Racism/Ethnic Discrimination and Smoking

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Smoking and stress

• Acute and chronic stress exposure and subjective experiences of distress have been linked to smoking initiation and maintenance.
Individual level racism/ethnic discrimination

- Racism is a psychosocial stressor that disproportionately affects members of ethnic or racial minority groups in the US.
- Perceived racism and discrimination (PRD) refers to directly perceived unfair treatment received within an interpersonal context.
- Interpersonal racism take many forms, including acts of social exclusion, stigmatization, unfair treatment, and/or threats and harassment.
Racism and smoking

- Experiences of racism have been associated with increased risk for cigarette smoking.

- 15 studies (14 papers) include measures of racism and smoking

<table>
<thead>
<tr>
<th>Shariff-Marco et al., 2010</th>
<th>Brook et al., 2006</th>
<th>Gibbons et al., 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weihe et al., 2010</td>
<td>Landrine &amp; Klonoff, 2006</td>
<td>Kwate et al., 2003</td>
</tr>
<tr>
<td>Borrell et al., 2010</td>
<td>Harris et al., 2006</td>
<td>Guthrie et al., 2002</td>
</tr>
<tr>
<td>Chae et al., 2008</td>
<td>Krieger et al., 2005</td>
<td>Landrine &amp; Klonoff, 2000</td>
</tr>
<tr>
<td>Borrell et al., 2007</td>
<td>Bennett et al., 2005</td>
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</table>

- 12 papers report positive effects.
- Only 3 studies did not find positive effects in some or all subgroups (Krieger et al., 2005; Chae et al., 2008; Landrine & Klonoff, 2000b).
Areas of needed research

• Gaps in knowledge
  – Dimensions of smoking
  – Role of other related sociodemographic variables
  – Mediators of the relationship of racism to smoking
  – If psychological stressors work differently depending on context.

• Addressing these gaps can help refine smoking cessation interventions.
Gaps in knowledge – Dimensions of smoking

• We don’t know a lot about the specific aspects of smoking that are affected.

• Most studies investigate self-reported smoking status, but not smoking quantity/frequency or the initiation of specific smoking episodes.
Gaps in knowledge – The role of sociodemographic variables

• We don’t fully understand the ways in which racism overlaps with other sociodemographic variables that are also linked to smoking.
RACISM/ETHNIC DISCRIMINATION

SOCIODEMOGRAPHIC FACTORS

POTENTIAL MEDIATORS

Smoking Initiation

Smoking Maintenance/Frequency
Gender and education are associated with smoking

• Men are more likely to be smokers than are women.

• Lower levels of education are associated with higher rates of smoking in national samples (CDC).

<table>
<thead>
<tr>
<th>Education level</th>
<th>Smoking prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>GED</td>
<td>45.2%</td>
</tr>
<tr>
<td>Less than high school</td>
<td>33.8%</td>
</tr>
<tr>
<td>High school diploma</td>
<td>23.8%</td>
</tr>
<tr>
<td>Completed college</td>
<td>9.9%</td>
</tr>
<tr>
<td>Graduate training</td>
<td>6.3%</td>
</tr>
</tbody>
</table>
Are the effects of racism independent of other sociodemographic variables?

• A conflicting picture:
  – In some cases, the inclusion of sociodemographic variables eliminates the effects of racism on smoking status at least for one ethnic/racial group (Borrell et al 2010 and Shariff-Marco, 2010).
  – In other cases, the effects of racism on smoking only emerge when socioedemographic variables are controlled (Chae et al 2008 and Borrell et al, 2007).
Gaps in knowledge: Potential mediators of the relationship of racism to smoking?
Gaps in knowledge - Mechanisms

• Limited and conflicting data on psychological mediators of the relationship of racism to smoking.
  — **YES**: Landrine & Klonoff (2000) and Guthrie et al. (2002) find appraisals and reports of stress are mediators.
  — **NO**: Weihe et al. (2010) find that anxiety, depression and social support did not mediate the relationship.
  — **ANOTHER MODEL**: Borell et al. (2007) find controlling for anger, control, social support/networks strengthens the relationship of racism to smoking.
Our Aims

• To further examine the relationship of interpersonal racism to smoking:
  – Looking at both current smoking, smoking frequency and episodes of smoking
  – Examine the role of sociodemographic variables as covariates, moderators.
  – Examine the role of negative moods as potential mediators of the relationship of racism to smoking.
Methods

• Data drawn from a study on interpersonal racism and ambulatory blood pressure funded by NHLBI (HL 68590).

• Participants were recruited at primary care practices affiliated with Clinical Directors Network and other local community agencies.
Methods

- 518 American-born English speaking Black and Latino adults from ages 19 to 65
- Mean age: 38.96 years [SD = 9.47]
- Women (n = 254, 49.03%)
- Black (n = 272; 52.51%)
- SES: (n = 325, 62.74%) at or below the poverty level.

- 286 of 518 (55.21%) were classified as smokers.
Measures

• Perceived Ethnic Discrimination Questionnaire – Community Version (PEDQ-CV) (Brondolo et al, 2005) (34 items, 4 subscales)
  – “Because of your race or ethnicity, how often have you....”
    • Social exclusion: “Been ignored by a clerk or waiter”
    • Workplace discrimination: “Have others thought you couldn’t do things or handle a job?”
    • Stigmatization: “Have others hinted you must be lazy?”
    • Threat/harassment: “Have others physically hurt you?”
Diary-based measures

- Readings of mood and smoking obtained every 20 minutes during waking hours using electronic diary

- Measures
  - Mood (anger, sadness, nervousness, happiness) rated on 0-100 visual analogue scale
  - Smoking (yes or no at time of reading)
Dependent variables

• Smoking status
  – yes or no on day of testing (DOT)

• Smoking frequency: Number of observations accompanied by smoking
  – Among the 286 smokers, participants smoked on an average of 34.52% of readings (sd = 22.18%; range 2% to 100%).
Gender matters...

- Men are more likely than women to be smokers.
- Men smoke more frequently than do women.

<table>
<thead>
<tr>
<th></th>
<th>Smokers (yes)</th>
<th>Frequency (% of epochs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>62.6%</td>
<td>37.3%</td>
</tr>
<tr>
<td>Women</td>
<td>37.4%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>
**Education matters...**

Smoking status ($X^2 (2) = 57.67, p < .001$)
Smoking frequency ($F(2,283) = 7.30, p < .001$)

<table>
<thead>
<tr>
<th>Levels</th>
<th>Current smoker (Yes) Total n = 286</th>
<th>Frequency of smoking (% of epochs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than High School</td>
<td>73.15% (n = 109)</td>
<td>40%</td>
</tr>
<tr>
<td>High School</td>
<td>57.03% (n = 150)</td>
<td>32%</td>
</tr>
<tr>
<td>College Graduate</td>
<td>25.47% (n = 27)</td>
<td>24%</td>
</tr>
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</table>
Racism and smoking on the day of testing (DOT)

• Logistic regressions reveal that PEDQ-CV Lifetime scores were associated with a greater likelihood of smoking on the day-of-testing.

• Logistic regression analyses revealed lifetime perceived racism was associated with a greater risk of smoking in unadjusted analyses (OR: 1.38 Wald’s 95% CI: 1.068 - 1.781, p < .02).
  – But the effects are no longer significant controlling for gender (OR: 1.20, p < .06) (and age and race; OR = 1.28, p < .08).
  – The effects are reduced further when education and poverty are added to the equation: OR = 1.16, p > .31.
Perceived racism to smoking frequency: Multilevel logistic regression analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter Estimate (PE)</th>
<th>SE</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unadjusted analyses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEDQ-CV Lifetime</td>
<td>0.2471</td>
<td>0.0929</td>
<td>2.55</td>
<td>&lt; .01</td>
</tr>
<tr>
<td><strong>Adjusting for gender (and age and race)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEDQ-CV</td>
<td>0.2180</td>
<td>0.0938</td>
<td>2.32</td>
<td>&lt; .05</td>
</tr>
<tr>
<td><strong>Adjusting for education and poverty level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEDQ-CV</td>
<td>0.1966</td>
<td>0.0923</td>
<td>2.13</td>
<td>&lt; .05</td>
</tr>
</tbody>
</table>
Moderating effects?

- No moderating effects on either smoking status or smoking frequency of
  - Age
  - Gender
  - Race
  - Education
  - Poverty Level
Gaps in knowledge: Potential mediators of the relationship of racism to smoking?
What are the mediators?

- Perceived racism was associated with mean levels of daily average sadness, nervousness and anger.

<table>
<thead>
<tr>
<th>Daily levels of</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadness</td>
<td>0.4071*</td>
</tr>
<tr>
<td>Anger</td>
<td>0.4549*</td>
</tr>
<tr>
<td>Nervousness</td>
<td>0.4953*</td>
</tr>
</tbody>
</table>
What are the mediators?

- Only mean levels of daily average sadness, but not nervousness and anger were associated with smoking frequency.

<table>
<thead>
<tr>
<th>Daily levels of</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadness</td>
<td>0.0368*</td>
</tr>
<tr>
<td>Anger</td>
<td>ns</td>
</tr>
<tr>
<td>Nervousness</td>
<td>ns</td>
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</tbody>
</table>
Bootstrap analyses
(Preacher and Hayes 2008)

• Daily sadness is a significant mediator of the relationship of racism to smoking frequency.
• C path: (Coef. = 0.0364, SE = 0.177, t = 2.06, p < .05)
• C’ path (i.e., the path with the effects of the mediators removed): (Coef. = 0.0361, SE = 0.186, t = 1.94, p = .053).
• (Log) daily sadness is a small but significant mediator (Data = 0.0150, SE = 0.0079, bias corrected and accelerated confidence (BCA) intervals = 0.0048-0.0290.)
But the mediating effects are very small...

• What are other possibilities?
• Literature on ostracism in general and race-based ostracism in particular suggests and important role of self-awareness and self-regulation.
  – When people feel as if they are ostracized – able to be dismissed and unlikely to fully belong, they are less self aware and less able to self-regulate.
Ostracism and self-awareness

Racism

Self-awareness and self-regulation

Negative Mood

Smoking Status & Frequency
The environmental context

ENVIRONMENTAL FACTORS/ INSTITUTIONAL RACISM:
AVAILABILITY OF CIGARETTES &
ABSENCE OF COMPETING POSITIVE REINFORCERS

Racism

Self-awareness and self-regulation

Negative Mood

Smoking Status & Frequency
Does context matter?

- Are the effects of racism on mood or self-regulation particularly salient in contexts in which it is easier to get cigarettes – easier both because more people smoke and it is easier to buy cigarettes?
- Test social networks as well as demographic variables.
Summary and Conclusions

• Racism is associated with smoking frequency in this sample of Black and Latino adults.
• The effects are independent of gender and education and other sociodemographic variations.
The effects of racism are consistent across groups

• The relationship of racism to smoking status or frequency is not moderated by sociodemographic variables.

• Racism is associated with smoking frequency for Black and Latino adults and across educational levels.
Mediators: Stress and distress are not the only pathways

• Daily levels of sadness partly mediate the relationship of racism to smoking frequency.
• But we need to identify more mediators and understand the mechanisms more fully.
• One possibility includes the effects of race-based ostracism on self awareness and self-regulation.
Conclusions

• The literature is clear that race-related maltreatment increases risk for smoking or smoking frequency.

• To develop effective smoking prevention of intervention programs, we need to understand the mechanisms.

• In particular, we need to understand the interplay between intrapersonal and local environmental factors.
Collaborators

• Angela Monge and John Agosta, St. John’s University
• JN Tobin, Ph.D. and A. Cassells, MPH, Clinical Directors Network
• Cassandra Stanton, Ph.D. Brown University and Jonathan Schuter, MD, AECOM