summarize the commonalities and differences in these efforts, directions that the U.S. could take, and some questions for discussion. Issues to be addressed include, what was the impetus in the different national contexts for addressing work stress prevention/healthy workplaces? What unique challenges were experienced in passing legislation, developing a standardized tool, and how were these overcome? What are the main lessons learned in how best to collect data with companies/organizations? What are the successes or challenges in having organizations respond to survey results for the purpose of improving work organization?

A Canadian Experience with Providing a Workplace Psychosocial Survey Tool

John Oudyk (Occupational Health Clinics for Ontario Workers)

In Canada there is a growing inclusion of the psychosocial factors of work into health and safety (Shain, 2009). While in Canadian regulations only the extremes of psychosocial hazards have been recognized, e.g. violence, harassment and post-traumatic stress disorder, gradually recognition is spreading to include the effects of chronic workplace stressors and psychosocial well-being (Lippel, 2011). In the last decade a large disability insurance company has sponsored the development of an online survey to help employers deal with absenteeism due to workplace stress (Great-West Life Centre for Mental Health in the Workplace's Workplace Strategies for Mental Health, 2019). While organized labour has recognized workplace stress as a high priority issue for decades, a major obstacle to addressing it was the lack of worker-friendly tools for psychosocial assessments (Landbergis, 1994). A working group of union worker representatives, academics and occupational health clinics (Mental Injury Tool Group) identified the lack of tools as a priority and reviewed a number of work stress questionnaires. After considering many theoretical frameworks along with their associated tools, many of which were European, and in consultation with ISTAS in Spain (Moncada, 2011), the Copenhagen Psychosocial Questionnaire (COPSOQ II - Pejtersen, 2010) was selected for content validity purposes and pilot tested. Feedback from workers during trial administrations indicated that additional items were needed for better face validity. In 2012, the Mental Injury Tool Group launched their survey which was administered through the Occupational Health Clinics for Ontario Workers or various unions if they felt capable. Initially, Danish population data was used for comparisons. However in 2016, a Canada-wide survey was commissioned enabling workplace survey results to be compared to a representative sample of working Canadians. With the assistance of the Institute of Work and Health (IWH), the psychometric properties of the survey were successfully established. In late 2017, in cooperation with the Canadian Centre for Occupational Health and Safety (CCCOHS) an online survey administration tool (StressAssess) was launched to allow workplaces to set up their own workplace stress questionnaires, administer them and receive an automated report of their results. To date there are over 500 valid survey accounts which have created over 130 surveys. Most of these surveys have been test surveys, not distributed widely in workplaces. About 30 of these surveys represent actual surveys that were conducted within real workplaces. Based on our workplace field experience (about 130 workplaces since 2012), the use of a survey works best in workplace extremes: high functioning workplaces and toxic workplaces. While the web application makes the administration of the survey relatively easy, most workplaces are not prepared to respond to the results. This experience has led us to recommend a five-step approach to workplace psychosocial assessments: learn, organize, assess, change, evaluate, which form a continuous improvement loop. One of the issues hindering progress in workplaces is the framing of psychosocial problems in the workplace only on the individual level (i.e. personal mental health issue). Saksvik and Karanika-Murray (2017) describe a framework including primary, secondary and tertiary prevention interventions at four levels: individual, group, organizational and societal. Making the workplaces aware of the possibilities of interventions at other levels beyond the individual level, broadens their horizon for possible changes to reduce workplace stressors. Based on our experience to date, we have been able to provide a tool with acceptable psychometric properties free of charge to workplace parties. However, the ease of creating and administering a psychosocial survey in the workplace contrasts sharply with the workplace's capability to respond to the results. Following the "learn/organize/assess/change/evaluate" advice can assist workplaces to provide a supportive context in which to administer the survey, however, workplaces need to frame the issue beyond the individual level.

Work stress assessment in Colombia

Viviola Gomez-Ortiz (University of the Andes)

In 2008, the Colombian Ministry of Social Protection published Resolution 2646 which regulated the responsibilities of Colombian employers regarding the prevention, diagnosis, intervention, and control of Psychosocial Risk Factors at the Workplace (Ministry of Social Protection, 2008). The resolution emphasizes the importance of using instruments validated in Colombia to measure these variables. In 2010, the Ministry of Social Protection commissioned the design of a battery of instruments that would assess psychosocial risk factors (Ministry of Social Protection, 2010). This official battery offers the following benefits: a) it includes a number of questionnaires

in use in the public domain, b) it includes a large number of variables and information the Ministry expects to be assessed, and c) it offers other resources for the assessment of psychosocial risks at the workplace. The Ministry's questionnaire is the most widely used assessment resource; however, it does contain a number of practical and theoretical limitations. The practical limitations include: a) a restriction to being computer applied, it can only be administered using paper and pencil (Ministry of Social Protection, 2011); b) the impossibility of comparing occupations, given it only assesses certain types of positions (managers/supervisors, professionals, technicians, auxiliaries-workers); c) the complexity in terms of the planning and application of tests; d) the impossibility of obtaining a consolidated score per variable; e) an incomplete diagnosis given that it does not cover all the variables pinpointed in the resolution; and finally, f) for the purposes of research and epidemiological studies, the fact that it uses completely new questionnaires. The Colombian government questionnaire introduces an additional limiting factor as it makes it impossible to compare the results obtained with it to the results of earlier studies of Colombians that utilized job strain and ERI or with results for workers in other parts of the world. The theoretical limitations of the battery, on the other hand, include that the authors designed it based on a) the effort-reward imbalance model, b) the demand-control-social support model, c) the factorial structure of the Copenhagen Psychosocial Questionnaire, d) the Ivancevich and Matteson theory on stress, and e) the country's needs and the authors' previous research and experience (Villalobos, Vargas, Rondón, & Felknor, 2013). However, while some of the components of the demand-control-social support (DCS) and effort-reward imbalance (ERI) models were used (psychological demands, job control, rewards, and social support), others that are an integral part of the models were omitted (effort, over-commitment, job strain, and effort-reward imbalance). To overcome some of the limitations of the Ministry's questionnaire, a new survey (BRT) was designed and validated by the "Stress and Health" group and Prax Consulting. The BRT included additional instruments and risk indicators of the demand-control-social support and the effort-reward imbalance models. Other factors, not included in these models, but that Resolution 2646 suggests should be assessed, have also been added. With this additional information, the new battery allows the calculation of a "global indicator" of demand, control, and social support. The BRT was administered to a sample of 16,095 workers from different occupations and representative Colombian regions. An analysis of the various domains indicates that the internal consistency of the various scales is high. The new survey has the following properties: it is simple to use in paper format or when administered by computer, it enables comparison between occupations, it offers unified scores for each variable, and provides information to assess the risk factors suggested by Resolution 2646. In addition, it makes it possible to compare the results obtained when analyzing Colombian workers with those obtained from studies of workers from other countries. Despite the strengths pointed out, the BRT has a number of limitations including, some economic sectors such as the agricultural and livestock sector are not adequately represented in the current sample. Another limitation is the limited number of criterion variables (i.e., dependent variables) used for its validation. In the future, it will be necessary to add other health indicators, particularly those that are objective indicators for mental and physical health, as well as performance indicators. However, for now, the new computerized survey is being used by a private company and by the Stress and Health research group (allies in this project) to offer services to interested companies and undertake research that allows the national community access to information regarding the health and well-being of those affiliated with the Colombian Social Security System, and their relationship to psychosocial conditions at work. In the future, we hope to amplify the information assessed via the battery, carry out longitudinal research studies, and assess the impact of interventions arising from use of the new survey. So far, data on over 300,000 Colombian working people has been collected and initial results describing this population have been published.

Developing a short on-line standard questionnaire for work organization risk assessment in the US

BongKyoo Choi (University of California Irvine)

Mental health in the United States (US) is poor and getting worse (1). In 2016, there were an estimated 44.7 million adults aged 18 or older (18.3% of all US adults) in the US with any mental illness (AMI) (2). In addition, in the US, the population suicide mortality rate increased by 24% from 1999 (10.5 per 100,000) to 2014 (13.0 per 100,000), particularly among middle-aged adults. The suicide mortality rate in US working populations has also been on the rise (3). Several work organizational hazards such as low job control, job strain (a combination of low job control and high job demands), bullying, effort-reward imbalance, low social support at work, job insecurity, and long work hours have been identified as risk factors for common mental disorders in working populations (4). Many countries (European countries, United Kingdom, Canada, and Colombia) have developed national guidelines or regulations as an important national strategy for the primary prevention of work stress. In addition, some countries (United Kingdom) have developed a short standard questionnaire for assessing major work stressors to help workplace stakeholders (unions, management, and workers) to prevent work stress and improve mental health of the workforce. However, in the US, there is no national comprehensive guideline or regulation for the prevention of work stress. Also, there is no standard work organization risk assessment tool. Although the NIOSH Quality of Working Life (QWL) questionnaire has been used as part of the General Social Survey (GSS) since 2002, it is not recognized as a national standard tool, nor used widely for work stress prevention. As part of the on-going Healthy Work Campaign (https://healthywork.org/), the Healthy Work Survey (HWS) project aims to develop a short standard questionnaire for work organization risk assessment in US workplaces. The first stage of the HWS project is to validate the NIOSH QWL questionnaire items about major work stressors for selecting best items to be included in the HWS. The four-wave data of the GSS-QWL in 2002, 2006, 2010, and 2014 (N= 5,914 workers) will be used for psychometric validity analyses. In detail, face validity, factor structure using factor analysis, and internal consistency will be examined. The latter two statistics will be replicated by age, gender, occupation, race/ethnicity, and time period. In addition, two more sophisticated psychometric analyses will be conducted: differential item functioning and differential item effect. The former is to ensure the item-level measurement equivalence between comparison groups (e.g., age, gender, occupation, race, and time period). The latter is to ensure whether the items in a scale are equally predictive for health outcomes of interest. The second stage of the HWS project is to conduct an extensive literature review on new work stressors (e.g., low wages, emotional labor/demands, and electronic surveillance) that are important in the contemporary working life of US workers, but not included yet in the current NIOSH QWL questionnaire. The final stage of the HWS project is to turn the to-be-developed HWS into an on-line questionnaire

for work organization risk assessment for US workers. We plan to incorporate two main functions into the online HWS: 1) automatic scale scoring and 2) comparison to national statistics from the NIOSH QWL data (2002-2014). In the process of the development of the HWS, we will work together with the representatives of national workplace stakeholders and also experts on work organization hazards and health (e.g., the NIOSH Healthy Work Design and Well-being Council members). The HWS, if successfully developed and supported by workplace stakeholders and work stress experts, will significantly increase the awareness of work organization hazards and facilitate societal and worksite-based interventions for healthy work organization in the US by identifying important work stressors and enabling a comparison to national statistics. We also believe that the HWS will function as an essential tool for developing and promoting a national comprehensive guideline or standard for work stress prevention in the US.

Discussant: Peter Schnall

4:00–5:00 p.m.
Philadelphia Ballroom North

Closing Session

WSH 2019 Closing Session, including presentation of Best Student Research Competition and Best Intervention Competition awards, discussion of key takeaways from this year's conference and future directions for the field, and details regarding WSH 2021.

Best Student Research Award

Award presentation by Adam Butler (University of Northern Iowa)

Best Intervention Award

Ruben Vonderlin, Miriam Ostermann, Nikolaus Kleindienst, Martin Bohus, & Lisa Lyssenko (Central Institute of Mental Health, Mannheim, Heidelberg University, Germany; McLain Hospital, Harvard Medical School, Boston, Massachusetts)

Effectiveness of a Mindfulness– and Skill-Based Health Promoting Leadership Intervention on Supervisor and Employee Level: A controlled multisite Field Trial

Award presentation by Ted Scharf (NIOSH)

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