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
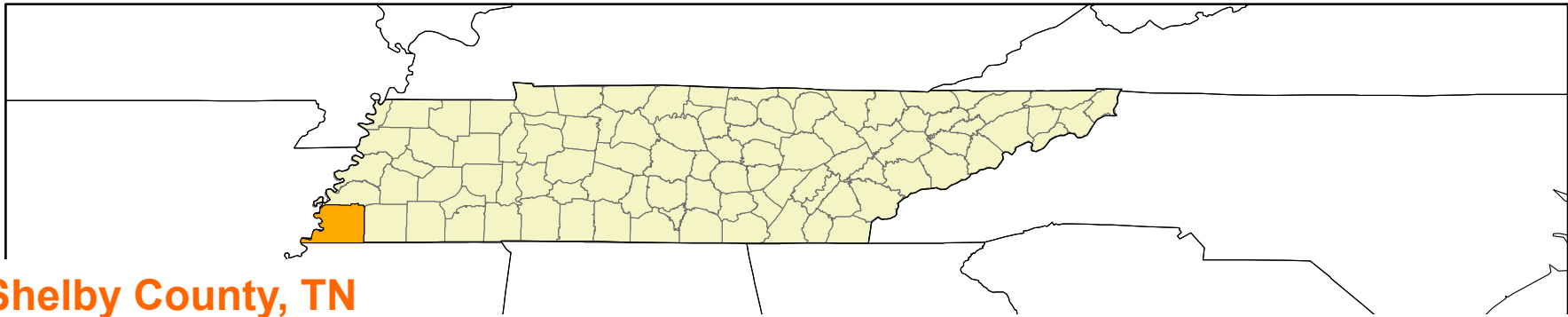
Shelby County, TN

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

Gulf of Mexico

Methods

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*	(%)
Age	
Mean (standard deviation)	49.5 (18.7)
Race/Ethnicity	
African American	38.2
Non African American	61.8
Marital Status	
Single	5.0
Married	77.3
Living with significant other	6.9
Other	10.8

* Figures are percentages unless otherwise stated

Demographics Characteristics – Women in current relationship

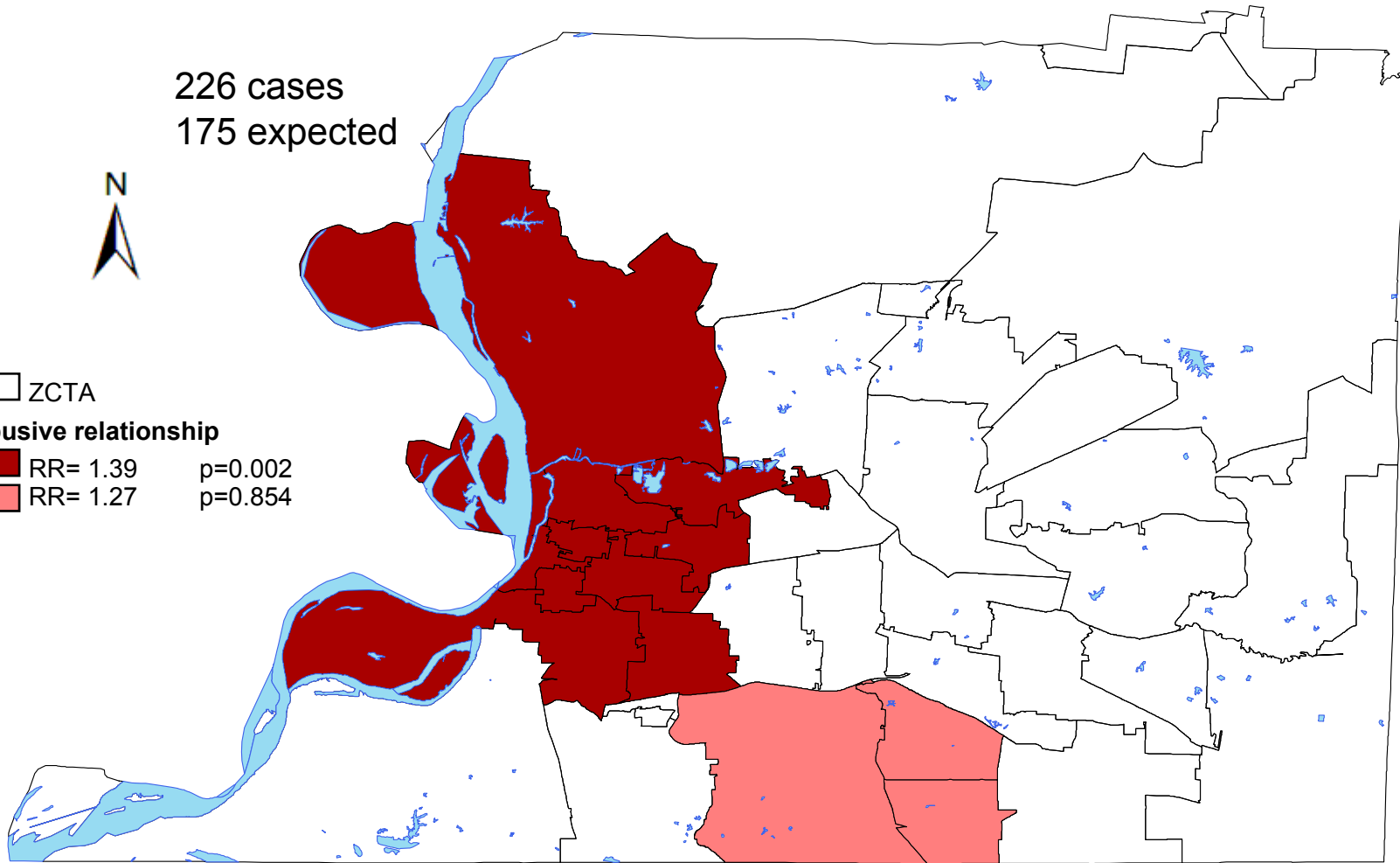# Women in abusive relationship – areas of risk. Shelby County, TN

226 cases
175 expected

N

ZCTA

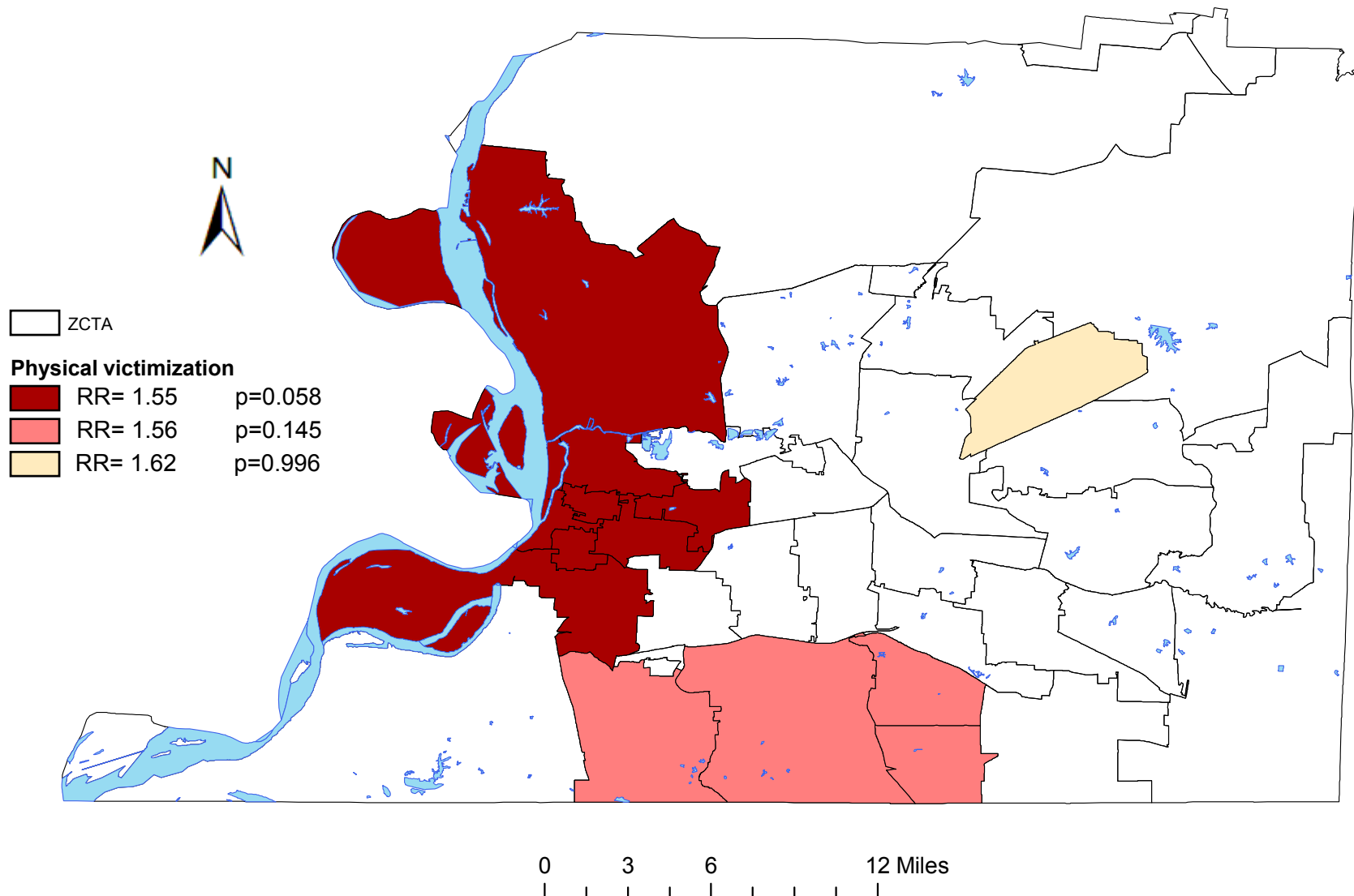**Abusive relationship**
| | RR= 1.39 | p=0.002 |
| | RR= 1.27 | p=0.854 |

0   3   6   12 Miles

79 cases
63 expected

Women exposed to physical victimization – areas of risk.
Shelby County, TN

N

ZCTA

Physical victimization

	RR= 1.55	p=0.058
	RR= 1.56	p=0.145
	RR= 1.62	p=0.996

0   3   6   12 Miles

Census Variables	Most likely cluster		Remainder of County		p value
	n	(%)	n	(%)	
Unemployed males	30,671	38.87	57,351	24.21	<0.001
Female head of household	26,142	48.77	42,109	23.70	<0.001
% African Americans	172,833	74.47	264,656	39.26	<0.001
Population Below Poverty Level	71,202	31.48	69,939	10.58	<0.001
	mean	*SD*	*mean*	*SD*	
Median household income $	23,447	9,698	57,850	36,782	0.003
Median house value $	74,500	56,136	131,617	60,204	0.016

Abusive relationship
Comparison of areas of risk vs. remainder of the county

Census Variables	Most likely cluster		Remainder of County		
	n	(%)	n	(%)	p value
Unemployed males	22,984	38.01	65,038	25.47	<0.0001
Female head of household	18,768	47.42	49,483	25.82	<0.0001
% African Americans	124,626	70.92	312,863	42.83	<0.0001
Population below poverty Level	53,143	31.22	87,998	12.28	<0.0001
	mean	*SD*	*mean*	*SD*	
Median household income $	23,447	9,698	57,850	36,782	0.014
Median house value $	80,937	61,752	124,988	62,044	0.090

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 (**R**ecognizing, **R**esponding, **R**eferring to **R**esources, and being aware of mandated **R**eporting), 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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