EXPLORING THE EFFECTS OF COMMUNITY DISORGANIZATION ON INTIMATE PARTNER VIOLENCE IN RURAL NORTH CAROLINA

Kyle Ann Wehmann

A Thesis Submitted to the University of North Carolina Wilmington in Partial Fulfillment of the Requirements for the Degree of Master of Arts

Department of Criminology and Sociology
University of North Carolina Wilmington

2009

Approved by

Advisory Committee

Dr. Michael O. Maume

Dr. Adam Watkins

Dr. Christina Lanier
Chair

Accepted by

Dean, Graduate School
TABLE OF CONTENTS

ABSTRACT ........................................................................................................................ iv
ACKNOWLEDGMENTS ........................................................................................................ v
DEDICATION ..................................................................................................................... vi
LIST OF TABLES .............................................................................................................. vii
INTRODUCTION ............................................................................................................... 1
REVIEW OF THE LITERATURE ......................................................................................... 4
  Geographic and Social Isolation .................................................................................. 4
  Aspects of Rural Culture ............................................................................................. 5
  Lack of Victim Resources ........................................................................................... 6
  Economic Context of Rural Living ............................................................................ 8
  Social Disorganization ............................................................................................... 9
    Neighborhood Context ........................................................................................... 10
    Family Disruption .................................................................................................. 14
    Residential Instability and Structural Density .................................................. 16
DATA AND METHODS ..................................................................................................... 21
  Dependent Variable .................................................................................................. 23
  Independent Variables ............................................................................................... 23
FINDINGS .......................................................................................................................... 29
DISCUSSION AND CONCLUSION ................................................................................. 33
  Limitations ................................................................................................................ 38
  Contributions of the Study ......................................................................................... 39
LIST OF REFERENCES ..................................................................................................... 42
ABSTRACT

Only within the past 40 years has the phenomenon of intimate partner violence (IPV) been acknowledged as a serious social problem affecting victims, their families and the communities in which they live. Up to this point, the majority of IPV-related research has been conducted in urban settings. This focus overlooks the experience of IPV in rural places, which may be different for victims due to the structure and culture of rural environments. Based on the work of Miles-Doan (1998), the current study utilizes social disorganization theory to examine the relationship between community structural characteristics and rates of violence between intimate partners in rural North Carolina. Utilizing IPV-related incident data from law enforcement agencies in 2006 and tract-level data from the 2000 U.S. Census, the influence of measures such as resource deprivation, family disruption, residential instability, and structural density on IPV rates were analyzed using ordinary-least squares regression models. While the results indicate no support for the theory, the benefits of this research as well as the implications for future research are discussed.
ACKNOWLEDGMENTS

First of all, I would like to thank Dr. John Rice who encouraged me to apply for this degree and whose enthusiasm for Sociology kept me going during undergraduate studies. I am especially grateful to my committee: Dr. Adam Watkins for graciously taking time out of his summer to evaluate my work, Dr. Michael O. Maume for his statistical coaching, good humor and patience with me throughout the thesis process, and Dr. Christina Lanier, my committee chair, mentor and friend, whose endless support and guidance will never be forgotten. I could not have completed this research without you.

Special thanks to my parents and brother for continuing to love and support me in all that I do; and for the team effort to make it happen in the eleventh hour. To Kim, Christy, Becky and Keith who were always there when I needed someone to listen. I am sure they suspected it was endless. Also, special thanks to Irene Edwards for the opportunity to intern and “get my feet wet” in the field, her passion for helping others knows no limits.
DEDICATION

I would like to dedicate this thesis to my grandmother and grandfather, the late Barbara and Charlie Fitzpatrick. Without their support I would not be where I am today.
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Descriptive Statistics for All Original Variables in the Analysis</td>
<td>25</td>
</tr>
<tr>
<td>2. Bivariate Correlations for All Original Variables Within the Model</td>
<td>30</td>
</tr>
<tr>
<td>3. Results of Multivariate Regression (Model 1 and 2)</td>
<td>32</td>
</tr>
</tbody>
</table>
INTRODUCTION

Over the past few decades, intimate partner violence (IPV) has gone from a behind-closed-doors affair to a pervasive social problem. Victims of IPV face serious social, psychological, medical, legal and economic costs, which have been studied by researchers in many academic disciplines since the 1970’s. Within the scope of IPV are physical abuse, rape and sexual abuse, emotional abuse (verbal abuse, threats of violence, threats against property, etc.), financial abuse and intimate partner homicide. IPV is overwhelmingly recognized and documented as women being abused by male partners, although it is acknowledged that women do abuse men and violence is also found in same-sex partnerships (Tjaden and Thoennes 1998; Cox et al. 2001; Van Wyk et al. 2003). According to the National Violence Against Women (NVAW) Survey, 76% of women were raped or physically assaulted since age 18 by a current or former husband, cohabiting partner, or date\(^1\) (Tjaden and Thoennes 1998). Overall, findings from the NVAW Survey—which sampled both women and men—render IPV a major criminal and public health concern in the United States (Tjaden and Thoennes 2000a). It is estimated that 25% of all women living in the U.S. will be abused two or more times by a male partner during their lifetime (Grama 2000; Eastman et al. 2007). “Domestic violence continues to be the largest cause of injury and death to American women each year” (Eastman et al. 2007:700).

The statistics are astounding. However, much of the research on IPV is conducted in urban settings, overlooking the unique experiences of abused rural women (Logan et al. 2003; Murty 2003; Few 2005). Current literature suggests that IPV rates are similar in urban and rural

\(^1\) A nationally representative telephone survey of 8,000 women and 8,000 men about their victimization experiences cosponsored by the NIJ and the CDC and conducted by the Center for Policy Research from November 1995 to May 1996.
areas; however, the structure and culture of rural environments may help conceal violence against women and hinder their efforts to seek assistance (Websdale and Johnson 1998; Grama 2000; Gallup-Black 2005; Teaster, Roberto, and Tyler 2006). Despite its occurrence, rural IPV has seen a profound lack of attention and documentation (Geissinger et al. 1993; Krishnan, Hilbert, and VanLeeuwen 2001; Few 2005; Lanier and Maume 2008). Common misconceptions about rural life are that it is tranquil and self-sustaining, without the social problems and violence common in urban areas (Goeckermann, Hamberger, and Barber 1994; Krishnan et al. 2001; DeKeseredy and Joseph 2006). Because of these notions, rural IPV has historically been ignored by policymakers and legal and research professionals. Geographic and social isolation, lack of education, scarcity of resources, lack of public services and programs, the absence of employment opportunities, fundamental religious beliefs, rural police attitudes, the absence of public transportation, lack of anonymity within rural communities and traditional gender role ideologies are just some characteristics of rural communities that offer potential explanations for why rural women experience IPV differently than their urban counterparts (Olsen 1988; Feyen 1989; Willis 1998; Websdale 1998; Krishnan et al. 2001; Logan et al. 2003; Murty et al. 2003; Burke, O’Campo, and Peak 2006; Eastman et al. 2007).

To examine how community context may be related to intimate partner violence, this study employs the principles of social disorganization. A long-standing theoretical framework tested originally in 1942 with the work of Shaw and McKay, it has been used extensively to study juvenile delinquency, homicide and many other types of crime. Ultimately, disorganization is gauged by a community’s capacity to develop and/or maintain social control, which is hypothesized to regulate crime (Bursik 1988; Vessey and Messner 1999; Kubrin and Weitzer 2003). Resource deprivation, family disruption, and population turnover are some
common characteristics of social disorganization that may reduce social control and enable criminal behavior (Shaw and McKay 1942; Sampson and Groves 1989; Triplett, Gainey, and Sun 2003). A great deal of social disorganization research has been conducted in metropolitan areas that appear to have more criminal activity than in rural places. “Though overall crime rates are higher in urban areas, this difference is not as large as is widely assumed, and there is considerable variation in crime rates among small towns and rural areas” (Osgood and Chambers 2000:82). Few studies have applied social disorganization theory to rural crime in general, and none to rural IPV specifically. Although conducted in an urban setting, one of the first neighborhood-level studies of its kind that found characteristics of social disorganization to be associated with IPV is discussed below. It provided a methodological foundation for the current study to explore the possibility of similar associations in rural settings.

The study presented here offers an extension and partial replication of Miles-Doan’s (1998) examination of the influence of community structural characteristics on rates of intimate partner violence. Her work was a step toward filling the then-gap in empirical evidence explaining how different IPV is from other street violence, and the lack of attention to neighborhood context in studies of domestic violence overall. The current study utilizes a social disorganization framework to study crime in rural areas along with community-level measures similar to those used by Miles-Doan to explore variations on rates of rural intimate partner violence. The goal of this study is to gain a better understanding of the social dynamics of IPV in the rural South and help fill the gaps in past research where rural IPV has been largely understudied across the rural/urban divide. In addition, this study will enhance the small amount of past research that adapts the principles of social disorganization theory (typically applied in urban analyses) to formulate a better understanding of rural crime and violence.
REVIEW OF THE LITERATURE

Geographic and Social Isolation

Victims of rural IPV experience multiple forms of isolation unique to rural areas that contribute to the violence perpetrated against them. “Geographic and social isolation make many common problems such as poverty and domestic violence even more devastating to rural women” (Olsen 1988: 5). An extremely remote address helps to keep abuse hidden away from the rest of the world. There may be no phone(s) in the home or neighbors close enough to witness/hear the abuse or run to for help. Unmarked or unpaved roads, homes only accessible by four-wheel drive and areas predisposed to inclement weather that may entrap residents for days at a time—i.e. snowstorms—makes isolation in some locations extreme (Schaffer 1999; Grama 2000; Grossman et al. 2005). Public transportation might be limited or none at all. Abusive partners might deny use of the car, disable it or closely monitor the mileage (Goeckermann et al. 1994; Websdale and Johnson 1998; Schaffer 1999). They may also inspect phone bills, incoming/outgoing mail or anything else that could indicate a cry for help. Victims are known to be forbidden contact with relatives, friends or the greater community (Feyen 1989; Geissinger et al. 1993; Goeckermann et al. 1994; Websdale 1998). Murty and colleagues (2003) reveal that women living on farms reported less abuse than those who live in rural areas but not on a farm, because there is more chance for interactions with those running the farm, therefore the women are less isolated.

Social isolation makes empowerment for victims of abuse difficult without supportive relationships and social support networks to draw from. Geissinger and colleagues (1993) support the notion of relational disconnection in rural areas as evidenced by poor integration into
social networks and community organizations, which exacerbate feelings of isolation. Existing small-town attitudes may prevent women from acknowledging their own abuse, or risk violating family privacy norms by reaching out for help (Feyen 1989; Krishnan et al. 2001; Petersen et al. 2004). Strong religious values may promote gender inequality and complicate help-seeking strategies with conventional beliefs about privacy (Gagne 1992; Grama 2000). In a rural Wisconsin community, it was found that local churches did not offer support to IPV victims in their congregations. Instead, religious leaders told women to go home and work it out (Davis and Srinivasan 1995; Eastman et al. 2007). Traditional rural communities often have strong stigmas against marriage counseling or divorce, which may encourage a do-nothing approach to dealing with abusive relationships (Feyen 1989). Service providers and others in a position to help who do nothing because of similar biases further the sense of hopelessness and alienation in a place where help—in most forms—is already scarce.

Aspects of Rural Culture

Deeply embedded gender role ideologies; the acceptance of woman abuse and weak repercussions against it; and cultural norms that prohibit women from publicly talking about their experiences or seeking help, make women more vulnerable and likely to be abused by their partners (Websdale 1998; Willis 1998; Schaffer 1999; DeKeseredy and Joseph 2006). Unfortunately, rural America is no exception. Sylvia Walby’s (1990) theoretical notion of rural patriarchy can help facilitate a better understanding of the social conditions that exist throughout many rural cultures. She defines patriarchy as a system of social structures and practices which men dominate, oppress and exploit women (Walby 1990, as cited in Websdale 1998). Neil Websdale’s (1998) work on battered women in rural Kentucky supports this idea of rural
patriarchy. In-depth victim interviews revealed the desire by men to keep female partners from developing new ideas, values and beliefs of their own and instead “ensured that they adhere to the tenets of the collective [patriarchal] conscience” (Websdale 1998: 19). Stepping out of a traditional female role by having too much independence triggered attacks and abuse, illustrating the determination of patriarchal dominance and control (Willis 1998; DeKeseredy and Joseph 2006).

The problems of confidentiality and anonymity are primary concerns unique to rural communities (Websdale 1998; Websdale and Johnson 1998; Cox et al. 2001; Grossman et al. 2005). Legal protection is limited and difficult to enforce due to the “everyone knows everyone else’s business” mentality of small town life (Teaster et al. 2006; Weisheit, Falcone, and Wells 2006; Eastman et al. 2007). This is especially true if either victim or batterer is known by or related to anyone employed in public service professions (e.g., police, judges, lawyers, social workers, healthcare workers), which is not uncommon in small towns where jobs are in short supply. Also, neighbors might have police scanners, arrest reports are often published in local newspapers and friends may work in the same buildings where services are housed (Goeckermann et al. 1994; Grama 2000). Public knowledge of a victim’s business can intensify feelings of shame and humiliation and also increase the chances that any help-seeking efforts taken will make it back to the abuser, further endangering the victim (Goeckerman et al. 1994; Schaffer 1999; Cox et al. 2001).

Lack of Victim Resources

Legal, social, healthcare and shelter services are simply not available in all rural areas or may be forced to cover hundreds of square miles (Olson 1998; Grama 2000; Kurst-Swanger and
Petcosky 2003). Service providers describe dealing with severely limited resources and inadequate funding, and victims report not knowing at all where to turn for help (Schaffer 1999; Grossman et al. 2005; Hochstein and Thurman 2006; Teaster et al. 2006; Eastman et al. 2007). When rural service professionals are present, they are often ill-equipped to work within the context of rural areas (most have been trained in urban environments) and have very little training on how to appropriately manage domestic violence cases (Olson 1988; Willis 1989; Van Hightower and Gorton 2002). Because of limited state funding, a few officers may patrol whole counties at any given time. The distance to a 911-call and lengthy police response times may worsen already dangerous situations and even be fatal for some victims (Feyen 1989; Websdale and Johnson 1998; Grossman et al. 2005; Hochstein and Thurman 2006).

Rural criminal justice officials may operate in ways that reflect local values, and not necessarily justice or fairness (Weisheit et al. 2006). As a result, domestic violence cases may not be taken seriously in local courts (Grama 2000; Van Hightower and Gorton 2002; Logan et al. 2003). Law enforcement may be reluctant to protect women from abusive partners because of the traditional attitudes of conservative rural communities that resist acknowledging and dealing with IPV (Gagne 1992; Websdale 1998, Schaffer 1999). In one rural Texas county, criminal justice officials and police officers admitted their doubts about the credibility of battering victims, suggesting that their lifestyles or unwillingness to leave the relationship was to blame for the abuse (Van Hightower and Gorton 2002). Harboring preconceived notions about victims and victim-blaming only succeeds to obstruct justice and marginalize them further. Websdale (1998) concludes that the “good ol’ boy network” of policing and local politics sustains and perpetuates the subordinate, vulnerable and isolated positions of rural women.
Economic Context of Rural Living

A common characteristic of rural areas is that they are economically disadvantaged. “Poverty rates among people living in rural communities are higher than in urban populations across all ethnic and racial groups” (Krishnan et al. 2001: 36). Rural women have overall lower incomes than their urban counterparts or are less likely to work (Schaffer 1999; Logan et al. 2003). Gainful employment, affordable child care and inexpensive housing are difficult to find and economic resources are scarce (Olson 1988; Goeckerman et al. 1994; Logan et al. 2003). Public transportation in rural communities is virtually non-existent and owning a vehicle and/or vehicle maintenance may be unaffordable. Waitressing, factory work and other services jobs (the dominate employment types in rural areas) are minimum wage and offer no benefits, medical insurance or paid sick leave (Feyen 1989). Farming and business related to agriculture can involve prolonged layoffs due to weather trends. Continued outsourcing of manufacturing jobs overseas due to recent changes in federal trade policies are forcing factories all over rural America to close, and lay off workers who have little or no other employability skills (Willis 1989; Goeckerman et al. 1994; Hossfeld, Legerton, and Keuster 2004). Being mostly traditional, single-industry economies—e.g., farming, mining or manufacturing—rural areas are hit hard by economic hardship in the form of job loss (displaced workers), unemployment, poverty and population loss (Lee, Maume, and Ousey 2003; Hossfeld et al. 2004; Gallup-Black 2005).

Economically disadvantaged communities have little in the way of educational programs and resources, which compromise opportunities for empowerment and/or educational advancements to improve quality of life, raise economic growth and reduce poverty. Instead, people drop out of school to work and support their families. Multiple studies reveal that rural women are significantly less likely to be as highly educated as urban women (Feyen 1989;
Logan et al. 2003; Grossman et al. 2005; Teaster et al. 2006). Low education and lack of skills leave many women financially dependent on their partners. A review of literature by Yount (2005) from numerous other countries shows that financially dependent women with children will be more likely to experience abuse and less likely to see reasons for divorce or separation.

Social Disorganization

Largely based on the work of Chicago School theorists Shaw and McKay (1942), social disorganization theory is centered around the idea that various structural characteristics may reduce social control within a community; and its members lack shared values or beliefs, making it difficult to solve common problems (Bursik 1988; Sampson and Groves 1989; Osgood and Chambers 2000; DeMaris et al. 2003; Kubrin and Weitzer 2003; Van Wyk et al. 2003; Jobes et al. 2004). Resource deprivation, poverty, residential instability, ethnic heterogeneity, family disruption and population density dominate the literature as structural characteristics associated with social disorganization in a community (Shaw and McKay 1942; Sampson and Groves 1989; Miles-Doan 1998; Triplett et al. 2003; Jobes et al. 2004; Hipp 2007). The strength of informal social networks (i.e. family and friendship ties), the level of participation in formal social networks (i.e. organizations and/or associations) and the presence of legitimate institutions are examples of social control agents that indicate a community’s capacity to develop and/or maintain social control, which is hypothesized to regulate crime (Bursik 1988; Vessey and Messner 1999; Osgood and Chambers 2000; Kubrin and Weitzer 2003; Triplett et al. 2003). A breakdown of social and institutional networks due to the influx of structural characteristics of social disorganization implies the disappearance of common norms and values and opens the door for crime and deviance in a community.
To date, the application of this theory has most often been in urban communities (Osgood and Chambers 2000; Kubrin and Weitzer 2003; Jobes et al. 2004). Very few studies are conducted that systematically apply social disorganization to crime in rural areas; and no study has applied the theory specifically to rural IPV. If the theory of social disorganization as it applies to communities and crime is to come full-circle, it would be logical to assume that communities in all types of geographical settings must be included for study. “Like urban communities, rural communities and smaller towns will surely vary in their ability to realize values and solve problems; so the idea of social disorganization is certainly applicable there” (Osgood and Chambers 2000:84). Simply put, the basic tenets of the theory should be applied to study crime in rural places. In addition, the types of crime studied within the social disorganization framework should be expanded to include such acts like IPV, as presented by the work of Miles-Doan (1998). Using a social disorganization framework, she examined the structural characteristics that may be related to intimate partner violence rates within 131 census tracts in one urban county. Her study included an analysis of various indicators of neighborhood resource deprivation, family disruption, residential instability and structural density (Miles-Doan 1998). Given the influence of Miles Doan’s study on the current project, a brief overview of her work is presented, in addition to an overview of past literature that has used similar indicators of social disorganization in research on crime.

Neighborhood Resource Deprivation

Resource deprivation is a structural characteristic measured by numerous indicators and discussed at length as being detrimental to undermining social control and increasing social disorganization in communities (Shaw and McKay 1942; Bursik 1988; Osgood and Chambers
Concentrated poverty is highly associated with crime and delinquency. It creates immense amounts of strain and vulnerability on individuals which may make them more prone to engage in criminal activities because they see no other opportunities to get ahead (Benson et al. 2000). Economically disadvantaged communities lack money, resources, and the ability to attract institutions and lawful businesses that provide opportunities for legitimate work or educational advancement (Triplett et al. 2003). Without local establishments to provide a foundation for organization, it is not likely that community members will get together and address common social problems (Bursik 1988; Sampson and Groves 1989). “Concentrated disadvantage not only deprives neighborhoods of resources that may be mobilized to control crime, but also increases social isolation among residents, which impedes communication and interferes with their capacity to pursue common values” (Kubrin and Weitzer 2003:380). Impoverished residents living in deprived, high-crime neighborhoods may weaken social control within those places further by not reporting crimes because they are afraid to get involved, or feel that crime in the area is inevitable and reporting it would be futile (Sampson and Groves 1989; Kubrin and Weitzer 2003).

As previously stated, social science research employs various measures of neighborhood disadvantage, depending on the nature of the study, which are often highly correlated with one another and with crime. Matthews, Maume, and Miller (2001) examined the effects of deteriorating economic conditions due to deindustrialization on homicide rates in 85 smaller to mid-sized U.S. cities, using an index of deprivation (disadvantage) that included percentage of female-headed households, percent Black, and percentage of city residents with incomes below the federal poverty line. The deprivation index was found to mediate the effects of the other three variables predicted to influence homicide rates in their model, concluding “that deprivation
is both an empirically and theoretically crucial structural correlate of homicide” (Matthews et al. 2001:103). Krivo and Peterson (1996) examined the relationship between violent crime and the level of neighborhood structural disadvantage for 177 census tracts in one city. The level of neighborhood disadvantage was indicated using the following measures: the poverty rate, percentage of female-headed households, percent unemployed males, and a lack of persons in high status occupations. Based on the magnitude of these measures, three separate disadvantage groups were created: low, high and extreme. As expected, they found that the most extremely disadvantaged—and socially disorganized—neighborhoods had significantly higher levels of violent crime including homicide, rape, robbery and aggravated assault. Focusing on intimate partner violence, Van Wyk et al. (2003) analyzed data from Wave 2 of the National Survey of Families and Households based on 6,610 respondent-couples who were asked questions about past violent experiences. Also using a hierarchy of neighborhood disadvantage, but with some additional measures of deprivation—low education levels, overcrowded households (population density), receipt of public assistance and percent non-white—they found that the likelihood of IPV significantly increases as the level of neighborhood structural disadvantage increases.

Similar to Matthews et al. (2001), Van Wyk et al. (2003), and Krivo and Peterson (1996), Miles-Doan (1998) included the percentage of female-headed households, residents below the poverty line, unemployed males, high school dropouts, the receipt of public assistance and percent Black in her deprivation index, and found that neighborhoods with greater resource deprivation had higher rates of IPV and community violence in general. Specifically, she found that neighborhoods with a large concentration of residents living in poverty and high male unemployment had a significantly greater incidence of IPV. Whether urban or rural, the financial strains of poverty create high tension and distress in people’s lives, making it difficult
to hold a job or maintain healthy relationships (Olson 1988; Sampson and Groves 1989; Benson et al. 2000; Jobes et al. 2004; Eastman et al. 2007). “Although domestic violence occurs across the socioeconomic spectrum, low income and poverty are among the strongest and most consistent correlates of male-to-female domestic violence” (Fox et al. 2002:795). Men suffering from chronic underemployment or unemployment might result to wife beating to feel powerful, assert their masculinity and/or vent their frustrations (Miles-Doan 1998; Fox et al. 2002; Raghavan et al. 2006).

Miles-Doan (1998) also incorporated measures of access to a telephone and/or vehicle. While she doesn’t specifically address the effects of not having a phone or vehicle, both are basic resources that can be mobilized to control crime. Not having them obstructs communication and increases social isolation among community members, not to mention seriously impedes one’s ability to get help. Moreover, the geographic isolation in rural areas may exacerbate this. A victim without vehicle access seeking a domestic violence shelter in an urban community could potentially get there via public transportation, a friend with a car, or even walk. It is quite the contrary for rural areas where neighbors willing to help may be few and far between, and shelters may be hours away (Olson 1998; Kurst-Swanger and Petcosky 2003). Feyen (1989:18) examined 107 domestic violence case files from a rural Wisconsin shelter, noting that “families in the lowest income strata of the community are overrepresented in this study since higher income families are more likely to seek private intervention,” which was a direct observation of shelter staff. She found that 30% had no phone access and 52% had no access to a vehicle at the time of abuse. “The telephone has been hailed as one of the most important tools for victims of domestic violence” (Grama 2000:178). Websdale and Johnson (1998) and Websdale (1998) also noted that telephone subscription rates were very low in some rural areas. Specifically, they
reported rates were anywhere from 70% to as low as 30% in a number of rural Kentucky counties, as compared to 95% or higher in Kentucky’s larger cites.

Family Disruption

Research suggests single-parent families overall provide less supervision and guidance for youths to make healthy decisions away from crime (Veysey and Messner 1999; Osgood and Chambers 2000; Hipp 2007). By providing increased guardianship for their children and property, two-parent households form an informal social control network for general goings-on in the community, such as the supervision of peer-group and gang activities (Sampson and Groves 1989; Jobes et al. 2004). Single parents in economically disadvantaged neighborhoods may not be around to raise their own children, much less be mindful of others, because they work multiple jobs. “Low SES neighborhoods with higher proportions of young, unmarried, and less-educated parents (themselves products of similar backgrounds) may have a lowered capacity to effectively socialize children to adhere to conventional norms and to restrain their impulses” (Markowitz 2001:151). Thus (generational) family instability may be related to the mired development of self-control in children and the failure to socialize them away from violence, thereby increasing juvenile delinquency (Triplett et al. 2003). Youth who grow up in environments that embrace the use of delinquency and violence, without parental role models around to teach them otherwise—exercising informal social control—may adopt that way of life and carry it with them into adulthood, using violence to get what they want. If their culture is one that subscribes to macho idealism and male youth are taught to prove their masculinity through street violence and/or violence against women, intimate partners may be especially at risk (Miles-Doan 1998). Therefore, communities with elevated family disruption may
experience more crime and delinquency through the actions of unsupervised, poorly socialized and/or violent youths, raising the level of social disorganization in the community (Miles-Doan 1998).

Using data from the first British Crime Survey (BCS) in 1982 to examine social disorganization and crime, Sampson and Groves (1989) found that communities with higher levels of family disruption had higher amounts of disruptive peer group behavior than those with lower levels of family disruption, using a combined measure of single parent households with children, and the proportion of separated and divorced adults. Net of all other neighborhood characteristics, disruptive peer groups had the largest single effect on mugging/street robbery, stranger violence and the total victimization rate, supporting the notion that family disruption may promote more engagement in crime by affected youth (Sampson and Groves 1989). Osgood and Chambers (2000) analyzed juvenile arrest records from 264 rural counties to find that higher rates of arrests for violent offenses were strongly associated with family disruption using a measure of female-headed households with children in their model. They concluded family disruption may be a vital element of social disorganization due to the strained resources and supervising capabilities of single parents (Osgood and Chambers 2000).

McCall, Parker and McDonald (2008) examined how changing community structural conditions, such as the weakening of family and social bonds, were related to changes in homicide rates in 83 U.S. cities from 1970 to 2000. They found that children not living with both parents had a positive, significant relationship with homicide rates. However, the change in percentage of divorced males, a potential indicator of family disruption in this study, had no relationship with changes in homicide rates. Parker and Johns (2002) analyzed race-specific homicide and family structures using data from 168 U.S. cities and found that divorce was not
significantly associated with Black homicide rates, but did have a significant effect on White homicide rates, suggesting that types of family disruption affect crime rates differently across racial lines. They also argue that non-nuclear family types such as single parent households and nonmarried families (especially in urban Black neighborhoods) are becoming more common family forms, and should not by nature be considered “disrupted” or indicative of reduced social control. “These findings highlight the importance of further research examining family structure constructs separate from family disruption in the study of violence” (Parker and Johns 2002:295).

Similar to Osgood and Chambers (2000), Miles-Doan (1998) uses the measure of female-headed households with children under 18 to represent family disruption in her study. This measure may capture family disruption via single-parent households, divorce or other forms of unshared parenting. Also a correlate of concentrated poverty, female-headed households may serve as an indicator of the continued feminization of poverty through single-motherhood in resource deprived neighborhoods. As predicted, Miles-Doan (1998) found that neighborhoods with higher concentrations of female heads of household with young children have a much higher incidence of IPV.

Residential Instability & Structural Density

Residential instability (also referred to as residential mobility or transient populations) disrupts a community’s network of social relations by hampering the development of friendship networks and involvement in local associations, which promotes a weakened system of social control, facilitating crime and delinquency (Shawn and McKay 1942; Sampson and Groves 1989; Osgood and Chambers 2000; Triplett et al. 2003; Hipp 2007). Neighborhood dynamics
such as deinvestment, demolition and construction, deindustrialization, and rising poverty levels may force movement out of urban areas (Bursik 1988; Matthews et al. 2001; Kubrin and Weitzer 2003). In the case of rural places, transience may be due to the lack of available jobs and resources; however, rural areas are typically thought to have more stable populations (Jobes et al. 2004). People who move around a lot likely have less investment in their residential location, which may weaken social networks and reduce guardianship capacity in the area. Weak social networks, as evidenced by sparse ties among friends and neighbors, and rapid rates of population turnover (instability) indicate a disinterest in the community at large. Without interested third parties, a sense of anonymity de-regulates human behavior (DeMaris et al. 2003). Strangers are less likely to concern themselves with defending the neighborhood or the people in it against criminal activity, which ultimately reduces social control and increases social disorganization (Bursik 1988; Van Wyk et al. 2003).

After analyzing data from the first British Crime Survey (BCS) in 1982 and the second BCS in 1984, Sampson and Groves (1989) found that in both models, residential stability—measured by the percentage of residents raised in the area—was the strongest predictor of denser social networks, hypothesized to reduce crime. Extending this premise to rural research on social disorganization and crime, Jobes et al. (2004) examined six communities in rural New South Wales, Australia, which yielded similar findings: Fewer community affiliations and more mobility were associated with more crime. Their measures of residential stability included: people with the same address since their 1991 Census, the average annual growth in the area, and the amount of people who owned homes rather than rented, indicating an investment in the local community. Lee (2008) analyzed 1,038 rural counties across the U.S. in his recent study of rural social structures and violence. He measured residential stability by the proportion of persons in
each county that lived in the same county 5 years prior, the proportion of people that lived in the same house 5 years prior and the proportion of housing units that were owner-occupied. As expected, all three measures of stability had a significant and negative effect on the total violent crime rate. Bellair (1997) examined the effects of social interaction on community crime in 60 urban neighborhoods. Surprisingly, he found that residential stability was not a significant predictor of social interaction among neighbors, although “the systemic model posits that residential stability is the key variable for development of [community] networks,” which he hypothesized to be a mediating influence on neighborhood crime (Bellair 1997:687). His measurements were the mean number of years that respondents have resided in their neighborhoods and the percentage of residents who have lived in the neighborhood for 5 or more years.

Much like residential instability, structural density is correlated with economic disadvantage and associated with low levels of guardianship against violence. This is largely based on the notion that residents in densely-settled areas have difficulty recognizing their neighbors, let alone be involved in neighborhood surveillance or report suspicious activities (Sampson 1983; Miles-Doan 1998; Jobes et al. 2004). In other words, large numbers of strangers living near each other may reduce social control and increase crime and delinquency. Functioning as a characteristic of social disorganization in the literature, structural density typically refers to heavily inhabited housing projects and/or other multiple-unit rental housing facilities in concentrated urban areas (Bursik 1988; Miles-Doan, 1998; Kubrin and Weitzer 2003). Supporting this, Gallup-Black’s (2005) research on homicide trends from 1980 to 1999 using the FBI’s Supplementary Homicide Report data showed that residential overcrowding (measured by persons per housing unit) was positively related to certain types of murder, but
only in metropolitan areas. Sampson (1983) examined National Crime Survey (NCS) data from the years 1973 to 1978 (over 800,000 interviews) to assess the relationship between structural density and criminal victimization, measured by the percentage of units in structures of five or more units. As expected, both robbery and assault victimizations were highest in neighborhoods with the highest structural density. Realizing that prior research was always focused in urban areas, Sampson (1983) decided to control for urbanization, with his most rural category being non-metropolitan areas located outside of cities. Interestingly, he found that robbery and assault victimizations for youth and adults were highest in structurally dense rural neighborhoods, compared to low-density rural neighborhoods, and that the structural density/victimization relationship was overall stronger in rural areas.

In terms of urban areas, densely populated neighborhoods are associated with weaker friendship networks, social isolation and anonymity, and a decreased ability to mobilize community members through organizational participation, which are all predictive of high crime rates (Sampson and Groves 1989; Veysey and Messner 1999; Jobes et al. 2004). Yet, the lack of density may create similar problems of social isolation in rural communities, which still supports it as a measure of social disorganization (Osgood and Chambers 2000). Miles-Doan (1998) created an index composed of indicators of both structural density and residential instability. It includes the percentage of rental units located in structures of five or more units (structural density), the number of householders that lived at their current address five years earlier (residential instability), and the rate of renter occupancy (residential instability). She found that

---

2 What Sampson (1983) defines as rural are nonmetropolitan areas outside of Standard Metropolitan Statistical Areas (SMSAs) and the neighborhoods he analyzes are census-defined block groups with a minimum of 4,000 people. The U.S. census defines urban areas as core block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile (U.S. Census Bureau 2000). Therefore, Sampson’s (1983) measure of rural may only be in comparison to other neighborhoods in the NCS sample he used.
the structural density/instability index was not significantly associated with rates of intimate partner violence.

In summary, the relevant literature provides a situated context for rural IPV and helps illustrate how certain structural characteristics decrease social control and increase social disorganization, which has been found to increase crime rates in urban neighborhoods. The current study will assess if the same structural characteristics of social disorganization will be related to IPV rates in rural communities. Specifically, using tract-level data, I will test the following hypotheses:

• Higher levels of resource deprivation in rural communities will be associated with increased rates of IPV.

• Higher levels of residential instability and structural density will be associated with increased rates of IPV.

• Higher numbers of high school dropouts and unemployed males will be associated with increased rates IPV.
DATA AND METHODS

The intimate partner violence incident data for the current study was collected as part of a pilot study for a larger research project aimed at understanding the social dynamics of intimate partner violence across the rural/urban South. Three rural counties in Southeastern North Carolina were selected based on their racial and ethnic distributions. Local law enforcement agencies were contacted to request their permission to obtain records of all incidents pertaining to IPV that occurred in their jurisdictions between January 1, 2004 and December 31, 2007. Specifically, each agency was asked to provide all misdemeanor and felony incidents relating to assaults of any nature, sexual offenses, and homicides in which the victim and offender were intimately involved at the time of the offense. Agencies were selected based on the size of the communities they serve and their annual aggravated and simple assault counts from the North Carolina State Bureau of Investigation’s Crime Statistics website. Seven agencies were visited by a team of research assistants who read each incident report to determine if it was IPV-related. The research team was able to remotely (electronically) access the incident report databases of the remaining six agencies with the assistance of their public safety software vendors. Data obtained electronically were formatted in Excel and only cases where an intimate relationship was identified were retained. The year 2006 is the only year that data collection is complete across all agencies in all counties; thus only incidents reported in 2006 were included in this analysis.

All recorded individual IPV-related incidents that occurred in each county in 2006 were imported from Excel and then geographically coded using ArcGIS, which features an

---

3 Originally, 4 counties were selected, but access to incident records in the fourth county was not made available to the research team.
interpolative address matching software program. From a total of 2,204 incidents across all 3 counties, 71.2% of the incident addresses were originally matched (or geo-coded), meaning that the program was able to place a particular incident address in a corresponding neighborhood block and census tract, or estimate the closest match. The remaining 692 (28.8%) un-matched addresses were not recognized by the software and thus their block group and census tract could not be identified. This may have been due to the construction of new neighborhoods and streets not yet updated in the ArcGIS software version; human error recording the original incident addresses with incorrect street names, numbers, or zip codes; or missing address data. All remaining un-matched addresses in each county had to be hand-matched using the Internet to locate new and recently updated address listings, troubleshoot un-identified ones, and obtain the corresponding block group and census tract identifiers. The corrected/updated address information was then recorded in Excel and imported into ArcMap for verification and recoding. The process of hand-matching increased the percentage of addresses able to be geo-coded to 96.3% across all 3 counties, leaving only 89 (3.7%) incident-addresses that could not be identified. A total of 2,315 IPV-related incidents with verified addresses were then aggregated to the census-tract level in all three counties for a total of 39 census tracts (N = 39), which are the units of analysis for this study.

As noted by Miles-Doan (1998), census tracts are an appropriate unit of analysis for examining IPV and neighborhood context based on prior research that says the interactions of people who live near each other create the social environments that may or may not breed violence. “Individuals are most aware of, and therefore most likely to be influenced by, the social context to which they are most frequently exposed” (Miles-Doan 1998:625). Deciding which level of aggregation to use depends on the geographic region and structural characteristics being
studied (Kubrin and Weitzer 2003; Hipp 2007). Neighborhood blocks or even smaller levels of aggregation may be more appropriate in urban areas due to the density of people living there. Issues of contiguity and spatial autocorrelation are more likely a concern in denser areas as well. Rural IPV incidents can be so spread out that a rate of only one or two recorded within several neighborhood blocks is likely, making census tract-level analysis more appropriate.

Dependent Variable

The rate at which intimate partner violence occurs in each of the 39 rural census tracts is the dependent variable for this study. The raw number of IPV incidents that took place within each census tract, located by the ArcGIS address mapping software, were used to create the IPV rate per tract. Again, only incidents that took place during the year 2006 were analyzed, because it was the only year that incident data collection was complete across all tracts. The 39 separate IPV-incident totals were then divided by each tract’s total population according to Census 2000, and multiplied by 1,000 to get the IPV rate for every tract.

Independent Variables

After obtaining census-tract level sociodemographic data from the American Fact Finder Census 2000, summary file 3, I comprised a list of 9 variables that are indicators of either one or more of the following community structural characteristics within each census tract: neighborhood resource deprivation, family disruption, residential instability and structural density. The measures included in this study strongly represent those utilized by Miles-Doan (1998) to operationalize social disorganization. There are 5 indicators of neighborhood resource deprivation: (1) the percentage of individuals below the federal poverty line in 1999, (2) the
percentage of African-Americans in each census tract, (3) the high school dropout rate, (4) the percentage of unemployed males, and (5) the percentage of residents without vehicle access\(^4\). The high school dropout rate was computed as the number of persons who did not receive a diploma or equivalency divided by the total number of persons 25 years and over. The percentage of unemployed males was computed as the number of unemployed males in the labor force divided by the total number of males in the labor force 16 years of age and older. Lack of vehicle access was calculated as the number of households across all races without a vehicle divided by the total number of households in each census-tract.

In the current study, family disruption is indicated by the percentage of female-headed households with children less than 18 years of age in each census-tract, but may also function as an indicator of resource deprivation (Krivo and Peterson 1996; Miles-Doan 1998; Matthews et al. 2001). Residential instability in each tract is measured by: (1) the percentage of residents who rent as opposed to owning a home, and (2) the percentage of residents who were not at their current address 5 years prior. Structural density at the census-tract level is indicated by the percentage of rental housing units located in building structures with 5 or more units. A control variable for the total population of each tract is also included in the analysis.

\(^4\) The measure of racial composition is used because those involved in violence are more likely to be non-White, from lower SES backgrounds and thus overrepresented in crime statistics (Miles-Doan 1998; Bureau of Justice Statistics 2001 as cited in Markowitz 2003).
Table 1. Descriptive Statistics for All Original Variables in the Analysis

<table>
<thead>
<tr>
<th>Variable (%)</th>
<th>3 Rural N.C. Counties</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPV rate in 2006 (per 1,000)</td>
<td>2.85</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1.63</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>5.394</td>
<td>1.842</td>
</tr>
<tr>
<td>Min</td>
<td>21.93</td>
<td>1.842</td>
</tr>
<tr>
<td>Max</td>
<td>6.39</td>
<td>9,653</td>
</tr>
<tr>
<td>Mean</td>
<td>12.28</td>
<td>8,049,313</td>
</tr>
<tr>
<td>Total population</td>
<td>22.38</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.91</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>42.38</td>
<td>6.27</td>
</tr>
<tr>
<td>Min</td>
<td>9.93</td>
<td>3.58</td>
</tr>
<tr>
<td>Max</td>
<td>31.52</td>
<td>43.02</td>
</tr>
<tr>
<td>Mean</td>
<td>21.54</td>
<td>21.54</td>
</tr>
<tr>
<td>In poverty</td>
<td>7.13</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.25</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>26.68</td>
<td>4.25</td>
</tr>
<tr>
<td>Min</td>
<td>9.34</td>
<td>2.76</td>
</tr>
<tr>
<td>Max</td>
<td>45.69</td>
<td>26.68</td>
</tr>
<tr>
<td>Mean</td>
<td>12.14</td>
<td>7.30</td>
</tr>
<tr>
<td>African American</td>
<td>17.69</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.34</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>45.69</td>
<td>7.34</td>
</tr>
<tr>
<td>Min</td>
<td>4.06</td>
<td>4.06</td>
</tr>
<tr>
<td>Max</td>
<td>12.14</td>
<td>37.14</td>
</tr>
<tr>
<td>Mean</td>
<td>15.21</td>
<td>37.14</td>
</tr>
<tr>
<td>High school dropouts</td>
<td>23.78</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.15</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>50.07</td>
<td>9.15</td>
</tr>
<tr>
<td>Min</td>
<td>11.57</td>
<td>4.13</td>
</tr>
<tr>
<td>Max</td>
<td>30.64</td>
<td>50.07</td>
</tr>
<tr>
<td>Mean</td>
<td>30.64</td>
<td>30.64</td>
</tr>
<tr>
<td>Male unemployment</td>
<td>34.65</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>7.24</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>48.49</td>
<td>7.24</td>
</tr>
<tr>
<td>Min</td>
<td>20.32</td>
<td>2.76</td>
</tr>
<tr>
<td>Max</td>
<td>47.02</td>
<td>20.32</td>
</tr>
<tr>
<td>Mean</td>
<td>47.02</td>
<td>47.02</td>
</tr>
<tr>
<td>No vehicle access</td>
<td>5.17</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>5.27</td>
<td>Mean</td>
</tr>
<tr>
<td>Stan. Dev.</td>
<td>10.33</td>
<td>5.27</td>
</tr>
<tr>
<td>Min</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Max</td>
<td>25.90</td>
<td>25.90</td>
</tr>
<tr>
<td>Mean</td>
<td>10.33</td>
<td>10.33</td>
</tr>
</tbody>
</table>

After selecting the variables for analysis, frequencies were obtained to assess each variable’s distribution. Descriptive statistics are presented in Table 1 for all 39 tracts comprising three rural, southeastern North Carolina counties. Alongside, North Carolina mean averages are displayed to see how indicators of disorganization compare at the state level. As shown, the mean rate of IPV per 1,000 for the tracts is 2.85 and the standard deviation is 1.63 (with a standard error of .26), indicating a low amount of variation in the rate of IPV across census tracts. Standard deviations and percent ranges for many of the other tract-level variables show considerable variation around the mean averages, most notably: population in each tract, percent African American, female-headed households with children under 18, percent of population in renter occupied housing and percent of people not at the same address 5 years prior. At the state-level, North Carolina has an overall lower rate of resource deprivation and family disruption indicators, but a higher rate of residential instability and structural density indicators. In addition to means and standard deviations, graphic depictions such as boxplots were very helpful in identifying anomalies and/or outliers that might exist in the data. As a result, a logarithmic transformation was necessary for two of the variables, the percentage of unemployed males and
the percentage of residents without vehicle access, due to extreme outliers.\

Unfortunately, having a small dataset of 39 tracts (cases) limited the number of independent variables that could be included in the multivariate analysis on account of allowable degrees of freedom. Therefore, the model had to be scaled down to three independent variables and one control variable. In an effort to empirically reduce the number of variables, a principle components analysis (PCA) was performed. PCA is a variable reduction method used to create groupings of correlated variables that are themselves, uncorrelated. The result is a small number of variable-groupings that account for most of the variance in a list of original variables. The PCA revealed two distinct groupings of variables (excluding the control variable) from which I was able to create two indices.

The deprivation index includes: percentage of individuals below the federal poverty level, percentage of female-headed households with children under 18, percent of residents without vehicle access (logged), and percent African American in each tract. Three of those 4 were originally indicators of resource deprivation, and the one indicator of family disruption functioned as a resource deprivation indicator as well. Because one of the components was logged, all 4 variables were standardized and then averaged together to create the index. Bivariate correlations (see Table 2) among the component variables comprising this index were moderate to high and all significant (p < .01). A reliability analysis on the average inter-item correlation of these 4 standardized index components displayed a higher than acceptable alpha coefficient of .896.

5 To transform each variable to their natural logarithm, I multiplied each variable by the log of 10, i.e., log10(x).
6 A statistical rule of thumb is 10 cases per variable (Draper and Smith 1981 as cited in Hutcheson and Sofroniou 1999:262).
7 Definition and procedure information available in SPSS Base 16.0 User’s Guide, pg. 357.
8 Generally, the accepted average inter-item correlation of index components (Cronbach’s Alpha) is at least .6 for the index to be used in a multivariate analysis (Garson 2009).
The *residential* index includes the two indicators of residential instability and the indicator of structural density, and was created using the mean average of the three items: the rate of renter occupancy, the percentage of residents who were not at their current address 5 years prior, and the percentage of 5+ unit rental structures (density). Bivariate correlations among these variables were moderate and significant at the p < .01 level. A reliability analysis on the index components yielded an alpha coefficient of .757.

After creating the indices, two variables remained ungrouped: the percentages of high school dropouts and unemployed males. Although they were originally selected as indicators of resource deprivation, empirically, they were not grouped as part of the deprivation index in the PCA. Conceptually, dropping out of high school and unemployment seem like they might be well associated, but the two have a low correlation in the model (.337). The correlation was significant (p < .05), but there isn’t much to gain with using a two-item index variable. Also, one variable could not be substituted for the other because they are not measuring the same thing. While dropping out of high school is likely to make gainful employment harder to get, a diploma (or equivalency) may not be required for many types of work. Therefore, I ran two separate ordinary-least squares (OLS) regression models, one with the percentage of high school dropouts and the other with the log of percent unemployed males.

All of the variables in this analysis are percentages, or ratio variables, therefore this level of measurement makes OLS regression the most appropriate analytic method. OLS determines if there is a linear relationship between the dependent and independent variables. It finds the best fitting regression line through the data, where the average squared deviations of all the variables in the model are the least, or closest to the line (Arney 1990). By doing that, OLS displays the effect of a specific independent variable net of the effects of all the other independent variables.
on the dependent variable. Introducing more independent (or control) variables into a regression model ultimately tests the strength of the correlation between any one independent variable and the dependent variable and reduces the chances of finding a spurious correlation between the two. Resulting significant regression coefficients for any independent or control variables indicate that they may explain some of the variation in the dependent variable.
FINDINGS

In addition to the index component variables, there were a number of other positive, significant bivariate correlations among the original nine variables selected to indicate structural characteristics of social disorganization in the current study (see Table 2). Percentage of individuals below the federal poverty level was correlated with male unemployment, the rate of renter occupancy and the percentage of 5+ unit rental structures. The latter two were also correlated with the percentage of African Americans in each census tract. Male unemployment, the percentage of female-headed households with children under 18, lack of vehicle access and renter occupancy were all correlated. Female-headed households with children was correlated with all three components of the residential index. Lack of vehicle access was correlated with the percentage of 5+ unit rental structures. Finally, the control variable—total population in each census tract—was correlated with the percentage of unemployed males, high school dropouts, and female-headed households.

Among the condensed list of variables used in the multivariate analyses, there were also significant correlations. The deprivation index variable was positively correlated with the residential index variable and the percentage of unemployed males at the p < .01 level. As mentioned, the control variable (population per tract) was correlated at the p < .05 level with unemployed males and high school dropouts. Due to these significant correlations, I performed tolerance and variance inflation factor (VIF) tests to check for multicollinearity, which is the excessive correlation of predictor variables. Severe multicollinearity makes it difficult to assess the relative importance of each predictor variable and could bias the results of a multivariate regression. As tolerance levels approach zero, the higher the multicollinearity. VIF is the
<table>
<thead>
<tr>
<th>Variable (%)</th>
<th>IPV rate in 2006</th>
<th>Total population</th>
<th>In poverty</th>
<th>African Amer.</th>
<th>High school dropouts</th>
<th>Males unemployed</th>
<th>No vehicle Access</th>
<th>Female-headed</th>
<th>Renter occupied</th>
<th>Diff Address 5yrs ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPV rate in 2006</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total population</td>
<td>-.182</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In poverty</td>
<td>.129</td>
<td>.283</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>.236</td>
<td>-.001</td>
<td>.544**</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school dropouts</td>
<td>-.171</td>
<td>.373*</td>
<td>.355*</td>
<td>.082</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males unemployed</td>
<td>.021</td>
<td>.397*</td>
<td>.678**</td>
<td>.134</td>
<td>.357*</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No vehicle access</td>
<td>.204</td>
<td>.165</td>
<td>.762**</td>
<td>.660**</td>
<td>.278</td>
<td>.564**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female-headed</td>
<td>.061</td>
<td>.437**</td>
<td>.808**</td>
<td>.593**</td>
<td>.290</td>
<td>.530**</td>
<td>.735**</td>
<td>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renter occupied</td>
<td>.295</td>
<td>-.063</td>
<td>.596**</td>
<td>.342*</td>
<td>.010</td>
<td>.371*</td>
<td>.643**</td>
<td>.597**</td>
<td>.</td>
<td></td>
</tr>
<tr>
<td>Diff address 5yrs ago</td>
<td>.127</td>
<td>.086</td>
<td>.017</td>
<td>-.018</td>
<td>.034</td>
<td>.152</td>
<td>.162</td>
<td>.338*</td>
<td>.688**</td>
<td>.</td>
</tr>
<tr>
<td>5+ unit structure</td>
<td>.136</td>
<td>.179</td>
<td>.429**</td>
<td>.347*</td>
<td>-.162</td>
<td>.270</td>
<td>.426**</td>
<td>.643**</td>
<td>.644**</td>
<td>.448**</td>
</tr>
</tbody>
</table>

In: logged variable
* sig. p < .05
** sig. p < .01
reciprocal of tolerance, thus the higher the VIF the more multicollinearity among variables (Garson 2009). Across both regression models, the lowest tolerance level was .56 and the highest VIF was 1.79. Given that the tolerance levels were greater than .2 and the VIFs were less than 5, multicollinearity is not an issue in the models (Hutcheson and Sofroniou 1999).

The purpose of this analysis was to examine the effects of neighborhood/community structural characteristics on rates of rural intimate partner violence. Using census-tract level data, neighborhood resource deprivation, family disruption, residential instability and structural density were operationalized through various measurable indicators and their effects on rural IPV rates were analyzed using an OLS regression technique. As explained previously, two regression models comprise this multivariate analysis, with the only difference being the third independent variable. Model 1 (see Table 3) includes the deprivation index, the residential index, the percentage of high school dropouts, and total tract population. Model 2 (Table 3) consists of the same variables with the exception that the percentage of high school dropouts is replaced with percent unemployed males(ln). The outcomes of both multiple regression analyses reveal that the overall model is not significant. In addition, the independent variables within either model fail to reach statistical significance. Overall, this analysis does not support a relationship between the structural characteristics of social disorganization and rural intimate partner violence in the year 2006.
Table 3: Results of Multivariate Regression for 39 Rural N.C. Census Tracts Examining the Effects of Community Structural Characteristics on IPV Rates in 2006

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deprivation index</td>
<td>.381/.205</td>
<td>.316/.169</td>
</tr>
<tr>
<td>Residential index</td>
<td>.033/.129</td>
<td>.043/.165</td>
</tr>
<tr>
<td>High school dropouts (%)</td>
<td>-.053/.159</td>
<td>---</td>
</tr>
<tr>
<td>% unemployed males (ln)</td>
<td>---</td>
<td>-.285/.037</td>
</tr>
<tr>
<td>Total population</td>
<td>.000/.181</td>
<td>.000/.219</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.057</td>
<td>3.055</td>
</tr>
</tbody>
</table>

F = 1.232  
F = 1.024

Note: unstandardized coefficient / standardized beta coefficient
DISCUSSION AND CONCLUSIONS

The over-arching objective of this study was to see if the basic elements of social disorganization theory could provide some explanation for intimate partner violence in rural settings as they have been consistently shown to do with crime in urban places. Although the findings of this study did not provide support for its hypotheses, there is much to be learned from it that may provide alternative directions for future studies. Potential explanations for why some characteristics of social disorganization theory may not be applicable in studies of rural crime and why social disorganization at a structural level may not be the best approach to study rural IPV in general are presented. Various limitations of the current study, the importance of the research and policy implications are discussed.

With respect to the first and third hypotheses that higher levels of resource deprivation and higher numbers of high school dropouts and unemployed males in rural communities would increase rates of IPV, the currently study found no relationship. Conversely, Miles-Doan’s (1998) index of resource deprivation, which included high school dropouts and unemployed males, was statistically significant in her model. With 131 tracts (cases), she was not restricted by degrees of freedom on the amount of independent variables that could be included for study. Her research design involved a principle components analysis where the percentage of high school dropouts and unemployed males both grouped into the index of deprivation, comprised of eleven variables. Thus, it accounted for more of the total variance in her observed list of 14 variables, resulting in a stronger index that may have been capable of explaining more of the variation in her dependent variable, rates of IPV.

Potential reasons why the deprivation index and the percentage of high school dropouts
and unemployed males in this analysis rendered non-significant outcomes are offered below. As previously mentioned, past literature supports that rural communities may adhere to conservatism and old-fashioned ways of living influenced by a traditional culture of patriarchy or fundamental religious beliefs. These cultural characteristics may reinforce stigmas against divorce and traditional gender role ideologies of male-headed households and female subordination (Feyen, 1989; Websdale 1998; Van Hightower and Gordon 2002). The deprivation indicator of female-headed households with children under 18 may not be a suitable variable to measure disadvantage in some rural communities because a female-headed household goes against conventional cultural norms and therefore, may not be a household-type prevalent enough to have a significant effect on rates of IPV.

Perhaps resource deprivation in some rural places has an indirect effect on IPV-related incident reporting to law enforcement. In the current study, this may reduce the known IPV rate in a census tract and therefore, the amount of significant variation to be detected in the dependent variable. The lack of educational attainment and opportunity in resource deprived communities may diminish victims’ capacities to acknowledge, empower and protect themselves against abusive partners, allowing violence to go on unaccounted for. Uneducated victims may not understand their legal rights and have a hard time easily accessing legal information in economically disadvantaged rural communities that lack free legal counsel (Willis 1989; Schaffer 1999; Grama 2000; Grossman 2005). Victims without vehicles or access to alternative transportation methods in isolated rural places may find incident reporting simply too difficult when nothing (law enforcement agencies, victim services, shelters, etc.) is nearby. Consequently, the variable measures of no vehicle access, poverty and high school dropouts may help conceal IPV and appear unassociated with it.
Alternatively, Eric Baumer’s (2002) study of the crime reporting behaviors of residents in neighborhoods with varying socioeconomic conditions suggested that incident reporting was unassociated with socioeconomic disadvantage for serious crimes such as robbery and aggravated assault. In addition, he failed to observe strong empirical support for other theoretical perspectives on the community structural effects on police notification, discussed in numerous other studies he examined. “Perhaps the availability of informal social control mechanisms is an important determinant of neighborhood variation in levels of police notification” (Baumer 2002:604). Supporting this notion is Miles-Doan’s (1998) study itself.

Although she did examine neighborhood structural characteristics on rates of IPV, Miles-Doan (1998) actually hypothesized that neighborhood effects overall would explain less of the variation in rates of IPV. “The longstanding and intimate nature of the relations between victims and offenders in cases of domestic violence suggests a greater role for interpersonal and situational precipitants and a lesser role for neighborhood effects” (Miles-Doan 1998:637). External community characteristics may simply not have as much influence over IPV because of its extremely subjective and privatized nature. Rather, more personal aspects of rural culture acting as informal social control mechanisms may have greater weight on the prevalence of rural IPV, such as fundamental religious beliefs, patriarchal dominance and control, conservative notions surrounding marriage and divorce, and family pressures to keep abuse quiet (Feyen 1989; Gagne 1992; Websdale 1998; Grama 2000). Moreover, some women may fail to recognize the onset of IPV in their relationships because they have never known otherwise or feel that it is easier to remain in their abusive situations rather than face the many obstacles of seeking help (Peterson et al. 2004; Davis and Srinivasan 1995). All of these are factors that could mediate the direct influence of macro-level community structural characteristics such as
resource deprivation, family disruption, residential mobility and structural density on individual experiences of crime and violence. That said, structural measures of social disorganization may not account for as much of the variation in rates of intimate partner violence due to the underlying and greater role of personal effects.

With respect to the second hypothesis that higher levels of residential instability and structural density in rural neighborhoods would increase rates of IPV, the current study found no relationship. Similarly, Miles-Doan (1998) found her index of structural density and residential instability to be unassociated with rates of IPV as well, concluding that “more direct measures of a neighborhood’s capacity for social control and guardianship are necessary to increase the explanatory power of the [social disorganization] model and clarify the mechanisms that underlie it” (Miles-Doan 1998:640). Relating the use of structural density to study crime in rural places, one might argue that its basic principle applies, just as in urban settings. That is, increased structural density in terms of housing facilities means that there are more residential structures in an area, which means more people living there and more opportunities for crime to occur. In addition, much like inner cities, the rural poor may be isolated and segregated into certain neighborhoods that have more multiple-unit, low-income housing structures, (i.e. public housing or mobile home parks) also indicating concentrated poverty, which is highly correlated with crime. Therefore, higher crime rates in rural neighborhoods may be related to the amount and type of residential structures located there, which supports a traditional (urban) model of social disorganization theory.

On the contrary, one may find that having more structural density in the form of multiple-unit residential structures in some rural places might actually increase guardianship ability—which may decrease criminal activity—since households are typically far apart in rural areas,
sometimes by miles of separation. In this context, structural density would not represent social disorganization. Instead, the absence of density may be a better measure. Osgood and Chambers (2000) support that the absence of density may create many of the same problems in rural areas that structural density and population density create in urban areas, e.g., weaker friendship networks, social isolation and decreased community guardianship and surveillance, which are all things that interfere with social control and are predictive of high crime rates (Sampson and Groves 1989; Jobes et al. 2004). If the absence of density creates the same social problems for rural areas that structural density has been found to create in urban areas, then it would function as a measure of social disorganization.

Given the lay of the land, residential instability (or stability) may not have any effect on crime control in some rural places because geographic isolation limits the capacity for neighborhood guardianship and intervention against IPV and/or other criminal activities, regardless of surrounding population changes. The movement of persons in and out of rural areas may not have much of an effect on neighboring residents if they are separated by considerable distance and have few surrounding neighbors as it is. Census-tract descriptive statistics for the current study support the notion that rural areas tend to have more stable populations (Jobes et al. 2004). With many large metropolitan areas factored into state level averages, NC, for example, has a much higher rate of residents with a different address five years ago—almost fifty-percent. Thus, as indicators of social disorganization, residential instability and structural density may be two characteristics of the traditional theoretical framework that are not very useful for studying crime in rural areas.
Limitations

As with other studies, limitations are present in this research. A substantial limitation of the current study was the small number of cases, 39 census tracts. As previously mentioned, due to this small sample size, the number of independent variables that could be included in the regression analyses were limited, hence the need to condense them into index variables. Overall, having a small sample size risks a wide margin of error and a small amount of variation as well, meaning that the findings, if significant, may not be very representative of what they are originally trying to measure (Ritchey 2008).

In the interest of partial replication, the current study operationalizes social disorganization by using many of the same variables as Miles-Doan (1998), and her only measure of family disruption was the percentage of female-headed households with children under 18. However, that particular measure doubles as an indicator of economic disadvantage in numerous studies, including this one (Krivo and Peterson 1996; Miles-Doan 1998; Matthews et al. 2001). After performing the principal components analysis, female-headed households loaded into the index of resource deprivation and its effects as an indicator of family disruption were masked. Future researchers can enhance measurements of family disruption by utilizing additional indicators such as the percentage of divorced individuals and/or the male marriage pool index (Parker and Johns 2002).

IPV-related incident data collected for the current study were based on incidents that became known to and were recorded by law enforcement agencies in the year 2006. The U.S. Department of Justice estimates that fewer than half of all victimizations are reported to the police each year. “Approximately one fifth of all rapes, one-quarter of all physical assaults, and
one-half of all stalkings perpetrated against female respondents by intimates were reported to the police” (Tjaden and Thoennes 2000b:v). In addition, emotional abuse is grossly underrepresented in law enforcement data because it is difficult to prove. Therefore, the rate of IPV in each census-tract may have been much lower than the reality.

Dependent on the filing methods of local law enforcement agencies, incident reports were either hand-written or data was imputed electronically by varying individual officers and/or data entry clerks. Therefore, the data were subject to irregularity and human error, which is yet another limitation. Inconsistencies include (but are not limited to) coding incident form fields incorrectly, leaving them blank, writing illegibly and making incorrect inferences about the relationship between the victim and offender if not otherwise stated.

Contributions of the Study

Although not significant, studies like this one help to build a foundation of knowledge about rural IPV by providing evidence of how it has been studied in the past and offering direction for future avenues of research. As demonstrated by the current study, the use of social disorganization theory as it is applied in urban areas may not be very helpful for studying IPV in geographically rural communities. Contrarily, some researchers have found that the theory does apply in the same manner when studying other types of rural crime. Perhaps it is the nature of the crime itself. IPV is an extremely personal offense that may be driven by cultural constructs and emotional responses that could mediate the effects of community structure. A similar argument can be made for other crimes (e.g., homicide) that are committed as an irrational in-the-moment reaction. Or, perhaps it is the underlying components of social disorganization theory that should be re-examined in the future. As stated, this study tried to employ a social
disorganization model typically used in urban studies of crime. Maybe some of the theory’s main components need to be adapted to better fit rural areas: such as using persons per square mile as a measure of density, including additional measures of family disruption, and diverting any major focus on measures of residential instability—footnoting findings, if any. Additionally, it is likely that the definition and/or concept of “rurality” is not uniform across studies, which may greatly influence their outcomes and generalize-ability from rural place to rural place.

Regardless, the small quantity of investigative research surrounding the topic of rural IPV leaves the public significantly uninformed compared to what is known about this devastating phenomenon in urban communities, and thus ultimately powerless to do much about it.

The social policy implications of this research are apparent. About one-fifth (about 21%) of the U.S. population still lives in rural areas (U.S. Census Bureau 2000), and resources in the form of services that provide aid to victims of IPV such as shelters, support groups, counseling, social services, medical services and legal aid are sparse or non-existent in most rural areas (Olsen 1988; Van Hightower and Gorton 2002; Grossman et al. 2005; Teaster et al. 2006). Law enforcement, justice system and victim services professionals need more education and training on how to deal with the sensitive nature of domestic violence in rural communities without being ignorant of the difficulties and realities that victims face (Grama 2000; Cox et al. 2001; Few 2005; Eastman et al. 2007). Professional networks should be expanded to meet the needs of rural workers for ongoing training, stimulation and support; and evaluations should be conducted periodically to determine how to improve services to rural clients, workers and communities (Olson 1988). In addition, conducting ethnic-specific studies of women who experience rural IPV is essential because programs and resources may be virtually useless if they are not culturally appropriate (Krishnan et al. 2001; Pyles and Postmus 2004; Grossman and Lundy
LIST OF REFERENCES


