Neighborhood Stress is Longitudinally Associated with Risky Sexual Behavior among African American Adolescents

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The iMPPACS network:
Syracuse University: Peter Vanable
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University of South Carolina: Robert F. Valois
Wayne State University: Bonita Stanton
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Neighborhood Stress Impacts Society & Health

• Neighborhood stress is common and stable among urban adolescents

• Neighborhood stress is positively associated with depression, anxiety, PTSD, and risky sexual behavior
Sexual Risk & Outcomes Among African American Youth

• Earlier sexual debut and greater number of partners
• Less likely to use pregnancy-prevention methods
• 5x (chlamydia) to 13x (gonorrhea) higher rates of STIs
Sexual Risk & Outcomes Among African American Youth

Estimates of New Infections Among Youth Aged 13-24 Years, by Race/Ethnicity and Sex, United States 2010

- Black/African American Males: 5,600
- Hispanic/Latino Males: 2,100
- White Males: 2,100
- Black/African American Females: 1,400
- Hispanic/Latina Females: 290
- White Females: 280
Neighborhood Stress

- Neighborhood disorder – markers of physical/social decay
- Exposure to violence – witnessing or learning of physical violence
Neighborhood Stress & Risky Sexual Behavior

• Some research, limited by:
  – Indexing neighborhood stress with SES
  – Limited indices of neighborhood stress
  – Cross-sectional data
  – Few biomarkers
Project iMPPACS

- Four-city health promotion trial designed to clarify the impact of mass media campaign and small group interventions on sexual risk behavior

- Baseline data & 5 follow-ups, up to 3 years
Current Study

Baseline

Neighborhood Stress

Up to 3 Years Later

- Number of Partners
- Condom Use
- STI Contraction
Sample

• 1,612 African American adolescents, average baseline age of 15.14 (± 1.05), 60% female
• 74% qualify for free/reduced price lunch
Measures

• Audio computer assisted self-interviews (ACASI) surveys, administered at baseline, 3, 6, 12, 18, and 36 months

• *City Stress Inventory* – Ewart & Suchday
  – 10 items, stressful neighborhood events during the past year, 1 (Never) to 4 (Often) scale
  – E.g., “I saw people dealing drugs near my home in the past year”
  – Baseline only
Measures

• **Risky Sexual Behaviors, past 3 months**
  – # of vaginal sex partners
  – Count frequency of protected and unprotected vaginal sex episodes
  – Relative frequency of condom use
    • 1 (Never) to 6 (Every time) scale

• **Laboratory confirmed STIs**
  – Chlamydia
  – Gonorrhea
  – Trichomonas
Data Analysis

• Generalized Estimating Equations (GEE), a regression method that accounts for the within-subject inter-correlated nature of variables measured repeatedly over time

• Covariates: gender, age, city of residence, free lunch status, and treatment condition
## Descriptive Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood Stress</td>
<td>1.97</td>
<td>0.67</td>
</tr>
<tr>
<td># of Vaginal Sex partners</td>
<td>1.17</td>
<td>4.36</td>
</tr>
<tr>
<td># of Condom Protected Episodes</td>
<td>4.27</td>
<td>6.40</td>
</tr>
<tr>
<td># of Condom Unprotected Episodes</td>
<td>3.26</td>
<td>7.00</td>
</tr>
<tr>
<td>Relative Frequency of Condom Use</td>
<td>4.18</td>
<td>1.96</td>
</tr>
<tr>
<td>STI Test Results</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Positive for any STI</td>
<td>403</td>
<td>6.7</td>
</tr>
<tr>
<td>Positive for 1 STI</td>
<td>343</td>
<td>5.7</td>
</tr>
<tr>
<td>Positive for 2 STIs</td>
<td>57</td>
<td>.95</td>
</tr>
<tr>
<td>Positive for 3 STIs</td>
<td>3</td>
<td>.05</td>
</tr>
<tr>
<td># Participants who ever tested positive for any STI</td>
<td>257</td>
<td>16</td>
</tr>
</tbody>
</table>
Results

• Neighborhood stress is significantly associated with:
  
  – # of vaginal sex partners \( (b = 0.04, SE = 0.001, p < .0001) \)
  
  – Relative frequency of condom use \( (b = -0.02, SE = 0.01, p < .001) \)
  
  – Count frequency of condom protected vaginal sex episodes \( (b = 0.01, SE = 0.005, p < .05) \)
Results

• Neighborhood stress is significantly associated with:
  – Number of STIs \((b = 0.03, SE = 0.01, p < .001)\)
  – Testing positive for any STI \((b = 0.03, SE = 0.01, p < .001)\)

• Neighborhood stress is not significantly associated with:
  – Count frequency of condom unprotected vaginal sexual episodes
  – Percentage of protected vaginal sex episodes
Conclusions

• Neighborhood stress is a predisposing risk factor for a greater number of vaginal sex partners, less frequent condom use, and contracting a STI among African American adolescents.
Conclusions & Future Directions

• We are currently investigating causal mechanisms. Those uncovered in previous, cross-sectional literature include: risky peer norms, gang involvement, and aggression/impulsivity.

• In addition to individual and media interventions, improving neighborhoods may contribute to sustaining risky sexual behavior reductions.
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References