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Combat Exposure and Mental Health Outcomes: The Incremental Impact of Nonsexual Harassment on Women Veterans

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Objective: This study investigated the impact of combat exposure and nonsexual harassment (verbal and nonverbal behaviors that convey negative and harmful attitudes on the basis of minority status) on mental health functioning in female veterans who were deployed Afghanistan and Iraq. **Method:** Participants ($N = 134$) completed measures of combat exposure, nonsexual harassment, PTSD, depression, and alcohol use. **Results:** Binary logistic regression models indicated nonsexual harassment was significantly associated with later symptoms of PTSD and depression, but not problem drinking; combat exposure was significantly associated with symptoms of PTSD and alcohol use, but not depression. Relative risk ratios indicated that for women with even minimal exposure to combat, experiencing nonsexual harassment significantly increased the likelihood of manifesting PTSD, depression, and problem drinking symptoms that met at least minimum threshold for clinical diagnoses. The impact of nonsexual harassment resulted in an almost 4 times greater risk for PTSD symptoms and problem drinking and up to 6 times greater risk for depression when experienced concurrently with combat exposure. **Conclusions:** Although nonsexual harassment does not pose the same physical threat as assault from enemy fire, findings suggest that it does pose an invisible threat to mental health and contribute to understanding and contextualizing the impact of nonsexual harassment on female veterans' psychological well-being.

Clinical Impact Statement

This study identifies nonsexual harassment is a potential target for prevention and early intervention to reduce the likelihood of experiencing mental health problems following deployment. This study also illuminates the compound risk of experiencing combat exposure and harassment, alerting primary care providers and clinicians alike to the potential threat of these comorbid experiences in female veterans.

Keywords: nonsexual harassment, women veterans, combat exposure, mental health

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The United States armed forces have seen an unprecedented increase in the number of women joining the military over the last 2 decades. Women currently represent nearly 21% of active duty military, 19% of Guard and Reserve forces, and 22% of new applicants (Office of the U.S. Secretary of Defense, Personnel and Readiness, 2018). Currently, women comprise approximately 10% of the veteran population (U.S. Department of Veterans Affairs, 2020); however, by 2042; women are expected to make up 16% of all veterans (National Center for Veterans Analysis and Statistics, U.S. Department of Veterans Affairs, 2017). In comparison to previous cohorts, women in today's military have access to a greater variety of military occupational specialties, are more likely to undergo lengthy and multiple tours of duty, and experience levels of combat exposure only minimally lower than men (Vogt et al., 2011). These changes have prompted efforts to understand women's unique mental health outcomes and treatment needs as they transition from active duty to veteran status.

Female veterans deployed to Iraq and Afghanistan represent the largest cohort of women in U.S. history who were actively involved in combat operations. Women service members' increased and evolving involvement in conflicts abroad has resulted in a number of studies seeking to understand the association between women's military experiences and specific indicators of mental health following deployment. These have revealed a significant and positive association between deployment and adverse mental health outcomes. Compared to male veterans, female veterans who deployed to the U.S. conflicts in Iraq and Afghanistan have a higher prevalence of depression (Maguen et al., 2010). Previous studies also indicate that suicide mortality ratios among female veterans are higher than in male veterans (1.87 vs. 1.66, respectively; McCarthy et al., 2009)¹. Female veterans are as likely as men to develop posttraumatic stress disorder (PTSD; Street et al., 2013). It is estimated that the prevalence of PTSD among women who deployed to the U.S. conflicts in Iraq and Afghanistan is as high as 23% (Fulton et al., 2015). Although alcohol misuse rates are generally lower among female than male veterans (Hoggatt et al., 2015), female veterans who report alcohol misuse are less likely than male veterans to seek substance abuse services, including intensive outpatient programs (Creech & Borsari, 2014).

Beyond deployment and combat exposure, both qualitative and quantitative studies indicate that women are exposed to stressors that increase the risk of adverse mental health outcomes before, during, and after military service. Higher rates of childhood trauma, nonmilitary sexual assault, and intimate partner violence have repeatedly been documented among female service members (Carlson et al., 2013). Consistent with studies on revictimization (Creech & Orchowski, 2016), women experience alarmingly high rates of sexual assault and sexual harassment during their military service, with 38.4% of female veterans reporting both sexual harassment and assault and 23.6% of female veterans reporting sexual assault only (Wilson, 2018). Despite citing occupational and vocational training opportunities as reasons for enlisting, female veterans are also disproportionately more likely than male veterans to contend with financial and health concerns linked to adverse mental health outcomes after serving, such as lower socioeconomic and employment status relative to educational levels (National Center for Veterans Analysis and Statistics, U.S. Department of Veterans Affairs, 2017) and a higher likelihood of developing physical health problems (Montgomery & Byrne, 2014).

Independent of one another, these noncombat life stressors are known to impact mental health. When experienced in a cumulative fashion, however, this "chronic environmental strain" (Peirce et al., 2002) can lead to greater overall distress in psychological and physical well-being (Watkins & Whaley, 2000). More recently, research has begun to uncover how such noncombat life stressors (e.g., job loss, relationship difficulties) are associated with changes in mental health outcomes, specifically PTSD, over time for women but not for men (Creech et al., 2019).

Nonsexual Harassment

Nonsexual harassment is an additional yet understudied stressor frequently experienced by women in the military (Vogt et al., 2013). Nonsexual harassment is distinct from sexual harassment, which includes unwanted sexual attention (e.g., unwanted touching, pressure for dates or sexual behavior) and sexual coercion (e.g., offering a promotion in exchange for sexual favors, threatening termination unless sexual demands are met). Nonsexual harassment encompasses a broad range of nonsexualized verbal and nonverbal behaviors that convey hostile, degrading, discriminating, or objectifying attitudes toward an individual on the basis of biological sex, gender, sexual orientation, race, ethnicity, or other social status characteristic (Vogt et al., 2013). Nonsexual harassment includes insulting, singling out, or treating members of one group as inferior and needing to prove themselves to others. Examples include deliberate sabotage, indirect threat, constant scrutiny, gossip, negative comments, offensive jokes, being ignored or given menial jobs, social exclusion, denial of reward or benefits, and physical threats or assault (King et al., 2006). These behaviors differ from sexual harassment in that their primary goal is to insult and reject on the basis of identity rather than coerce into a sexual relationship. Whereas men generally report higher levels of combat experiences, preparedness, and unit social support, women in the military report more exposure to general harassment (Vogt et al., 2013).

One form of nonsexual harassment documented in military experiences is harassment on the basis of racial identity. In a 1996 survey of U.S. military personnel, 76% reported experiencing racial identity-related harassment (i.e. racial/ethnic insensitivity, harassment, or discrimination) in the last year, and roughly 10% reported experiencing threatening racial incidents (Antecol & Cobb-Clark, 2009). Although less well-documented, research suggests that harassment on the basis of sexual orientation also occurs in the military (e.g., Moradi, 2006; National Defense Research Institute, 2010). A Department of Defense Inspector General report surveyed more than 71,500 active duty service members regarding the prevalence of harassment and offensive speech on the basis of sexual orientation. Approximately 80% of the sample reported hearing offensive comments on the basis of sexual orientation in the year prior, and 37% of the sample reported witnessing harassment of specific individuals on the basis of perceived gay or lesbian sexual orientation in the last year (Mancuso, 2000).

Perhaps the most well-documented type of nonsexual harassment occurs on the basis of gender. Qualitative studies examining women's military experiences have revealed a theme of gender-related nonsexual harassment toward female service members (Kelly et al., 2014). Female service members report being treated as inferior, demeaned, and singled out through harassment and

verbal abuse by fellow male service members, officers, and senior officials because of their gender (Burkhart & Hogan, 2015). Although studies examining rates of gender harassment in the military remain few, available evidence suggests that as many as 35% (Kabat-Farr & Cortina, 2014) to 54% (Lipari et al., 2008) of active duty women experience some form of gender harassment or sexist behavior annually, in contrast to 22% of active duty men (Lipari et al., 2008). These rates of reported gender harassment may be artifactually low due to fear of repercussions for disclosing such experiences.

Nonsexual harassment is unlikely to occur in isolated incidents and instead is likely to function as a chronic stressor. Perhaps unsurprisingly, experiences of nonsexual harassment are shown to relate to a number of negative outcomes. Repeated encounters of gender harassment are associated with greater rates of anger, anxiety, and depression and significant declines in professional and psychological well-being (e.g., Leskinen et al., 2011). Within the military, racial harassment and discrimination have been associated with decreased job satisfaction and increased motivation to leave the military (Antecol & Cobb-Clark, 2009). In a study of risk and resilience factors during deployment in a sample of male and female veterans, gender harassment demonstrated the strongest associations with PTSD, depression, and anxiety among interpersonal deployment factors (social support, sexual harassment, and gender harassment; King et al., 2006). Within the context of lengthy and multiple deployments, especially when compounded by combat exposure, low social support, and premilitary risk factors, experiencing nonsexual harassment during deployment may comprise a substantial additional threat, jeopardizing feelings of physical and emotional safety as well as unit cohesion (Street et al., 2009).

Present Study

The present study sought to investigate the impact of nonsexual harassment and combat exposure during the most recent deployment on mental health functioning in female veterans who were deployed to missions in and around Afghanistan and Iraq. We first evaluated self-reported experiences of nonsexual harassment and combat exposure during the most recent deployment as concurrent predictors of later symptoms of PTSD, depression, and problem drinking, hypothesizing that greater nonsexual harassment and combat exposure would positively predict later symptoms. Second, we evaluated the relative risk for developing these mental health concerns associated with nonsexual harassment and combat exposure, respectively.

Method

Participants

Potential participants were contacted through a database of service members involved in the recent U.S. conflicts maintained by the VHA Office of Public Health, Postdeployment Epidemiology Program. The participant pool consisted of 600 randomly selected women who had deployed to Afghanistan or Iraq and were residing in Veterans Integrated Service Network 1 (VISN 1; New England) at the time of the study. Of the 600 mailed invitations to participate, 109 were returned due to incorrect addresses. Of the

remaining 491 eligible participants, 134 completed at least some portion of the survey.

Demographics

The total sample ($N = 134$) was predominantly White (81.3%), followed by Black (9.0%), Native American (2.2%), Asian (1.5%), and Multiracial (1.5%). An additional 4.5% identified as "Other" but this category was not defined further. Of the total sample, 7.5% ($n = 10$) identified as Hispanic or Latino. The average age of participants was 37.1 years ($SD = 8.7$, range = 23–61). On average, participants reported 16.1 years of education ($SD = 2.6$, range = 12–28). Most (82.1%) participants were currently residing with a partner, roommate, or close family member such as a child or parent. The most frequently reported relationship status was being married (47.0%), with fewer participants reporting being single (18.7%), dating (14.9%), divorced or separated (12.6%), or engaged (6.7%). The sample was evenly distributed between women who completed a deployment within the last 6 years (49.2%) and those whose most recent deployment occurred between 6 and 12 years prior (50.8%). The average duration of all prior deployments combined was 2.3 years ($SD = 1.0$, range = 1–4), with a mean of 6.7 years since the last deployment.

Procedure

Procedures were approved by the VA Institutional Review Board. Participants received an invitation letter by mail with information about the study, a document describing the informed consent, and a \$5 bill. Invitations contained a link to a survey website provided by the secure, nonsearchable survey provider PsychData. Reminder letters were sent 2 and 4 weeks after the initial invitation letter. Participants visited the website link, indicated their informed consent, and completed a 30-minute survey. The data collected were anonymous.

Measures

Combat Exposure

The Combat Experiences subscale from the Deployment Risk and Resilience Inventory-2 (DRRI-2; Vogt et al., 2013) was used to assess exposure to combat-related experiences during participants' most recent deployment. The scale contains 17 items reflecting exposure to combat (e.g., exposure to hostile fire, witnessing the death or serious injury of a member of the unit) on a 6-point Likert scale ranging from 1 (*never*) to 6 (*daily or almost daily*). Items are summed to create a total score, ranging from 17 to 102, with higher scores indicating greater exposure to combat. The DRRI-2 has good evidence of criterion-related and discriminant validity and internal consistency reliability (Vogt et al., 2013). Women in the sample reported similar levels of combat exposure as women in the DRRI-2 standardization sample, reporting average scores of 22.3 ($SD = 8.9$, range = 17–69) and 25.7 ($SD = 11.6$, range = 17–85; Vogt et al., 2013), respectively. Cronbach's alpha in the current and standardization samples was .85 and .91, respectively.

Nonsexual Harassment

The General Harassment subscale from the DRRI-2 was used to assess exposure to nonsexual harassment during each participant's most recent deployment. The scale contains eight items rated on a 4-point Likert scale ranging from 0 (*never*) to 3 (*many times*). Items are summed to create a total score ranging from 0 to 24, with higher scores reflecting more exposure to nonsexual harassment. To date, the General Harassment scale is the only validated scale intended to assess for instances of nonsexual harassment, such as "constant scrutiny, questioning one's ability and commitment, and threats to safety" within a military sample (Vogt et al., 2013)². Unlike previous measures of deployment experiences, this scale was created with the increasing deployment of larger proportions of women in mind and was intended to capture stressors more recent cohorts of veterans were likely to experience that had not been investigated within previous cohorts. Veterans in this sample reported similar levels of harassment during the most recent deployment as women in the DRRI-2 standardization sample, obtaining average scores of 5.8 ($SD = 6.3$, range = 0–22) and 6.7 ($SD = 6.5$, range = 0–24; Vogt et al., 2013), respectively. Cronbach's alpha in the current and standardization samples was .94 and .93, respectively.

PTSD Symptoms

The PTSD Checklist (PCL; Weathers et al., 1993) was used to measure symptoms of PTSD experienced in the last month based on the Diagnostic and Statistical Manual of Mental Disorders, 4th ed., text revision (*DSM-IV-TR*; APA, 2000). The PCL contains 17 items on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). Items are summed to create a total score ranging from 17 to 85, with higher scores indicating greater symptomatology in the past month. The civilian version was used to capture current symptoms in response to both military and civilian traumas. The PCL has shown acceptable test-retest reliability and internal consistency. Cronbach's alpha in this sample was .92.

Depression Symptoms

The Center for Epidemiological Studies—Depression scale (CES-D; Andresen et al., 1994) was used to measure symptoms of depression experienced in the last week. The CES-D contains 10 items rated on a 4-point Likert scale ranging from 0 (*rarely/none of the time/less than 1 day*) to 3 (*most or all the time/5–7 days*). Items are summed, and scores range from 0 to 30, with higher scores indicating greater depressive symptoms in the past week. The CES-D has demonstrated adequate psychometric properties (Andresen et al., 1994). In the present sample, Cronbach's alpha was .97.

Problem Drinking

The Alcohol Use Disorders Identification test (AUDIT; Saunders et al., 1993) was used to assess problem drinking behavior in the past 30 days. The AUDIT is a 10-item screening questionnaire consisting of three questions about the amount and frequency of drinking, three questions about alcohol dependence, and four questions about problems caused by alcohol use. Items are scored on a five-point scale ranging from 0 to 4 and summed to create a total score ranging from 0–40, with higher scores reflecting greater

levels of alcohol misuse. The measure has a reported median internal consistency reliability coefficient of .83, and adequate construct and criterion related validity. In this sample, Cronbach's alpha was .85.

Data Analysis

To determine the relative effect of combat exposure and nonsexual harassment as predictors of postdeployment mental health outcomes and compare their predictive power, we examined three binary logistic regression models predicting later PTSD symptoms, depression, and problem drinking, respectively. Combat exposure and nonsexual harassment were evaluated as continuous variables and transformed into z scores and then entered simultaneously in each regression. Initial analyses controlled for sexual harassment, as measured by the Sexual Harassment subscale from the DRRI-2 (Vogt et al., 2013) both as a main effect and in interactions with the two predictor variables. However, the main effect and interactions based on sexual harassment were each nonsignificant, and adding these terms did not significantly improve the -2 log likelihood fit of any of the models. As such, they were omitted from the final regression analyses⁴. After deleting sexual harassment from further analyses, we included main effects for both combat exposure and nonsexual harassment and their interaction terms in each model. The interaction terms between combat exposure and nonsexual harassment were subsequently removed, however, because they were nonsignificant and did not significantly improve the -2 log likelihood fit of any model³.

The outcome variables, PTSD, depression, and problem drinking symptoms, were dichotomized using clinically relevant cut scores. PTSD symptoms were dichotomized using a cut score of 36 based on suggested cut scores ranging from 31 (Yeager et al., 2007) to 38 (Dobie et al., 2002) for samples of female veterans who are not seeking mental health treatment. Depressive symptoms were dichotomized using a cut score of 11, which identifies mild depressive symptoms and risk for clinical depression (Andresen et al., 1994). Problem drinking was dichotomized using a cut score of 8, which indicates a positive screen for hazardous and risky drinking (Kroenke et al., 2001). The outcome variables were dichotomized at a low cut score to enhance sensitivity and to better identify the odds of PTSD, depression, and problem drinking symptoms even when low levels of combat exposure or harassment experiences were reported. Missing data accounted for 4.6% of the data set as a whole; listwise deletion was used for missing data.

Subsequent relative risk analyses were conducted to enhance interpretation of regression results as well as clinical utility. Both predictor variables were dichotomized as present or not present using cut scores of 18 or higher for combat exposure and scores of 1 or higher (present to any degree) for nonsexual harassment.

Results

Means and standard deviations of the predictors and outcome variables are presented in Table 1. Of the participants, 64.7% ($n = 79/122$) reported combat exposure (scores ≥ 18), and 75.8% ($n = 91/120$) reported experiencing nonsexual harassment (scores ≥ 1) during the most recent deployment. Overall, participants reported moderately high rates of adverse mental health outcomes, with 30.3% ($n = 37/122$) meeting screening criteria for PTSD, 28.5%

Table 1
Bivariate Correlations, Means, Standard Deviations, and Range of Study Variables

Variables	Combat exposure	Nonsexual harassment	PTSD	Depression	Problem drinking
Combat exposure	—	.28**	.45***	.28**	.37***
Nonsexual harassment	—	—	.25**	.30***	.16
PTSD	—	—	—	.72***	.40***
Depression	—	—	—	—	.42***
Problem drinking	—	—	—	—	—
<i>M</i>	22.27	5.79	31.98	7.48	4.78
<i>SD</i>	8.94	6.30	16.72	6.36	5.50
Range	17–69	0–22	17–85	0–29	1–37

Note. PTSD = posttraumatic stress disorder; *M* = mean; *SD* = standard deviation. Percentages based on total sample of 134.

** $p < .01$. *** $p < .001$.

($n = 35/123$) meeting screening criteria for depression, and 14.2% ($n = 19/122$) meeting screening criteria for harmful alcohol use.

Multivariate Logistic Regression

Multivariate logistic regression results are presented in Table 2. When evaluated simultaneously, both combat exposure and nonsexual harassment emerged as significant predictors of PTSD symptoms. When participants endorsed combat exposure and nonsexual harassment, the odds of reporting later PTSD symptoms were 1.83 and 1.55 times greater, respectively. Nonsexual harassment also significantly predicted depressive symptoms, although combat exposure did not, indicating that after adjusting for combat exposure, for participants who reported nonsexual harassment, the odds of reporting later depressive symptoms were 1.66 times greater. Combat exposure significantly predicted problem drinking, though nonsexual harassment did not. Thus, after adjusting for nonsexual harassment, when participants endorsed combat exposure, the odds of reporting later problem drinking were 1.76 times greater.

Relative Risk Estimates

Based on binary logistic regression results, a concurrent compound relative risk ratio analysis was conducted evaluating combat exposure and nonsexual harassment. Twenty-nine (21.6%) female veterans reported experiencing combat exposure without nonsexual harassment, and 41 (34.2%) female veterans reported experiencing nonsexual harassment without combat exposure. Sixty-three (52.5%) female veterans reported experiencing both combat exposure and nonsexual harassment, whereas 13 (10.8%) female veterans reported experiencing neither combat exposure nor nonsexual harassment.

Results of compound relative risk analyses are summarized in Table 3. Among female veterans with combat exposure, additional exposure to nonsexual harassment significantly increased their likelihood of reporting postdeployment symptoms of adverse mental health outcomes. Specifically, co-occurring experience of nonsexual harassment increased the relative risk of subsequent PTSD symptoms by 3.56 times greater likelihood, depressive symptoms by 6.19 times greater likelihood, and problem drinking by 3.81 times greater likelihood. Chi-square tests associated with relative risk ratios were each significant at $p < .05$.

Discussion

Despite evidence that nonsexual harassment is a common experience for women in the military, and that it contributes to adverse impact on psychological well-being, few studies have examined the long-term adverse mental health outcomes of women who experienced nonsexual harassment during their military service. The present study examined whether nonsexual harassment and combat experiences independently predicted clinically significant levels of postdeployment PTSD, depression, and problem drinking. Results strongly support the relevance of both nonsexual harassment and combat exposure to later mental health. Nonsexual harassment was significantly associated with later symptoms of PTSD and depression, but not problem drinking; combat exposure was significantly associated with symptoms of PTSD and alcohol use, but not depression. Moreover, relative risk ratios indicated that for women with even minimal exposure to combat, experiencing nonsexual harassment significantly increases the likelihood of manifesting PTSD, depression, and problem drinking symptoms that meet at least minimum threshold for clinical diagnoses.

Table 2
Multivariate Predictors of Postdeployment Mental Health Outcomes

Multivariate predictors	PTSD (yes/no)				Depression (yes/no)				Problem drinking (yes/no)			
	B	SE	Wald	Exp(B)	B	SE	Wald	Exp(B)	B	SE	Wald	Exp(B)
Combat exposure	.61	.25*	5.89	1.83	.34	.21	2.52	1.40	.56	.23*	6.06	1.76
Nonsexual harassment	.44	.21*	4.41	1.55	.50	.21*	5.90	1.66	.26	.26	1.08	1.30

Note. PTSD = posttraumatic stress disorder. *SE* = standard error. The Wald statistic is a chi-square value of significance. Exp(B) represents the odds ratio associated with one unit change in the predictor.

* $p < .05$.

Table 3*Relative Risk Analyses With Postdeployment Mental Health Outcomes*

Mental health outcomes	Compound relative risks	
	Nonsexual harassment with combat exposure	
PTSD	Yes (both)	No (combat exposure only)
Yes	28	2
No	35	14
RR	3.56*	
Depression		
Yes	24	1
No	38	15
RR	6.19*	
Problem drinking		
Yes	15	1
No	48	15
RR	3.81*	

Note. PTSD = posttraumatic stress disorder. RR is calculated by dividing the proportion of individuals with condition A (both combat exposure and nonsexual harassment) who also experience condition B (PTSD, depressive, or problem drinking symptoms) divided by the proportion of individuals without condition A (combat exposure but without nonsexual harassment) who experience condition B.

* $p < .05$ for predictors with significant chi-square results.

Nonsexual harassment serves as an additional threat to women in combat, increasing their risk of being at the frontline of social maltreatment (Pawelczyk, 2014). Harassment is often characterized by socially alienating, isolating, and degrading behaviors based on gender or other minority status. Although nonsexual harassment does not pose the same physical threat as assault from enemy fire, our findings suggest that it does pose an invisible threat to mental health. From a diathesis–stress model perspective, combat exposure could be thought of as the “diathesis” and nonsexual harassment in an environment compounded by the reality of facing threat for long periods of time as the “stress.” From a broader perspective beyond the findings of this study, the “diathesis” could be thought to include premilitary experiences of childhood sexual abuse and adulthood sexual assault. Considering additional stressors, such as social isolation and low unit support from peers and superiors (Street et al., 2009) as one or two females out of a dozen men in a foreign country, one can hypothesize how these factors might lead to the “perfect storm,” placing women at risk of experiencing adverse mental health outcomes due to chronic stressors beyond combat exposure (Peirce et al., 2002). These findings suggest a need for promoting cultural change and greater acceptance within the military as a way of improving mental health outcomes for vulnerable groups in the military.

Our findings also indicate that the impact of nonsexual harassment is substantially greater when experienced concurrently with combat exposure, resulting in a higher risk for negative mental health outcomes—almost 4 times greater for PTSD symptoms and problem drinking and up to 6 times greater for depression. These numbers are compelling given the strong empirical support for existing associations between problem drinking, depression, and suicide (Cigrang et al., 2015). When considering studies indicating that suicide mortality ratios among female veterans are higher than in male veterans (1.87 vs. 1.66, respectively; McCarthy et al., 2009), higher in female veterans than female civilians (Kaplan et al., 2012), and are increasing (American Foundation for Suicide

Prevention, 2016), it is imperative that nonsexual harassment be examined more closely.

From a clinical standpoint, awareness of the stressors women are likely to face throughout their military careers may be helpful in developing a comprehensive understanding of each female veteran’s experience. Clinicians can easily assess exposure to such stressors and related traumatic experiences by asking veterans whether they experienced combat and nonsexual harassment during their service. Clinicians might also inquire about additional stressors more indirectly relating to harassment, such as social isolation and low unit support from peers and superiors (Street et al., 2009), that might further increase female veterans’ risk of experiencing adverse mental health outcomes. Beyond contributing to the traditional case conceptualization process, this awareness serves as an indicator of the provider’s understanding and care toward the veteran and, in turn, strengthen the therapeutic alliance.

Perhaps more importantly, however, is identifying ways to prevent nonsexual harassment. Researchers exploring sexual assault and sexual harassment in the U.S. military have suggested disseminating risk estimates to military leaders to enhance awareness and urgency to create measurable changes, increasing specialized training, prevention, and response interventions within the military, and identifying risk factors for perpetrating and experiencing harassment (Morrall et al., 2018). A similar approach for nonsexual harassment could be adopted. Within military culture, reducing the amount of stereotyped language used in the military by higher-ranking personnel, strengthening the relations between men and women, and encouraging a focus on neutral traits such as intelligent, committed, supportive, and resilient are proposed. Such strategies could be meaningful steps toward ensuring core military values of trust, loyalty, and cohesion benefiting all military personnel, regardless of sex, gender, sexual orientation, race, ethnicity, or other social status characteristics.

The present study is not without its limitations. Our study was cross-sectional and, as such, causality cannot be inferred from these findings. Most women in the sample completed multiple deployments; therefore, results may have yielded a cumulative impact of combat exposure and nonsexual harassment experiences prior to the ones assessed during their most recent deployment. Because of the sample size, potential covariates such as age, level of education, race/ethnicity, and number of deployments were not included in the current analysis. The size of the sample also did not permit group comparisons among branches in the military or service member rankings. Moreover, given the focus of original data collection on identifying barriers to VA health care for women, retroactively modifying the measure of nonsexual harassment used in the present study to include more specific language (i.e. harassment specific to gender, sexual orientation, or other minority status) was not possible, rendering the results more exploratory rather than conclusive. However, these represent an important area of study for future research, as associations among combat exposure, nonsexual harassment, and distal mental health outcomes may differ based on these demographic and military service-related characteristics.

The analyses in this study used previously-established cut scores for the outcome measures of PTSD, depression, and problematic drinking in order to examine the impact of combat exposure and nonsexual harassment on whether a female veteran might

screen positive for these outcomes. This was in the goal of informing the use of screening measures for exposure to combat and harassment during the course of routine clinical care among female veterans. However, these cut scores should not be interpreted as indicating that an individual does or does not meet diagnostic criteria for these disorders, which would need to be confirmed using a diagnostic interview or other appropriate assessments. Additional research is needed to determine whether combat exposure and nonsexual harassment experiences predict diagnostic criteria for these mental health outcomes.

Similarly, the relative risk ratio analyses dichotomized combat exposure and nonsexual harassment experiences according to presence or absence of exposure to capture the broad effects of combat and nonsexual harassment on mental health outcomes. However, it is possible that significant exposure to combat experiences or severe or frequent experiences of nonsexual harassment may confer additional levels of risk above and beyond that of simple presence or absence of exposure, which limits generalizability of the current results to samples with more exposure. Therefore, it would be important for future studies to utilize samples with more extreme exposure to combat and nonsexual harassment, and across multiple deployments, to fully explore whether these experiences are associated with higher risk for distal mental health diagnoses. Examination of noncombat and combat-related trauma was beyond the scope of the current paper but remains an important topic for future investigation as well.

In addition to addressing these issues, future studies might examine feelings of belongingness or burdensomeness (Bryan & Corso, 2011) and unit cohesion or support (Mitchell et al., 2012), as these might yield important findings regarding the impact of psychosocial factors on mental health during and after military deployment. The protective influence of social support and feelings of belonging might buffer the impact of nonsexual harassment, whereas their absence might exacerbate the effects of such harassment. Examining the potential for suicidality as an additional adverse mental health outcome would further extend these results.

Both sexual and nonsexual harassment have the potential to impact adjustment and distal mental health outcomes through increased stress and, for deployed veterans, perceptions of lack of cohesion or safety within the unit (e.g., Street et al., 2009). The current study directly investigated risk of several mental health concerns predicted by exposure to both nonsexual harassment and combat. Although a measure of sexual harassment was omitted from the final analyses because the main and interaction effects were nonsignificant and did not improve model fit, sexual harassment represents a substantial threat to women in the military, particularly in the context of combat exposure. Future research could shed light on whether experiencing both sexual and nonsexual harassment during military service confers additional risk for later mental health concerns above and beyond those found in the current study. Assessing the frequency, context, and impact of sexual and nonsexual harassment in male veterans is an important area of study that merits further consideration as well.

The present study is the first to examine the incremental impact of nonsexual harassment on the likelihood of experiencing mental health disorders in a sample of female veterans involved in U.S. combat operations. This study identifies and contextualizes nonsexual harassment as a potential target for prevention and early

intervention to reduce the likelihood of experiencing mental health problems following deployment. This study also illuminates the compound risk of experiencing combat exposure and harassment, alerting primary care providers and clinicians alike to the potential threat of these comorbid experiences in female veterans.

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