Spatial Clusters of Intimate Partner Violence in Shelby County, Tennessee

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Background

• Intimate partner violence (IPV)

  • Is used to describe any physical, sexual, or psychological harm by a current or former partner or spouse. IPV can happen among heterosexual or same-sex couples (CDC)
Background

- Important public health issue within the US - approximately 1.5 million women are submitted to IPV annually
- Tennessee - incidence of domestic violence has increased 44%, from 46,201 cases in 2003 to 66,619 cases in 2004. (TN Bureau of Investigation, 2005)
- Approximately 183 Tennessee women are physically assaulted, raped or battered by an intimate partner daily (TN Economic Council in Women, 2006)
In 2008, the Memphis Metropolitan Statistical Area (MSA) had the second highest violent crime rates in the US (O’Leary, Morgan, & Boba, 2009).

Memphians made 60,538 emergency calls for DV in 2008, out of which approximately 5,700 were referred for prosecution (TIBRS, 2009).

While other crime rates decreased, local aggravated assault and DV incidents increased by 3.4% in 2008 (Dudding, 2009).
• To better understand the magnitude and to characterize domestic violence in our area: we conducted two telephone surveys (2003 and 2008)

• This surveys were designed as part of an overarching project where a family violence curriculum, entitled “Healing Homes”, utilizes a tailored approach to train on assess and response to different presentations of family violence.

• Objectives:
  • To investigate if faith communities could be used to decrease DV;
  • To assess faith beliefs of victims and, perceptions of faith-based support and attitudes towards violence;
  • To investigate children’s exposure to DV;
  • To document unreported incidences of DV
Objectives

• To evaluate the spatial distribution and potential clusters of women in an abusive relationship (AR) and physical victimization (PV) within Shelby County, TN
Methods

- Study population
  - Adult females 18 years and older
  - Residents of Shelby County, TN
  - Agreed to participate in the phone survey
Data collection

- Random-digit dialing methodology
- Surveys 2003 and 2008
- A total of 5490 adult women were surveyed

- This presentation includes only data for women that reported being in a current relationship
Definitions

- **Current relationship**
  - Married; living as a couple or in a common-law relationship; seriously dating someone

- **Abusive relationship (AR)**
  - Partner is jealous or possessive; try to provoke arguments; limit women’s contact with family or friends; shouts or swear at them; etc.

- **Physical victimization (PV)**
  - Partner has threw something; pushed, pulled hair, slapped, hit, beat up, threaten with gun, threaten with knife; used gun, used knife; etc.
Methods

- 4407 (80%) participants interactively geocoded to ZCTA level
- Data on 2733 women in a current relationship was analyzed
- Spatial scan statistic (Poisson model) was applied to identify high rate clusters of AR and PV
- Census (2000) variables were used to compare areas inside and outside significant clusters
Results
| Characteristics* | (%)
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Mean (standard deviation)</td>
<td>49.5 (18.7)</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>38.2</td>
</tr>
<tr>
<td>Non African American</td>
<td>61.8</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>5.0</td>
</tr>
<tr>
<td>Married</td>
<td>77.3</td>
</tr>
<tr>
<td>Living with significant other</td>
<td>6.9</td>
</tr>
<tr>
<td>Other</td>
<td>10.8</td>
</tr>
</tbody>
</table>

* Figures are percentages unless otherwise stated
Women in abusive relationship – areas of risk. Shelby County, TN

226 cases
175 expected

Abusive relationship
- RR = 1.39  p = 0.002
- RR = 1.27  p = 0.854
Women exposed to physical victimization – areas of risk.
Shelby County, TN

Physical victimization

- RR= 1.55 p=0.058
- RR= 1.56 p=0.145
- RR= 1.62 p=0.996
<table>
<thead>
<tr>
<th>Census Variables</th>
<th>Most likely cluster</th>
<th>Remainder of County</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(%)</td>
<td>n</td>
</tr>
<tr>
<td>Unemployed males</td>
<td>30,671</td>
<td>38.87</td>
<td>57,351</td>
</tr>
<tr>
<td>Female head of household</td>
<td>26,142</td>
<td>48.77</td>
<td>42,109</td>
</tr>
<tr>
<td>% African Americans</td>
<td>172,833</td>
<td>74.47</td>
<td>264,656</td>
</tr>
<tr>
<td>Population Below Poverty Level</td>
<td>71,202</td>
<td>31.48</td>
<td>69,939</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>mean</th>
<th>SD</th>
<th>mean</th>
<th>SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median household income $</td>
<td>23,447</td>
<td>9,698</td>
<td>57,850</td>
<td>36,782</td>
<td>0.003</td>
</tr>
<tr>
<td>Median house value $</td>
<td>74,500</td>
<td>56,136</td>
<td>131,617</td>
<td>60,204</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Abusive relationship
Comparison of areas of risk vs. remainder of the county
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<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>Unemployed males</td>
<td>22,984 38.01</td>
<td>65,038 25.47</td>
<td>&lt;0.0001</td>
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<tr>
<td>Female head of household</td>
<td>18,768 47.42</td>
<td>49,483 25.82</td>
<td>&lt;0.0001</td>
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<td>% African Americans</td>
<td>124,626 70.92</td>
<td>312,863 42.83</td>
<td>&lt;0.0001</td>
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<tr>
<td>Population below poverty Level</td>
<td>53,143 31.22</td>
<td>87,998 12.28</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

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<td>57,850</td>
<td>36,782</td>
</tr>
<tr>
<td>Median house value $</td>
<td>80,937</td>
<td>61,752</td>
<td>124,988</td>
<td>62,044</td>
</tr>
</tbody>
</table>

Physical victimization
Comparison of areas of risk vs. remainder of the county
Limitations

- ZCTA was the spatial unit of analysis
- Ecological approach to compare areas of risk to the remainder of the county
Advantages

- Data available on IPV may be underestimated – represented only by reported cases.
- Our results, originated from random and confidential surveys can better represent the actual magnitude of IPV in our area.
Conclusions

- By using spatial analysis we were able to identify and characterize risk areas for AR and PV within Shelby County.
- Prevention and/or intervention efforts can be tailored for each area.
- The dissemination of our family violence curriculum (“Healing Homes”), that utilizes a 5R approach (Recognizing, Responding, Referring to Resources, and being aware of mandated Reporting), can be used to address domestic violence across those areas.
Next steps

• Evaluate the distribution of other types of IPV in the area (stalking, sexual victimization)
• Spatial regression
Thank you!

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