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Rurality and Intimate Partner Homicide: Exploring the Relationship between Place, Social Structure, and Femicide in North Carolina

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Rurality and Intimate Partner Homicide: Exploring the Relationship between Place,
Social Structure, and Femicide in North Carolina

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
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Abstract

A developing body of research within the fields of criminology and rural sociology has emphasized the importance of considering geographic place in the study of interpersonal violence, and domestic violence in particular. Exploring how place is related to domestic violence lends itself to considerations of geographic variation in socio-structural conditions. A handful of studies since the 1980s have explored structural correlates of intimate abuse largely rooted in one of two theoretical contexts: social disorganization or gender inequality/patriarchy. However, knowledge regarding the relationship between place, social structure, and specific types of violence remains limited. The present study is intended as an examination of the relationship between place, social structure, and intimate homicide. Specifically, this study explores the influence of rurality, social disorganization *and* gender inequality on male perpetrated-female victim intimate partner homicide (*femicide*). Analyses are also conducted on non-domestic homicide to serve as a comparison to femicide findings. Several research questions are explored including, (1) does rurality have a significant relationship with femicide rates, (2) does structural gender inequality have a significant relationship with femicide rates, and is this relationship conditioned by rurality, (3) does social disorganization have a significant relationship with femicide rates, and is this

relationship conditioned by rurality. All research questions are also explored for non-domestic homicide rates.

The data come from several sources including the 2000 U.S. Census (theoretical indicators and control variables), the U.S. Department of Agriculture's Economic Research Service (measure of rurality), the North Carolina State Center for Health Statistics (measure of homicide), and the North Carolina Coalition Against Domestic Violence (measure of femicide). A unique contribution of this study is the use of non-official data sources for homicide measures which are not bound by the same limitations (e.g., accuracy, voluntary reporting) that limit the commonly utilized UCR and SHR data. Negative binomial regression is used to analyze county-level rates of femicide and non-domestic homicide for the population of North Carolina counties ($N=100$). The results indicate that (1) place does matter, as illustrated by significantly higher risk of femicide and non-domestic homicide victimization in rural counties compared to non-rural counties; (2) increasing female equality in rural counties may serve as a protective factor against femicide victimization, but this relationship is mediated by social disorganization; and (3) increasing social disorganization in non-rural counties is associated with higher risk of non-domestic homicide.

The present study has several implications for femicide and disaggregated homicide research. First, the findings demonstrate the importance of considering geographic location in modeling structural theoretical indicators and processes. Second, the significance of certain theoretical indicators representing both gender inequality and social disorganization contribute to the development of a matrix of

risk that can be used to encourage and/or justify the more arduous task of testing fully specified models of the theories across place. Third, the present study contributes to the literatures extending social disorganization to rural places and to domestic violence, and the role of structural gender inequality in gendered violence. Future research exploring structural explanations for intimate partner homicide are urged to make comparisons across disaggregated homicide types and, most importantly, consider the influence of rurality.

Chapter One: Introduction

Preconceived notions of idyllic rural life have historically concealed the reality of rural violence from society. While rural crime remains largely understudied in the field of criminology, recent research efforts are demonstrating the importance of non-urban place in violence studies. Specifically, research has found that trends in disaggregated homicide rates differ between rural and urban counties (e.g. Gallup-Black, 2005; Jennings & Piquero, 2008; Sinauer, Bowling, Moracco, Runyan, & Butts, 1999); the type and severity of domestic abuse is different for rural and urban women (Websdale & Johnson, 1998) which may be shaped by the context of rural life (Websdale 1995; 1998; Websdale & Johnson, 1998; Weisheit & Donnermeyer, 2000); and that explanations for rural violence may differ from explanations for urban violence (Bouffard & Muftić, 2006; Kaylen & Pridemore, 2011; Melde, 2006; Weisheit & Wells, 2005). In other words, rooted in the argument that place matters in violent crime, researchers have begun to examine *why* and *how* place matters. Of particular relevance for the current research study are examinations of the role of social structure and/or place in explaining intimate partner violence (e.g., DeKeseredy & Schwartz, 2009; Diem & Pizarro 2010; Madkour, Martin, Halpern, & Schoenbach, 2010; Miles-Doan, 1998; Pruitt, 2008; Websdale, 1995, 1998; Websdale & Johnson, 1997, Weisheit, Falcone, & Wells, 2006).

Explaining *why* and *how* place matters for domestic violence lends itself to considerations of socio-structural variations across location. However, structural research

has not historically been synonymous with domestic violence research. Intimate partner violence has been viewed as “determined more by interpersonal and situational precipitants than by external agents of control,” such as structural disadvantage (Miles-Doan, 1998, p. 625). Furthermore, because of the intimacy of IPV, the idea that specialized theories were needed led to a tradition of research and theory that “has focused on individual and couple level dynamics and characteristics” (Benson, Fox, DeMaris, & Van Wyk, 2003). The interpersonal tradition of examining domestic abuses explains the neglect of intimate violence in ecological studies. Only more recently have structural contextual considerations begun to penetrate the consciousness of domestic violence research. Thus, the present study draws on research examining structural explanations of violence in non-urban areas, as well as research relating to feminist analyses of intimate partner violence (IPV).

Structural domestic violence research has largely grown out of two theoretical contexts, those considering criminological theorizing on social disorganization and resource deprivation, and those coming from a feminist approach emphasizing gender inequality, or patriarchy. Studies utilizing a social disorganization context to examine IPV have primarily consisted of urban samples, resulting in limited consideration of place (e.g., Grana, 2001; Miles-Doan, 1998). Studies employing a feminist or gender inequality context have primarily done so with rural samples and have included an in depth discussion of the role of rural environment and the impact of rurality on domestic abuse (e.g., DeKeseredy, 2009; Websdale, 1998). In other words, with few exceptions, social disorganization has been used to explain intimate partner violence in urban areas while female inequality/patriarchy has been used to explain rural intimate partner violence.

The current study emphasizes socially deleterious structural antecedents of crime associated with feminist and social disorganization theory. The present study is intended as an exploratory examination of the relationship between place, social structure, and intimate homicide, so neither theory will be explicitly tested. Instead, the emphasis is on understanding the potential structural differences between intimate partner homicide rates in rural and non-rural counties, and whether contextual differences exist between intimate partner homicide and non-domestic homicide. Research exploring potential explanations for disaggregated homicide rates (intimate partner homicide) has benefited from comparison to other disaggregate and aggregate rates of homicide (Kubrin, 2003). Given the argument for specialized interpersonal theories of domestic violence, structural research should also consider whether antecedents of femicide are different from non-domestic homicide. This comparison is achieved in the current study by conducting analyses on non-domestic homicide rates in addition to intimate partner homicide (femicide) rates.

The specific focus of the present study is exploring how context is related to the male killing of a female intimate partner, referred to hereafter as *femicide*. Investigations of femicide as a distinct phenomenon have utilized nuanced definitions of femicide, illustrating the need to clearly define the term in the context of the current study (e.g., Dawson & Gartner, 1998; Frye, Hosein, Waltermaurer, Blaney, & Wilt, 2005; Grana, 2001; Morraco, Runyan, & Butts, 1998; Radford & Russell, 1992). Radford and Russell referred to femicide as “the misogynous killing of women by men” (1992, p. xi, xiv, 3). Frye et al. defined femicide as the “the killing of women” (2005, p. 204) and referred to *intimate partner femicide* to distinguish the type of woman killing being examined.

Moracco et al. employed a similar definition referring to femicide as the murder of females (1998, p. 423). While definitions have varied by study from the more inclusive “murder of women” to the more specific contextualization of femicide as occurring within the social milieu of misogyny, the operationalization of femicide has largely been in reference to female murder at the hands of an intimate or former intimate partner (or *intimate partner femicide*). Thus, for the purposes of the current study, the term femicide is used as by Dawson and Gartner, “the killing of women by intimate male partners” (1998, p. 338). The intimate partner does not have to be a current intimate partner, nor a legal spouse, but rather the term as used here refers to any murder of a female in the context of the intimate relationship she shared with the perpetrator. Thus, the focus of this study is on exploring structural explanations for femicide, whether these explanations vary across place, and whether they are different than explanations for non-domestic homicide.

Organization of the Present Study

The present study is organized in the following manner. The remainder of Chapter One introduces how rural places are different from urban places and definitions of rurality. Chapter Two details the theory and research pertinent to understanding the structural context of domestic violence. First, social disorganization theory will be described and research applying social disorganization constructs to intimate partner violence will be discussed. An additional component of social disorganization research is also relevant to the current study: examinations of social disorganization’s generalizability to nonurban violence. This research will be examined in order to assess the degree to which social disorganization may also be able to explain femicide, and non-

domestic homicide, in non-urban places. The second theoretical orientation informing the current study's analysis, feminist theory, then will be described, particularly emphasizing the role of structural patriarchy/gender inequality in understanding gendered violence. Finally, structural examinations of intimate partner violence that have considered geographical place will be delineated.

Chapter Three details the present research study including presentation of research questions, description of the data and measures, and the analytic procedure. Chapter Four provides the results of the bivariate analyses, principal components analyses, and the negative binomial regression analyses. Finally, Chapter Five discusses the findings and limitations, offers avenues for future research, and draws conclusions based on the present study's findings.

What is Rural and How is it Different from Urban?

Defining rural and urban place is important to conceptually understanding why there may be concrete differences between places, as well as addressing pre-conceived notions about rural places in particular. Understanding the context of rural crime requires discussion of some general characteristics of communities which vary across urban and rural locations; especially geography, socioeconomic factors, and culture (Weisheit & Donnermeyer, 2000). These characteristics will be discussed briefly below, and will be discussed in terms of how they may specifically influence the context of intimate partner violence in Chapter Two.

Geography. The two primary geographic attributes that distinguish rural from urban are population density and remoteness (Pruitt, 2008; Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). Often times the physical distance between homes (and even

the size of a county or jurisdiction) is much greater in rural places compared to more urban locations (Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). Thus physical distance and isolation have several consequences for crime. First, the distance between homes makes it more difficult for neighbors to watch each other's property as well as be aware of verbal and physical altercations among neighbors. In terms of criminal justice policy, this type of physical space has implications for the implementation of community policing and community watch (Weisheit et al., 2006). In particular, both are more difficult to implement successfully in a traditional manner due to geographical space and isolation.

Second, rural counties, particularly in the West, are often much larger than urban counties, and law enforcement agencies in rural areas are likely to have fewer personnel responsible for covering more physical space. Thus, response times on the part of law enforcement and emergency assistance may be much longer than national averages. This has implications both in regards to the ability for offenders to flee the scene of a crime as well as for the lethality of violent offenses. For example, Weisheit et al. (2006, p. 22) quoted a rural sheriff explaining that “they [the instructors at the state training academy] always talk about responding to calls within two minutes. There are parts of my county that can take an hour to get to by car.” In regards to lethality, Weisheit and Donnermeyer (2000) explained that an assault in a rural county is more likely to become deadly than an assault in a large city due to response and travel times between the incident and the nearest hospital.

Third, physical space and isolation are also associated with a host of other issues related to convenience and technology. The most basic technological advances that are

thought to have improved the effectiveness of criminal justice are not always present in rural places. Access to the internet, cellular phone service, and even landline phone service is not always available (and if it is, is not necessarily as affordable) in some rural locations. For example, some 19 million Americans do not have access to broadband services (high-speed internet which can also provide telephone service); 76% (14.5 million) of those individuals live in rural areas (Smith, 2012). Without telephone access, contacting law enforcement or emergency services is difficult, especially if the nearest neighbor with phone service is acres or miles away (Weisheit et al., 2006).

Socioeconomic factors. Weisheit et al. (2006) point to three primary characteristics of rural economies as important to understanding crime and criminal justice in a rural context: chronic poverty, economic extremes, and thin economies. Rural areas are often characterized by chronic poverty, including higher levels of unemployment and lower wages compared to urban areas (Weisheit et al., 2006). While poverty is stressed as a consistent predictor of high crime rates in urban areas, the poverty-crime relationship in rural areas is less straightforward, and less studied (Weisheit et al., 2006). Research does tend to indicate that poverty rates are generally higher in rural areas than in urban ones. But not all rural communities are the same, some rural communities have benefited from economic growth either due to proximity to a more metropolitan city or because of internal economic development. Rural areas whose economies are based on tourism or who cater to retirees experience the most population and economic growth, as well as corresponding growth in the occurrence of crime (Weisheit et al., 2006). Thus, rural places can be characterized by economic extremes spanning a range of wealth to chronic poverty.

In terms of thin economies, rural areas are more likely to be dependent on a singular industry whereas urban areas are often characterized by a diversity of industries and employment opportunities (Lee & Ousey, 2001; Matthews, Maume, & Miller, 2001; Websdale, 1998; Weisheit et al., 2006). If that single industry leaves the community the primary source of employment vanishes leaving an increasingly impoverished community behind. Rural communities adjacent to urban areas have benefited from the growth and prosperity of those urban centers during times of economic growth, but isolated rural communities do not usually benefit from urban economic development and thus are consistently economically depressed (Weisheit & Donnermeyer, 2000). Combined, these characteristics make for more variability in socioeconomic status within urban places compared to rural places.

Culture. Discussions of differences between rural and urban also reference the idea of rural culture or social climate. Rural locations are believed to have closer social ties and increased informal social control, explaining why crime is generally lower in rural communities (Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). In terms of people, urban environments tend to be more ethnic and racially heterogeneous, whereas people in rural communities are more likely to be homogenous both in physical appearance and in ideology (Websdale, 1998; Weisheit et al., 2006). Rural places also tend to experience less population change leading to increased familiarity and kinship networks (Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). Additional characteristics of rural culture include mistrust of government and reluctance to seek outside assistance. There is a degree of suspicion of a strong central government in rural communities who are generally less supportive of government programs (Weisheit et al.,

2006). This suspicion of state and federal government leads to community matters being handled within the community and family matters being handled within the family, posing difficulties for issues like domestic violence.

An additional cultural difference between rural and urban communities that is directly relevant to discussion of crime is the presence and use of guns. While there are generally higher rates of gun-related violence in urban areas, gun ownership is more prominent in rural areas due to the culture of gun ownership and the use of guns for reasons of hunting and protection from non-human prey. Interestingly, while ownership is more common in rural areas, the use of guns in the commission of crimes is more common in urban areas.

Combined, these cultural differences indicate that the processes hypothesized by criminological theory may not operate in the same fashion in rural areas and emphasize the importance of considering geographic place in studies of crime. Therefore, for studies of crime to include designations of place, place must be defined. The aforementioned contextual differences are difficult to capture quantitatively, and several different designations of rurality have been used in prior research. The definitions of rural and urban used in criminological research are discussed below.

Defining Rural

Operationalization of rural and urban requires defining what those terms mean beyond the images they may conjure in public consciousness. In research, rural has been defined in a number of ways, and rural research often dedicates space to a discussion of the meaning of rural, rural-urban dichotomies, and the rural-urban continuum. A brief discussion of what rural has meant in research is presented here, and the

operationalization of rural in the current study is discussed in more detail in Chapter Three.

Data collection is one way in which definitions of rural compared to urban have developed. The U.S. Census Bureau (2010) defines two types of urban areas: urbanized areas and urban clusters. Urbanized areas contain at least 50,000 people, whereas urban clusters contain at least 2,500 people but less than 50,000 people (U.S. Census Bureau, 2010). Those areas that do not meet these requirements are considered rural. Other government agencies define places by taking into account population density as well as proximity to metropolitan areas producing continuums. The United States Department of Agriculture's Economic Research Service (2012) offers two classifications of county rurality based on the Office of Management and Budget's (OMB) metropolitan and nonmetropolitan categorization. Urban Influence Codes distinguish metropolitan counties by size and nonmetropolitan counties by size of the largest city or town and proximity to metropolitan and micropolitan areas, resulting in two metro categories and ten nonmetro categories. Rural-Urban Continuum Codes distinguish metropolitan counties by size and nonmetropolitan counties by degree of urbanization and proximity to metro areas, resulting in three metro and six nonmetro categories.

In addition to these more formal classification schemas, researchers may make individual decisions about what constitutes rural compared to urban. For instance, Websdale and Johnson (1998, p. 165) explain that based on their "geocultural feel" for the state of Kentucky, they designated communities with a population of less than 10,000 people that were not near a major metropolitan center as rural. This provides an example of how variability in conceptualizing rural has resulted in a lack of consistency across

studies and in the inability to compare the findings of those studies easily (DeKeseredy & Schwartz, 2009; Websdale, 1998; Weisheit & Donnermeyer, 2000; Weisheit & Wells, 1996). However, designations such as those produced by the Economic Research Service which consider both population size and proximity to metropolitan areas are becoming increasingly common in quantitative studies.

While definitions and categorizations of rural have varied across studies, existing research has indicated the importance of considering place in crime research. This study examines the applicability of social disorganization and feminist theory to understanding femicide rates across place. Social disorganization explanations have emphasized the role of neighborhood disadvantage and lack of social control in contributing to violence. In contrast, feminist structural explanations for violence have emphasized the importance of gender inequalities as they relate to the occurrence of intimate partner abuse. Both theories have discussed, to some degree, the role that place may play in understanding the context of violence. Sampson (2002) characterized Chicago-school inquiry, in part, as “a relentless focus on context (especially place)” (p. 217). Emphasis on context has also appeared in feminist research on intimate partner homicide (e.g., Taylor & Jasinski, 2011). It is in this vein of *context* that the current study proceeds, with a focus on the importance of social structure and place, particularly rurality, in understanding femicide.

Chapter Two: Review of Literature

Ecological theories of crime began to develop in the early 1900s; however, they were overshadowed by individual level theories that dominated for much of the 20th century (Pratt & Cullen, 2005). In spite of this shift, reinvestment in macro explanations during the 1980s has led to the production of more than 200 empirical studies aimed at explaining aggregate crime rates (Pratt & Cullen, 2005). This research has led to a well-established relationship between social structure and homicide (Diem & Pizarro, 2010; Pridemore, 2002). Studies of social structure and crime, particularly violence, within mainstream criminology have largely rooted themselves in subculture, strain, or social disorganization. Of these, one of the most prominent is social disorganization, which has also received the most consistent empirical support (Pratt & Cullen, 2005; Pridemore, 2002). Furthermore, social disorganization and structural disadvantage have appeared most frequently among research extending structural analysis beyond urban areas. Rural criminological and sociological research suggests that rural and urban communities may both experience disadvantage, but that disadvantage may relate to violence differently based on place (Wells & Weisheit, 2004).

While studies exploring the ecology of violence have largely grown out of social disorganization in mainstream criminology, recent decades have also witnessed growth in structural ecological examinations of domestic violence through a feminist lens. Since the emphasis of the current study is on contributing to empirical knowledge on the

relationship between femicide and place, both of the aforementioned theoretical orientations will be discussed, as well as relevant research pertaining to ways in which these theories may explain femicide rates across the rural-urban divide.

Social Disorganization Theory

Social disorganization theory developed out of the Chicago School beginning in the 1920s. The original theory of social disorganization was an ecological perspective meant to explain the relationship between environment and human behavior. Initiated by interest in the development and industrialization of metropolises, Park and Burgess' (1925, 1967) theorizing focused on how social condition (e.g., poverty, ethnic heterogeneity) affected human behavior. They observed that as central business districts in cities grew, residents moved further away from city centers. The area surrounding the city center, then, became a transitional zone continually changing and often deteriorating (Kubrin, Stucky, & Krohn, 2009; Parks & Burgess, 1967). Those individuals of lower socio-economic status, also often the most recent immigrants representing an array of ethnic backgrounds, were most likely to reside in or closest to the transitional zone. The image of the central business district's influence on residential movement and settlement was represented by a circular concentric zone model. However, Parks and Burgess' initial interpretation of human behavior influenced by situational factors did not explicitly extend to, or include, considerations of crime.

In 1942, Shaw and McKay extended the theorizing of Park and Burgess to explanations of urban juvenile delinquency (Kubrin et al., 2009). They argued that structural factors (i.e., low economic status, ethnic heterogeneity, and residential mobility) influenced crime through their impact on social control. Following the

concentric zone model, Shaw and McKay found that the transitional zone was shown to have higher levels of juvenile delinquency and (as later assessed) street crime in general. The social conditions originally theorized and shown to correlate with crime were socioeconomic status, residential mobility, and racial/ethnic heterogeneity (Kornhauser, 1978; Kubrin, et al., 2009; Sampson & Groves, 1989). Subsequent tests of the theory have added additional sources thought to contribute to crime including family disruption and degree of urbanization (Sampson & Groves, 1989). However, the structural antecedents of crime are not the only important component of the theory.

A key element of social disorganization theory is informal social control. Informal social control refers to the engagement of community members in attempts to prevent and intervene in local problems (Kubrin et al., 2009; Shaw & McKay, 2006). Communities lacking informal social control are more likely to have higher rates of crime than communities with high levels of social control. Thus the relationship between social conditions and crime is not direct, but rather social conditions influence crime through their effects on informal social control (Kubrin et al., 2009; Sampson & Groves, 1989). This distinction explains why a certain area of the city may have consistently high levels of crime in spite of change in the area's inhabitants. In other words, it is not certain groups of people that are criminogenic, but rather the area and social conditions associated with the area do not foster the social control existent in more stable neighborhoods.

As discussed in Kubrin et al (2009), whether or not a neighborhood is socially organized or disorganized depends on three elements: solidarity, cohesion, and integration. Solidarity refers to a community's consensus regarding values and norms,

cohesion refers to the bonds between neighbors and community members, and integration refers to the consistency of social interaction among community members (Kubrin et al., 2009). Socially organized communities are theorized to have high levels of these elements, and their disorganized counterparts would have low levels. High levels of solidarity, cohesion, and integration are associated with high levels of informal social control which is theorized to suppress criminal behavior, and particularly juvenile delinquency. While Shaw and McKay conceptualized social disorganization as a mediated model where crime was the result of the influence of social conditions on informal control, most tests of the theory only include examinations of the direct relationship between social conditions and crime (Sampson & Groves, 1989). In part due to a lack of relevant data, it was not until social disorganization was revisited in the 1980s that tests of the theory's indirect as well as direct relationships took place.

Research examining social disorganization since its revitalization in the 1980s has contributed to the growth and modification of the theory. In particular, the research conducted by Sampson and Groves (1989) was important to the revitalization and clarification of social disorganization theory. They emphasized the importance of direct tests, as opposed to the common "preliminary" tests of social disorganization that only examine the relationship between indicators of disorganization and crime rates, and provided an empirical model of the theory. A direct test of social disorganization would take into account the mediating factors that intervene between indicators of disorganization and crime, i.e. collective efficacy. The difficulty in engaging in complete tests of the theory lies in the limited access to relevant data. Sampson and Groves argued that most quantitative data collection efforts do not include variables associated with the

causal pathway of social disorganization and qualitative data is not generalizable. The emphasis of Shaw and McKay's theory was on identifying *between* community differences, something that few studies prior to 1989 had examined extensively (Sampson & Groves, 1989).

The model of social disorganization proffered by Shaw and McKay assumed that structural barriers prevent the development of formal and informal social ties (Sampson & Groves, 1989). These social ties and resulting social control are needed in order to solve problems such as neighborhood criminal activity. Three components, or intervening mechanisms, summarized by Sampson and Groves include the ability of a community to supervise and control the behavior of those engaging in the most crime (e.g., gangs), local friendship networks, and local participation in formal and voluntary organizations. These components are considered intervening dimensions because it was hypothesized that they have the power to mediate the relationship between sources of disorganization and crime. Specifically, if there is high collective social control in a neighborhood (e.g., community watch groups, bonds among community members), then crime should be lower than a neighborhood with low collective social control. Sampson and Groves' (1989) extensive analyses found support for social disorganization showing that effects of community characteristics on crime were mediated by community social control.

The significance of social disorganization theorizing to the field of criminology has been great. Social disorganization research led to the identification of the co-occurrence of crime and certain social conditions, and the potential association between crime and a location regardless of that location's inhabitants (Kubrin et al., 2009). Four large scale assessments of the ability for structural theories to explain violence have been

undertaken and serve to describe that state of social disorganization and structural covariates of violence in criminology (particularly in urban places). Discussed below are the findings of three studies that reviewed the relationship between social structure and homicide, in addition to Pratt and Cullen's (2005) meta-analysis of aggregate crime studies that specifically examined the strength and consistency of social disorganization theory.

Land, McCall, and Cohen (1990) undertook one of the first large-scale assessments of the relationship between structure and homicide across time and space. The purpose of their study was to determine whether there existed consistent findings regarding structural covariates of homicide by examining 21 empirical studies. Concluding that findings were quite inconsistent (largely due to methodological incongruities), Land et al. engaged in an empirical assessment of structural covariates of homicide in order to determine if consistency across time (1960, 1970, 1980) and level of analysis (city, metropolitan area, state) could be identified. The findings of their study were particularly important for the future development, and examination of, structural theories of violence. Land et al. were able to demonstrate that structural correlates were consistently related to homicide across space and time and that the primary cause of inconsistencies among studies was rooted in collinearity among variables. Their solution was to create indices (when appropriate) of theoretically relevant concepts as opposed to modeling each variable independently. This use of principal components analysis to derive indices representative of structural explanations (e.g., social disorganization) has become common practice within the literature.

In response to a future research suggestion proposed by Land et al. (1990), Kubrin (2003) extended Land et al.'s research in order to examine if structural factors were correlated with types of homicide. Kubrin's examination is particularly relevant to the development of research on disaggregated homicide types (of which the current study is one). The research question Kubrin investigated was whether structural covariates were equally associated with all types of homicide, given that homicides may exhibit qualitative differences based on victim-offender relationship, motive, or circumstances. Using a sample of 1,557 homicides occurring in St. Louis between 1985 and 1995, Kubrin identified subtypes of homicide by conducting cluster analysis which resulted in four categories: general altercation, felony, domestic (male on female), and domestic (female on male). Results indicated that disadvantage (percent poverty, median family income, percent Black, percent unemployed, percent children 18 and under living in a single household) was strongly related to all types of homicide. Aside from disadvantage, population size was a significant factor for all categories of homicide and residential mobility was significantly related to homicides overall, and specifically to felony homicides. Kubrin concluded that neighborhood disadvantage, commonly associated with social disorganization, was particularly relevant to explaining aggregated and disaggregated homicide.

Also focusing specifically on homicide, Pridemore (2002) reviewed studies examining the relationship between social structure and lethal violence in the United States going back to 1969 in order to determine what empirical research tells us about structural-cultural concepts and homicide. He included studies across sociology, criminology, and the public health disciplines. Pridemore's (2002) assessment showed

the importance of controlling for poverty, regardless of the theory being tested. Poverty appeared in the literature to be more strongly and consistently related to spatial variation in homicide than even inequality measures. Specifically within the context of structural theories, Pridemore assessed the state of social disorganization theory. He concluded that in addition to poverty, elements of social disorganization demonstrated a consistent association with homicide rates. Social disorganization, Pridemore concluded, had been shown to be more consistent in explaining variation in homicide than subcultural or relative deprivation theories. In discussing future directions for research, Pridemore addressed the growing emphasis on disaggregating homicides based on the relationship between the victim and offender. The reason for this being that the etiology of types of homicides may be different and thus structural explanations for different homicide types may vary.

Most recently, Pratt and Cullen (2005) conducted a meta-analysis of 214 empirical studies conducted on aggregate crime appearing between 1960 and 1999 in order to determine the relative effects of macro-level crime predictors. In presenting their assessment, Pratt and Cullen (2005) identified three primary predictor domains: social-structural, socioeconomic, and criminal justice system related. These domains consisted of several similar measures across studies that, while not exactly the same, were meant as measures of the same construct. Most germane to the current research endeavor are the predictors relating to social-structure (e.g., racial heterogeneity, residential mobility, family disruption, urbanism, sex ratio) and socioeconomic status (poverty, racial inequality, unemployment). Their assessment was inclusive of seven macro-level theories which were determined to have been tested empirically in the literature: social

disorganization, anomie/strain, resource/economic deprivation, routine activities, deterrence/rational choice, social support/social altruism, and subcultural. In all, Pratt and Cullen rank ordered the effect sizes of 31 macro-level predictors representing these seven theories. In regards to social disorganization, the mean effect size of four of the seven variables associated with the theory was above .20. In addition, three of the five crime predictors scoring high on both strength and stability were associated with social disorganization theory (percent nonwhite, percent Black and family disruption). Based on the results of their meta-analysis, Pratt and Cullen made some suggestions with relevance for future examinations of social disorganization: 1) five predictors were found to be high on strength and stability: percent nonwhite, incarceration effect, percent Black, family disruption, and poverty. Thus, inclusion of these variables may be particularly important for macro analyses; 2) the predictors demonstrating the most consistent presence in the meta-analysis are those associated with the notion of *concentrated disadvantage* as discussed in the context of social disorganization and resource/economic deprivation theories. Therefore, it was suggested that the role of concentrated disadvantage be considered in future analyses. Overall, these four studies show that social disorganization theory has received fairly consistent and strong support in the empirical literature.

Review of social disorganization research indicates that indirect tests of the theory's constructs remain common in the sociological and criminological literature (Akers & Sellers, 2004). However, indirect tests have been criticized for defining social disorganization in terms of its outcomes, i.e., indicators of social disorder, which may constitute violations of crime, are used to measure the cause of crime (social disorder). As explained by Sampson (2006), "if crime and disorder are part of the same process,

with disorder and crime both the observable indicators or markers for a lack of order, we have described a matrix of risk but not independent causal mechanisms or processes” (p. 151). Sampson’s point here is valid with regard to furthering social disorganization theory testing by emphasizing the causal mechanisms, in particular collective efficacy. However, in regards to research on structural indicators of rural and urban femicide, there is still need for development of a “matrix of risk”. In other words, the indicators of disorder and crime may not be consistent across rural and urban communities. As noted by DeKeseredy and Schwartz (2009) “neither collective efficacy nor social disorganization may be operating according to a quiet textbook explanation” (p. 10) in rural areas. Determining structural risk factors for femicide across place may be beneficial prior to assessing the causal mechanisms at work (see also Melde, 2006).

The research examining social disorganization theory is vast; however, two subsets of social disorganization research are particularly relevant to the current study and will be examined further. These include the studies exploring the applicability of social disorganization to explaining domestic violence, and studies exploring social disorganization’s generalizability to explaining violence in rural or nonurban places.

Social disorganization, disadvantage, and IPV. Ecological examinations of intimate partner and domestic abuse have situated themselves in the known correlates of domestic violence at the individual level. For example, indications that domestic violence was more common among those with lower socioeconomic status were used to link socio-structural explanations with the occurrence of IPV (Miles-Doan, 1998; Wooldredge & Thistlethwaite, 2003). Domestic violence has predominately been explained using feminist theories relating to micro-level processes at the couple or individual level.

However, the relevance of structural theories has not been excluded through rigorous empirical examination but rather structural explanations have simply been neglected. Based on the findings of studies such as Kubrin's (2003), analysis of disaggregated homicide rates, social disorganization may in fact be relevant to understanding intimate homicide. Additionally, if individual- and couple-level factors, such as socioeconomic status, are correlated with domestic violence risk, it stands to reason that these same factors may operate at a structural level to influence the prevalence of domestic violence in a neighborhood, county, or state. While still a relatively small literature, most studies exploring the relationship between community disorganization and domestic violence have found significant results. These results indicate that accounting for structural factors does explain variation in rates of intimate violence, with the potential caveat that the variance in intimate violence explained is less than the variance explained for non-intimate models.

One of the seminal studies in this vein was conducted by Miles-Doan (1998) to address whether there was spatial concentration of intimate violence and if neighborhood resource deprivation was as important to intimate violence as to other types of violence. Miles-Doan's findings indicated that the measures of resource deprivation and structural density explained about half of the variance in non-intimate (other family, friend, or acquaintance) violence ($R^2=.52$) and about one-quarter of the variance in intimate violence ($R^2=.26$). Specifically, neighborhoods with higher levels of residents living in poverty, unemployed males, and female headed households with children had higher levels of intimate violence. Miles-Doan concluded that neighborhood effects appeared to be more important to explaining other family, friend and acquaintance violence compared

to intimate violence. In order to explain this difference, she hypothesized that there may be a greater role for interpersonal and situational precipitants in intimate violence, suggesting that structural factors such as resource deprivation may not matter as much. However, subsequent studies have examined structural influences on intimate partner violence and suggesting that the type of structural factors being measured may influence the degree to which social structure explains intimate compared to non-intimate violence.

An extension of Miles-Doan's (1998) approach was undertaken by Wooldredge and Thistlethwaite (2003) in order to explore structural effects on race-specific rates of intimate assault. Although the emphasis of this study was on examining the racial invariance thesis more so than understanding the role of structure in intimate partner violence, this is one of the earlier studies to quantitatively examine structure and IPV. Using census tract level data for an Ohio county and arrest data including felony and misdemeanor domestic assaults, Wooldredge and Thistlethwaite found support for Miles-Doan's conclusions. Although they employed different measures of the dependent variable and different regression methodologies, Wooldredge and Thistlethwaite also found that their full model accounted for approximately one-quarter of the variance in intimate violence. The index of neighborhood disadvantage (similar to Miles-Doan's resource deprivation measure) was the most significant predictor of intimate assault. In sum, Wooldredge and Thistlethwaite's analysis of intimate assault rates (prior to disaggregating based on race) indicated that rates vary significantly with neighborhood structure.

Grana (2001) conducted the first study to explicitly examine the relationship between *femicide* and social structure asserting that motives for domestic femicide could

be extended beyond micro-level explanations. Grana examined femicide at the state level using domestic violence coalition data from 32 states. Findings indicated that variables representative of economic stress and inequality, criminal justice, and community influences were not significant in explaining the occurrence of femicide. In fact, only state population size remained a significant explanatory variable in the full model; however, the full model did explain 68% of the variance in domestic femicide rates. While findings did not indicate that social structural variables were significantly related to rates of femicide, the statewide analysis may have obscured important relationships at a smaller scale of structural analysis as illustrated by the results of Fox, Benson, DeMaris, and Van Wyk (2002).

In an examination of intimate violence and its relationship with economic distress, Fox et al. (2002) tested whether factors representative of neighborhood and family distress were predictive of violence among couples. Using data from the National Survey of Families and Households (NSFH), as well as the U.S. Census, Fox et al.'s study looked at both the familial and neighborhood level. Their findings indicated that changes in couples' economic condition (increased reliance on female income) across waves of data, living in a disadvantaged neighborhood, having more children, working outside the home, and desires between partners for the other to work more were related to increased risk for female victimization by her partner. While this study emphasized smaller scale processes, specifically at the familial level, Fox et al. noted the importance of future consideration of how social ecology shapes behaviors (such as violence) in order to better understand abuses between intimate partners. Furthermore, variables indicative of neighborhood disadvantage and patriarchal ideologies (increased female economic power

or autonomy in terms of income and working outside the home) evinced significant relationships with female victimization, supporting the endeavors of the current study.

Also examining the impact of economic marginalization at the aggregate and individual level using NSFH data, Benson et al. (2003) investigated whether the association between intimate violence and neighborhood conditions was due to the structure of the neighborhood or the composition of its residents. Situating their study in the context of social disorganization theory, Benson et al. hypothesized that domestic violence would be linked to neighborhood characteristics just as street crime has been linked through the concept of social isolation. The results of their analysis indicated that neighborhood disadvantage increased the odds of violence by 50% and that even after controlling for compositional variables, the neighborhood disadvantage effects remained. These findings indicated that structural factors are, in fact, important to understanding intimate partner violence and that they are not purely an artifact of neighborhood composition.

Most recently, Diem and Pizarro (2010) assessed the relationship between economic deprivation (strain), social disorganization, and family homicide types. Family homicides were disaggregated into intimate partner, filicide, parricide, and siblicide. The primary purpose of their study was to determine if social structure significantly affected the occurrence of family homicides by exploring if economic deprivation and social disorganization matter to family homicides, and if effects vary by homicide types. Diem and Pizarro used national SHR data for the five homicide rates (aggregate family, IPH, filicide, parricide, and siblicide) and census data at the city level. The model examining the effects of economic deprivation and social disorganization on aggregate family

homicide rates indicated a significant relationship, with these factors explaining about 22% of the variance in family homicides. However, compared to a model examining overall homicide rates, the amount of variation explained in the family homicide model decreased by about half, dropping from 46% to 22%. This finding indicated that structural antecedents of strain and disorganization may be more important to explaining variation in overall or non-family homicide rates than for family homicide rates, although structural explanations do play a significant role. Furthermore, economic deprivation was significantly related to IPH, filicides, parricides, and siblicides, and social disorganization was significantly related to all types of family homicide except parricides.

Although relatively few in number, studies examining structural explanations for intimate partner violence have found that structural factors indicative of disadvantage and social disorganization generally explain a moderate amount of variance in rates of intimate assault and homicide. In particular, indexes of neighborhood disadvantage and measures of female headed households were significantly related to intimate violence. However, measures of social disorganization remain more powerful predictors of non-intimate violence than intimate violence. The amount of variance explained in domestic violence models tends to be about half of the variance explained by social disorganization indicators in non-domestic violence models (e.g., Diem & Pizarro, 2010; Miles-Doan, 1998). These studies have primarily used urban samples; thus, the degree to which social disorganization is generalizable across place is not addressed by this segment of the research. Therefore, the literature extending social disorganization to violence in rural places is described presently, followed by introduction of a structural feminist perspective

that may provide a more appropriate theoretical context for explaining femicide, particularly in non-urban places.

Social disorganization and rural violence. While at its core social disorganization is a theory of crime in urban neighborhoods, recent years have witnessed the extension of social disorganization beyond urban centers. Studies have attempted to assess the degree to which social disorganization concepts explain crime in rural locations and the theory's ability to explain crime across a continuum of rural-urban. As indicated by Wells and Weisheit "it would be a mistake to assume that factors that are known to influence urban crime will invariably have the same pattern of influence in rural areas" (2004, p. 2). Thus, research applying social disorganization to samples inclusive of rural crime is appropriate in order to establish the degree to which the concepts are generalizable across place.

Testing the generalizability of the theory has been the most prominent justification for applying social disorganization to rural crime (e.g., Bouffard & Muftić, 2006; Lee et al., 2003; Melde, 2006; Osgood & Chambers, 2000). As asserted by Osgood and Chambers (2000) social disorganization is based on principles relating to social relations and community organization which should be applicable to a range of places. However, studies also discuss the potential differences in how the antecedents (and even mediating processes) of social disorganization may differ in rural places compared to less rural places. The discussion presented by Kaylen and Pridemore (2011) on this subject is perhaps the most useful for justifying the extension of social disorganization to rural communities. Kaylen and Pridemore provide several examples of why social structure may operate similarly across urban and rural places: job loss in both urban and rural

places results in similar social problems (including crime), rapid population growth is associated with increased crime in rural and non-rural places, as is ethnic diversity and single-parent households. While rural and urban places may not look exactly the same, variations in social structure do affect outcomes in all types of communities.

Furthermore, the findings of studies indicating similarities in crime patterning based on the primary correlates, race, sex, and age, have been used to conclude the applicability of urban-based theories to rural crime (Laub, 1983; Osgood & Chambers, 2000). Studies which have applied social disorganization in non-urban contexts will be reviewed below because of their relevance to the current study's efforts in explaining femicide rates across the rural-urban divide.

Osgood and Chambers (2000) undertook the first large scale examination of the generalizability of social disorganization outside of urban areas and laid the foundation for future research's extension of structural explanations to understanding rural violence. Osgood and Chambers' study consisted of examining youth violence in 264 counties considered to be non-metropolitan by the United States Census. Youth violence (including homicide, forcible rape, aggravated assault, robbery, weapons offenses, and simple assault) was measured using the Uniform Crime Reports (UCR) data on the number of juvenile arrests pooled over a 5 year period. The measures of social disorganization included proportion of households occupied by persons who had moved from another dwelling in the previous 5 years (residential mobility), proportion of households occupied by White versus nonwhite persons (ethnic heterogeneity), proportion of female headed households with children (family disruption), and proportion of persons living below the poverty level and unemployment rate (economic status), in

addition to controlling for proximity to metropolitan counties and the population at risk for juvenile arrests. Osgood and Chambers utilized negative binomial poisson regression in order to assess the relationships between the social disorganization indicators and juvenile violence.

Results indicated that residential instability, ethnic heterogeneity, and female headed households were significantly associated with rape, aggravated assault, weapons violations, and the overall violent crime index (Osgood & Chambers, 2000).

Additionally, residential instability and female headed households were significantly related to simple assault arrests of juveniles. Poverty and unemployment were not significantly related to juvenile arrests; however, Osgood and Chambers argued that poverty operates differently in non-urban areas and that there is a lack of variability among non-urban counties in terms of unemployment. In other words, economic status is low, but consistently low in increasingly rural locations; thus, indicators of economic status may not have the same relationship with crime as they do in urban areas. Finally, increased proximity to a metropolitan area did not show a relationship with juvenile arrest rate. Specifically, counties adjacent to a metropolitan area and counties not adjacent did not have significantly different arrest rates from each other. In sum, Osgood and Chambers concluded that family disruption is particularly important to measuring disorganization in nonmetropolitan communities given the variable's strength and consistency. In comparison, poverty did not exhibit the expected relationship, but rather the connection between poverty and heterogeneity was overshadowed by the negative relationship between poverty and residential mobility, indicating that rural communities are more stable than urban communities.

In an extension of Osgood and Chambers (2000) study, Kaylen and Pridemore (2011) examined the association between rural youth violence and social disorganization. Kaylen and Pridemore's study differed in its sample and its findings but did not differ in the units of analysis (counties) or in the measures of social disorganization utilized that were intended to replicate Osgood and Chambers (2000). Summarizing five prior studies that examined social disorganization with rural or nonmetropolitan samples, Kaylen and Pridemore indicated the consistencies and inconsistencies among studies compared with the urban sample literature. Existing studies had found support for various structural antecedents of social disorganization; however, studies differed in which antecedents were supported (e.g., poverty significantly related to crime in some studies but not others). Resolving some of these inconsistencies and assessing the degree to which population size and density condition the association between social disorganization and crime was the impetus for Kaylen and Pridemore's study. Differing from Osgood and Chambers, Kaylen and Pridemore used hospital data to measure the occurrence of assaultive violence among juveniles. They chose these data in part because of concerns about the accuracy of official data in measuring arrests particularly in rural areas. However, their social disorganization measures did closely match those used by Osgood and Chambers, and included proportion of households occupied by persons who had moved from another dwelling in the previous 5 years (residential mobility), diversity index reflecting the probability of two randomly chosen individuals being from different ethnic groups (ethnic heterogeneity), ratio of female headed households with children to all households with children (family disruption), percent persons living below the poverty level (economic status), and controls for unemployment rate, proximity to metropolitan

counties, and the population at risk for juvenile arrests. They also implemented negative binomial regression for analyses due to their examination of rare events with small populations.

Kaylen and Pridemore (2011) expected to replicate the findings of Osgood and Chambers and then extend the analyses to examine the conditioning effect of rurality. However, their findings at the initial stage of analysis indicated that, unlike Osgood and Chambers findings, only the measure of family disruption was significantly related to their measure of youth violence. This result precluded further investigation into conditioning effects of place. Instead, Kaylen and Pridemore turned their attention to discussing the potential reasons for the inability to replicate Osgood and Chamber's findings. They identified differences in the dependent variable, differences in the sample counties, controlling for spatial autocorrelation, and model misspecification as potential explanations. However, Kaylen and Pridemore emphasized model misspecification as the most likely culprit of differing findings across studies. By model misspecification they referred to the inability to assess the mediating processes through which structural covariates are thought to influence crime, namely social cohesion. The inability to model the mediating or moderating processes associated with social cohesion may be useful in clarifying the relationships between antecedents of social disorganization and rural crime. In conclusion, Kaylen and Pridemore did not suggest that social disorganization could not be generalized outside of urban areas, but instead encouraged additional tests of the theory's applicability in a range of contexts.

Barnett and Mencken (2002) tested the effects of the structural antecedents of social disorganization theory on violent and property crime rates in nonmetropolitan

counties. This study was interested in examining the interactive effect between population change and socioeconomic status on crime. Specifically, Barnett and Mencken tested the hypothesis that in nonmetropolitan counties crime rates would be a function of the interaction between county population change and county socioeconomic status such that counties with higher crime would be those that experience reduced social integration due to both increased population change and a reduction in socioeconomic status. Using maximum likelihood estimate spatial lag regression, Barnett and Mencken examined violent and property crime rates based on UCR data for nonmetropolitan counties in the 48 contiguous states with at least 6 months of crime data. To measure social disorganization, Barnett and Mencken used population change between 1980 and 1990 (residential stability), percent nonwhite (ethnic heterogeneity), an index of resource disadvantage (percent in poverty, Gini income inequality, percent female-headed households, and unemployment rate), and county SES. Findings indicated that there was a positive (nonadditive) effect of resource disadvantage on violent crime in nonmetropolitan counties that did not experience population change. However, for counties with increasingly higher population change, the effects of disadvantage were more pronounced. In other words, resource disadvantage had a greater positive effect on violent and property crime in nonmetropolitan counties that were losing population.

In another comparison of metropolitan and nonmetropolitan counties, Lee, Maume, and Ousey (2003) explored the relationship between socioeconomic disadvantage, poverty concentration, and homicide. Lee et al. emphasized the inconsistency of findings among studies extending examinations of structural theories outside the urban metropolis and suggested that additional aggregate homicide research

was still needed. To fill this void Lee et al. engaged in an analysis of the impact of the level and spatial concentration of disadvantage on homicide rates in both metropolitan and nonmetropolitan counties. Three hypotheses guided their research: rates of homicide would be positively associated with 1) levels of socioeconomic disadvantage, 2) degree of spatial concentration of disadvantage, and 3) the impact of the level and spatial concentration of disadvantage on homicide will not differ in metro and nonmetro counties. The two independent measures of interest were the disadvantage index (percent of families living in poverty, percent of population over the age of 25 that are high school dropouts, the percentage of families that are female headed, the civilian unemployment rate, and the percentage of the population that is Black) and a poverty concentration measure using an isolation index from prior research. Control variables included percent aged 15-29, the sex ratio, index of dissimilarity, percent divorced, population structure index, and a measure of residential mobility.

The findings indicated that the disadvantage index was positively and significantly associated with the homicide rate in both metropolitan and nonmetropolitan counties; poverty concentration, however, was only found to have a positive significant relationship with homicide in metropolitan counties, and while the effect of disadvantage on homicide was not significantly different across the metropolitan/nonmetropolitan divide, the difference in poverty concentration between the two samples was significantly different. Lee et al. (2003) concluded that at least in terms of socioeconomic disadvantage, their findings indicated that structural covariates commonly associated with urban violence are also useful in understanding nonurban violence.

Also examining comparisons between rural and urban areas, Wells and Weisheit (2004) examined differences in county level violent and property crimes in order to test for similarity in the explanatory power of traditional urban ecological explanations of crime (e.g., social disorganization). Adopting a slightly different approach from the previously discussed research studies, Wells and Weisheit focused on identifying general patterns of association based broadly on ecological and social structural explanations as opposed to specific theory and hypothesis testing. Given the lack of consistent findings, they argued, especially in regards to rural and urban comparisons, *a priori* decision making regarding the most important factors would be premature. Their measures were developed from the UCR and the U.S. Census while rural-urban classifications were made based on continuum codes from the Economic Research Service of the U.S. Department of Agriculture. Wells and Weisheit computed eight indices of structural constructs for analyses including an urban density index, housing instability index, family instability index, population change, economic change, economic resources, racial heterogeneity, and cultural capital index. Each index contained between two and three measures. Departing from prior research, Wells and Weisheit did not dichotomize metropolitan and nonmetropolitan but rather used four classifications of county urbanicity: metro, nonmetropolitan but with at least 20,000, nonmetropolitan with less than 20,000, and rural (2,500 or less).

Examination of the results from the regression analyses indicated both similarities and differences across place. Family instability was the most consistently strong predictor of violent and property crime rates, followed by population change, and racial diversity (for violent crime). Economic resources displayed the least consistency across county

types. In particular, economic resources displayed the expected inverse relationship with crime in the metropolitan and larger nonmetropolitan counties, but were unrelated to the violent crime rate and positively related to the property crime rate in small nonmetro and rural counties.

Wells and Weisheit (2004) made two important points about assumptions regarding urban and rural crime. The first assumption is that differences between rural and urban areas are about quantity as opposed to quality (the magnitude assumption). They claimed that based on their findings this may not be true. Certain contextual factors appeared to be more important in rural places than urban ones and vice-versa. The second assumption challenged by Wells and Weisheit research is that rural areas are all the same (the homogeneity assumption). Findings indicated that some nonmetropolitan places were more similar to metropolitan places while others were more similar to rural places. Overall, Wells and Weisheit surmised that the social dynamics of crime are more important for understanding crime across place in rural areas than are economic dynamics, primarily because economic dynamics are more important for urban places. Based on these findings, they also suggested that future studies planning on dichotomizing urban and rural consider placing metropolitan and larger city nonmetropolitan counties in one grouping and nonmetropolitan small city and nonmetropolitan rural counties in the second grouping as opposed to the more traditional metropolitan/nonmetropolitan divide.

In a further exploration of differences among metropolitan and nonmetropolitan places, Weisheit and Wells (2005) examined homicide specifically. This study contributed to the understanding of the relationship between structural antecedents to

crime and disaggregated crime types. Supplementary Homicide Reports (SHR) and UCR data were used for the structural and contextual measures of homicides. County level data came from the U.S. Department of Commerce. Six indices were computed for analysis including racial composition index, an economic resources index, a cultural capital index, housing instability index, population instability index, and a family disorganization index. Controls included population density, unemployment rate, and percentage of the population aged 15-24. Weisheit and Wells conducted a contextual analysis and a structural analysis, the latter of which is more relevant to the endeavors of this study and thus will be discussed in more detail.

Weisheit and Wells' (2005) findings indicated several interesting relationships. First, the overall predictive ability of the model tested was strongest for the most urban counties and grew consistently weaker for subsequently less urban groupings of counties. Second, economic resources were the most important factor for explaining homicide for all counties regardless of urbanicity-rurality. Third, age and racial diversity were more important for predicting homicide in urban areas, whereas population change was more important in rural areas. Last, family instability was most important for urban areas, but was also significantly related to homicide in non-urban counties. Some of these findings differ from the results of previous research. For instance, in studies examining composite crime rates, poverty has not been a consistent predictor of crime. However, in terms of homicide, there does appear to be a relationship. In contrast, the research conducted by Melde (2006), to be discussed next, failed to find a relationship between poverty and homicide.

Melde (2006) assessed the relationship between structural antecedents of social disorganization and violent crime in rural Appalachia. Melde, consistent with previous studies, utilized negative binomial regression to engage in a county level analysis of violent crime (homicide, rape, robbery, aggravated assault, and index) rates. Melde proposed five hypotheses: rates of violent crime will be positively associated with 1) population density, 2) residential instability, 3) ethnic heterogeneity, 4) female headed households, and 5) proportion of families below the poverty line. Violent crime rates were calculated using the UCR and independent variables came from the 2000 U.S. Census. Findings indicated the following: population density was significantly related to all types of violent crime in rural counties except for homicide; residential instability, female headed households, and ethnic heterogeneity were not significantly or strongly related to violent crimes in general, while renter-occupied housing was important for rape and robbery; and families below poverty was related to the violent crime index, aggravated assault, and rape. Melde concluded that social disorganization receives some, but not strong, support in its ability to generalize to more rural places in explaining homicide. But, he suggested that disorganization may operate through different causal mechanisms in rural locations compared to urban ones.

Bouffard and Muftić (2006) examined whether social disorganization theory was generalizable across geographic regions and violent offense types by examining violent crime rates in 221 Midwestern counties. The study was specifically interested in considering the differences between rural and urban areas and whether social disorganization explains violence in various non-metropolitan counties similarly. Bouffard and Muftić tested six hypotheses: violent crime will be positively related to 1)

economic disadvantage, 2) residential instability, 3) racial/ethnic heterogeneity, 4) family disruption, 5) population density, and 6) proximity to urban areas. The data for the study were derived from the 2000-2002 UCR, the Census Bureau, and the Department of Agriculture. Overdispersed poisson regression models were estimated for each of the hypotheses for four types of violent crime: aggravated assault, other assaults, robbery, and rape. Findings indicated that residential instability, higher percentage of single-mother families, and higher levels of unemployment were associated with a significant increase in various types of violence; but contrary to the hypothesis of social disorganization theory, increased poverty and racial heterogeneity did not predict higher violent crime rates in non-metropolitan counties. When population density and the measures of rurality derived from the Urban-Influence Codes were added to the models, the effect of the social disorganization variables remained largely unchanged. Overall, Bouffard and Muftić found support for the ability of social disorganization theory to explain violent offending across non-metropolitan regional areas.

In sum, research on the generalizability of social disorganization theory to non-urban places is mixed. The component of social disorganization that appears to receive the most consistent support across non-urban studies are indicators of family disruption, most commonly measured as the percent of female headed households. While all studies found support for some aspects of social disorganization, the theory does not appear to have the same explanatory power in studies of rural violence compared to non-rural violence. As indicated by Weisheit and Wells, “the findings suggest that although such factors [based on social disorganization] might do a good job of predicting homicide rate in urban counties, variables reflecting social disorganization may be of limited use in

predicting homicide rates in the most rural areas” (2005, p. 75). Their conclusion is applicable to much of the research in this vein. Additionally, their conclusion regarding the utility of social disorganization measures provides justification for various aspects of the current study, including the use of variables representative of feminist theory which may be more relevant to the type of homicide more commonly occurring in rural areas (interpersonal homicide). In other words, the structural “processes [...] that generate crime may be different in urban and rural areas” (Wells & Weisheit, 2004, p. 20). Most notably, poverty is rarely a significant predictor of rural violence, likely because of a lack of variability in levels of poverty across rural places which are generally more economically depressed than urban places.

Evidence indicates that social disorganization is not the only explanation for non-urban violence. In fact, some aspects of social disorganization theory are in contrast with what we know about domestic violence. For instance, extensions of social disorganization to include the concept of collective efficacy illustrate the importance of community ties that are needed to collectively fight (crime) problems (Pratt & Cullen, 2005). However, domestic abuse is often a hidden problem and the literature suggests even more so in rural areas. Thus, community collective efficacy could be high, but not impact rates of domestic abuse. As noted by Wooldridge and Thistlethwaite (2003), “critics may argue that the applicability of ecological theories to an understanding of intimate assault is questionable because variation in intimate assault rates is more likely due to male-female power differentials” (p. 394). Feminist theories often emphasize the role of structural factors in creating inequalities between men and women which result in

specific types of gendered victimization, most notably intimate partner and sexual violence. These themes are explored in greater detail in the next section.

Feminist Theory

Since its development in the early 1970s, the goal of feminist criminology has been to promote the relevance of gender in order to “give women a voice” in criminological discussions of crime and victimization. Feminist research has made great strides in distinguishing between biological sex and socially constructed gender, defining what it means to “do gender” in criminal justice, conceptualizing the relationship between gender and behavior, identifying differences in crime and victimization between men and women, understanding the female offender, and promoting social and political awareness of the interpersonal victimization of women and children as well as their sexual exploitation (see for example, Belknap, 2007; Renzetti, Goodstein, & Miller, 2006). In a sense, feminist criminological research has focused on issues generally ignored by the field of criminology previously. As Flavin (2001) asserts, “Feminist criminologists have been at the forefront in pointing out that when women and other marginalized groups are ignored, devalued, or misrepresented, society in general and the understanding of crime and justice in particular suffer as a result” (p. 271).

The focus of feminist criminology has been particularly important to the cause of identifying IPV as a social problem. Thus, much feminist theory has been used to explain the gendered nature of interpersonal violence against women. Specifically, considerations of patriarchy have been central to feminist criminology and investigations of the role of gender differences in crime. The literal interpretation of patriarchy is “the rule of the fathers;” however, feminists in criminology and in other disciplines consider this a

limited understanding of the concept (Ogle & Batton, 2009). While there are several strains of feminist theories, all address patriarchy in their theorizing.

There are a variety of feminist theories including (but not limited to) liberal feminism, Marxist feminism, radical feminism, and socialist feminism. Each strain of feminist theory has its own perspective and its own consideration of patriarchy (Ogle & Batton, 2009), so they are described in the paragraphs to follow.

Liberal feminism emphasizes gender role socialization as the primary source of women's oppression. Gendered socialization can contribute to gender inequality by shaping (and limiting) women's experiences and exposure to activities in the public sphere (Burgess-Proctor, 2006; Daly & Chesney-Lind, 1988; Ogle & Batton, 2009). While early liberal feminist perspectives (such as those developed by Freda Adler and Rita Simon) did not explicitly discuss patriarchy, they did focus on gender separation in public and private spheres and on the impact women's liberation may have consequences for traditional expectations of gendered behavior (Ogle & Batton, 2009).

Marxist feminism emphasizes the role of subordinate class status within capitalist societies as the source of oppression. Gender inequalities, then, are thought to result from the hierarchal relations within a capitalist system (Daly & Chesney-Lind, 1988; Ogle & Batton, 2009). As discussed by Ogle and Batton (2009), patriarchy in the Marxist feminist perspective is represented by control of women's fertility and their economic subordination. This dualistic perspective mirrors the concepts of reproduction and production within Marxism. In a Marxist feminist perspective, patriarchy has largely been operationalized and addressed as the economic deprivation of women (Ogle &

Batton, 2009). However, Ogle and Batton asserted that this narrow interpretation has resulted in limited explanatory power, a criticism also noted by radical feminist theorists.

Radical feminism explicitly identifies patriarchy as the primary source of women's oppression. In comparison to Marxist theories that would emphasize a battle between the bourgeoisie and proletariat social classes, radical feminist theory emphasizes that the battle is instead between men and women (Messerschmidt, 1986). Where other feminist theories have failed, according to the radical perspective, is in addressing the root causes (or structure) of gender inequality in society that allow for the development and maintenance of certain gender relations (Messerschmidt, 1986; Ogle & Batton, 2009). Radical feminists have also identified the duality of the sexual (reproduction) and economic (production) spheres, like Marxist feminists, but have emphasized patriarchy instead of capitalism as the root cause of inequalities (Ogle & Batton, 2009). Importantly, patriarchy is viewed as a structural concept that is important at the family level and larger societal levels more so than at the individual level.

Socialist feminism combines radical and Marxists perspectives to offer an integrated approach to understanding women's oppression. Socialist feminism concludes that gender oppression results from both sex and class based inequalities and that neither one is preceded by the other. Messerschmidt (1986) introduced a socialist feminist perspective that acknowledged the importance of both the production and reproduction spheres but did not give priority to one over the other. Within socialist feminism, patriarchy has been referred to as being "based on men's control over both the paid and unpaid labor of women" (Ogle & Batton, 2009, p. 170). While some socialist feminist theorists see patriarchy as preceding capitalism, there is general agreement that patriarchy

and capitalism are distinct oppressive systems that reinforce men's power over women (Ogle & Batton, 2009).

The discussion of patriarchy in socialist feminism, radical feminism, and Marxist feminism has been central to the development of understanding rural domestic abuse, and in particular differences between rural and urban domestic abuse experiences. While many studies have examined the economic deprivation perspective linked with Marxist feminism (Ogle & Batton, 2009), studies exploring the abuse experiences of rural women have utilized conceptualizations of patriarchy more closely associated with the socialist feminist perspective (DeKeseredy & Schwartz, 2009; Websdale, 1995, 1998; Websdale & Johnson, 1997, 1998). Despite the incorporation of patriarchy within feminist theorizing, feminists have pointed out that the lack of a universal operationalization has led to generalizability issues among studies examining the concept. Thus, for the purposes of understanding the importance of patriarchy to structural examinations of intimate partner violence, research aimed at explaining patriarchy is crucial to review. As Ogle and Batton (2009) pointed out, feminist theories grew from the belief that gender is critical to understanding crime and victimization and that structural and individual-level theories had failed to acknowledge the relevance of gender as social structure or as an influence on social interactions.

Walby (1989) made several important contributions to the efforts of developing a patriarchy model that is both flexible enough to account for cross-cultural variation as well as explicit enough to be used in empirical analysis. Walby defined patriarchy as “a system of social structures, and practices in which men dominate, oppress and exploit women,” (1989, p. 214). She emphasized the importance of referencing social structure,

thereby rejecting biological explanations. Further, Walby did not characterize patriarchy as reducible to capitalism (rejecting Marxist feminist thought) and instead offered a conceptualization of patriarchy that could be used to explain gender relations in non-capitalist nations as well as pre-dating capitalism. To this end, Walby identified six structures that compose patriarchy: the patriarchal mode of production, patriarchal relations in paid work, patriarchal relations in the state, male violence, patriarchal relations to sexuality, and patriarchal relations in cultural institutions.

According to Walby (1989), the patriarchal mode of production refers to domestic division of labor in which women's housework (which is unpaid) is not just for her benefit but also for the benefit of her husband. When this domestic division of labor is uneven (which it often is) then it becomes a form of patriarchal control at the economic level. Patriarchal relations in paid work is the second economic form of patriarchal structure in which women are either excluded from paid work or are segregated within the labor force. Patriarchal relations in the state refer to women's exclusion from presence in government as well as a lack of power within political forces (e.g., suffrage). The fourth structure, male violence, is a way of employing power over women by shaping their actions whether they are directly or indirectly affected by male violence. Patriarchal relations in sexuality refer to the preference given to heterosexual relationships and the gender inequity within heterosexual relationships which is influenced by patriarchal culture. Patriarchal culture refers to patriarchal practices which establish the meaning of gender and shape discourse on femininity and masculinity. Religion and the education system are two examples of institutions which promote gendered understandings of social environment by encouraging men and women to act

certain ways and fulfill certain roles. In addition to identifying these six patriarchal structures, Walby also distinguished between private patriarchy and public patriarchy. According to Walby, private patriarchy refers to the “relative exclusion of women from arenas of social life apart from the household”, while public patriarchy refers to the subordination of women in public arenas (1989, p. 228). Walby’s identification of patriarchal structures and distinction between private and public patriarchy have become useful for operationalizing patriarchy in empirical studies.

In their assessment of patriarchy in criminology, Ogle and Batton (2009) discussed the conceptualization and operationalization of patriarchy and, in concluding that there is a lack of consensus on the definition of the term, offered a conceptualization of their own. Ogle and Batton identified some commonalities among discussions of patriarchy including identification of two components: male dominance and institutionalized male dominance. These elements lead to their description of patriarchy as “an ideological characteristic of society that permeates social institutions as well as more micro facets of social life” (2009, p. 174). Ogle and Batton proposed that measures of patriarchy should include indicators of male dominance at the macro (public) level and the micro (private) level, representative of the basic social institutions (economy, politics, education, family, religion). Several studies addressing the role of patriarchy in crime and in intimate partner victimization have included indicators of at least one of these institutions, most commonly economic (e.g., sex ratio of income, sex ratio of certain occupations).

These contributions are important for defining patriarchy as the structure through which gendered violence may be explained. They also offer identification of structures

that may be gendered, informing measurement decisions regarding feminist theory at the structural level. Patriarchy/gender inequality provides an alternative theoretical perspective to social disorganization in structural investigations of intimate partner violence. The reduced variance explained by structural variables in studies of effects of social disorganization on intimate violence compared to non-intimate violence (Diem & Pizarro, 2010; Miles-Doan, 1998) leaves open the door for consideration of additional structural factors, such as structural gender inequality. Applications of patriarchy and female inequality within the domestic violence literature are discussed below.

Patriarchy, female inequality, and IPV. Historically, IPV has been examined at the individual level with emphasis on understanding how violence is used as a means of power and control by men over women (Miles-Doan, 1998). The more recent acceptance of and interest in structural or ecological studies of intimate partner violence is, in part, a product of the integration of quantitative methodologies into feminist criminology (Miles-Doan, 1998). Feminist criminology has often emphasized qualitative research which can be at odds with the quantitative nature of structural and spatial analyses (Miles-Doan, 1998). However, increasing acceptance and reliance on quantitative methods in feminist research, as well as qualitative studies investigating the influence of structural factors in intimate partner abuse have paved the way for examinations of space and place in understanding intimate partner homicide. The results of studies exploring the role of gender inequality in gendered violence are discussed below. Overall, these indicate support for considerations of structural gender inequality and outline the two feminist hypotheses that have developed from this literature; the ameliorative and backlash hypotheses.

In 1990, Smith tested the idea that husbands adhering to an ideology of patriarchy would be more likely to engage in spousal abuse. Defining patriarchy as system of inequality whereby males dominate females, Smith suggested that a patriarchy may be thought of as having two basic components- a structure in which men have power over women and an ideology that legitimizes that structure. Using Toronto survey data for 604 women between the ages of 18-50, Smith examined whether men who beat their intimate female partners adhere to an ideology of family patriarchy, and what the socioeconomic characteristics of such men were. Findings indicated that the two utilized indexes of patriarchal beliefs (regarding approval of violence and support for dominance over intimate partners) explained 18% of the variance in wife beating as measured by the severe violence index of the Conflict Tactics Scale. Thus, husbands or significant others who (as reported by their current or former intimate partner) held patriarchal beliefs and approved of using violence were also more likely to have engaged in spousal abuse. This study provided quantitative support for pursuing examinations of patriarchy in the context of intimate partner violence.

Several studies have investigated the role of structural female inequality through examinations of feminist theory, primarily in an urban context. Whaley and Messner (2002) assessed the relationship between gender equality and gendered homicide. This study examined the ameliorative and backlash hypotheses regarding the influence of gender equality on violence against women. The ameliorative hypothesis predicts that increased gender equality will reduce violence against women, whereas the backlash hypothesis predicts that increased gender equality will increase violence against women in an effort for men to maintain power and control. Results indicated that homicides

against women in the South involving male offenders were positively and significantly related with gender equality supporting the backlash hypothesis. However, this same significant effect was not found in non-southern cities, indicating that support for the backlash hypothesis may be regionally specific. One explanation for this finding is that patriarchal ideology is more entrenched in southern culture resulting in retaliatory male violence in response to increasing female equality.

Also finding some support for the backlash hypothesis, Pridemore and Freilich (2005) examined whether the relationship between gender equality and female victimization was conditioned by patriarchal culture. The measures of masculine/patriarchal culture (percent rural, rate of Evangelical Protestants, and rate of NRA membership) were interacted with a measure of female to male earnings. While findings were supportive of a positive relationship between gender equity and female homicide victimization, this relationship was not strengthened by the measures of masculine culture. In other words, backlash was present but gender equality and masculine culture did not have an interactive effect on homicide.

In comparison to these findings, earlier research had found little support for the role of gender equality in explaining female homicide rates (Brewer & Smith, 1995). After controlling for common socio-structural variables, variables measuring gender inequality did not add to the explanatory power of Brewer and Smith's model of female homicide. Smith and Brewer (1995), in an examination of the relationship between the gender gap in homicide and female status, found that percent females in professional occupations was the only significant female status indicator in cities where the

educational status of women was low. While this finding was opposite of their expectations, it did indicate some support for the ameliorative hypothesis.

In a more recent test of the ameliorative and backlash hypotheses, Whaley, Messner, and Veysey (2011) attempted to address some of these inconsistencies in study findings by hypothesizing a curvilinear relationship between gender equality and homicide. Using three indicators of gender equality which clustered on a single dimension, and controlling for socio-structural variables representative of the structural antecedents to social disorganization, Whaley et al. found support for their hypothesis. Results indicated that at low to intermediate levels of gender equality, backlash processes dominated; but, in cities with high gender equality, ameliorative processes were present. In other words, the rate of male-on-female homicides increased with levels of gender equality until homicide rates peaked and began to decline as gender equality reached fairly high levels. Whaley et al. suggested that future research should continue to examine the effects of patriarchy and patriarchal ideology at the structural level. This suggestion echoed the sentiments of Hunnicutt (2009) who also emphasized the importance of theorizing about patriarchy because it anchors violence against women in social conditions as opposed to individual attributes. Thus, research on violence against women and rural violence evince support for inclusion of structural female inequality/patriarchal theorizing and measurement.

The Importance of Place in Intimate Partner Homicide

The current study is not only interested in exploring the relationship between structural factors and femicide (in comparison to aggregate homicide) but also in determining if structural explanations vary across the rural-urban divide. The extensive

ethnographic research conducted by Neil Websdale (1995, 1998), along with Byron Johnson (1997, 1998), in rural Kentucky has greatly contributed to the acknowledgement of the importance of place for intimate partner violence. Additional research conducted by DeKeseredy and Schwartz (2009), Pruitt (2008), and Weisheit and colleagues (2006) have also contributed to understandings of distinctions between rural and non-rural places, particularly in terms of domestic abuse. This body of research has largely emphasized the experiences and conditions of rural women, given their neglect in the literature previously. These studies have enumerated the various ways in which rural women are disadvantaged particularly in regards to protecting themselves against domestic violence.

The battering and murder of women in rural places by their current or former intimate partners has been linked with cultural norms and values surrounding the role of women in society. In other words, violence against women is viewed as a symptom of patriarchal subordination (Walby, 1989; Websdale, 1998). Rural communities are characterized by adherence to traditional gender norms including traditional views on masculinity and patriarchy (DeKeseredy and Schwartz, 2009; Gallup-Black, 2005; Pruitt, 2008; Websdale, 1998). These values result in an increased likelihood of women working in domestic roles, and being socially and economically dependent on a male counterpart. In abusive situations this translates into reduced ability to access resources, escape, or get help due to minimal opportunity and economic dependence. Combined, these factors make it difficult for an abused woman, particularly one with children, to leave her abuser (and financial supporter). Thus, it should not be surprising that socioeconomic factors are often predictors of intimate partner abuse (Pruitt, 2008). In referencing Walby (1989),

Websdale (1998) argued that rural places are more likely to contain forms of private patriarchy in that women are more likely to still be regulated to the home sphere and that the few women in the public sphere are in subordinate positions with unequal pay. Urban women, in comparison, are theorized to be affected more by public patriarchy in that they are increasingly likely to be involved in the public sphere but still, more often than not, segregated within public spheres. Thus, indicators of female inequality should be important to understanding domestic abuse in both urban and rural locations.

In addition to cultural and ideological differences, rural places are also physically different compared to their more urban counterparts. Rural women are more likely to be physically isolated, as homes are further apart, roadways are less developed, and transportation is limited (DeKeseredy & Schwartz, 2009; Pruitt, 2008, Websdale, 1998, Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). These indicators of physical isolation also affect the abilities of law enforcement to respond to domestic violence in a timely manner (DeKeseredy & Schwartz, 2009; Gallup-Black, 2005; Pruitt, 2008; Weisheit et al., 2006). As summarized by Pruitt, “when compared with their urban counterparts, it is clear that rural residents typically have less access to opportunities, services, and assistance” (2008, p. 362). Beyond physical isolation is what Pruitt refers to as “the paradox of rural privacy,” referring to both the social isolation that enables rural abuse, and the lack of anonymity characteristic of rural communities (p. 362). On the one hand, rural residents enjoy the privacy of detached homes on larger land plots; on the other hand, community relationships are almost exclusively face-to-face and lack privacy, often resulting in gossip as a form of social control (Pruitt, 2008). Thus, while physical separation at home makes it more difficult for abuse victims to gain access to services

(Gallup-Black, 2005), the lack of anonymity publicly makes asking for assistance or resources potentially embarrassing, uncomfortable, and lacking confidentiality (Pruitt, 2008). The largely qualitative findings discussed here are supported by the mixed methods research conducted by Websdale and Johnson (1998).

Comparing rural and urban battered women, Websdale and Johnson's (1998) research in Kentucky indicated similarities and important differences in the experiences of rural and urban women. Websdale and Johnson collected interviews from 510 domestic abuse shelter women; 52% were from rural communities (less than 10,000 residents) and 48% were from urban communities. Analyses indicated that study participants, compared to women in the state as a whole, were more likely to be married, were younger, less well educated, and poorer. Comparisons of the rural shelter women to urban shelter women indicated that rural abused women were more likely to be married, less educated, and poorer than the urban shelter women. While quantitatively speaking the experiences of rural and urban abused women were similar (similar amounts of physical and emotional abuse for example), rural women were more likely to report higher levels of hair pulling, torture, and being shot at. Also, they were more likely to have sex in order to prevent their partner from engaging in abuse towards others in the household, be threatened with a weapon, and be deprived of sleep.

Additionally, results of qualitative interviews indicated that rural women often faced disadvantages not shared by urban women, such as lack of transportation, further distances to resources and assistance, and avoidance of social services because of a lack of privacy (and confidentiality) in close-knit rural communities (Websdale & Johnson, 1998). Furthermore, law enforcement may have to travel significantly farther in rural

counties, limiting their effectiveness in responding to calls. Law enforcement officers were also more likely to have a relationship with the abuser (even a familial relationship) and be more wary of taking official action. Qualitative interviews also indicated differences in the patriarchal views of rural abusive men towards their wives, as exemplified by their communicated preference that their wives be “barefoot and pregnant” rather than working and spending time in the public sphere of the community.

Through Websdale’s (1995; 1998) and Websdale and Johnson’s (1998) ethnographic research, three conclusions were reached regarding rural domestic abuse, particularly in comparison to their urban counterparts: 1) the physical characteristics of rural communities provide opportunities for batterers to victimize in ways that would be more noticeable in urban environments, 2) rural family life often isolates women within the home and apart from support networks, including law enforcement who are more likely to have a relationship with the batterer, and 3) rural women have a more difficult time accessing social services because of their physical and social isolation (Websdale & Johnson, 1998). In sum, Websdale and Johnson found that while rural and urban women experience similar levels of physical, emotional, and sexual abuse, the context of rural women’s lives and abuse experiences is qualitatively different from that of urban women.

Sinauer, Bowling, Moracco, Runyan, and Butts (1999) conducted one of the first quantitative studies to examine homicide disaggregated by sex in urban and rural areas. Sinauer et al. posited that varying conditions associated with place (i.e., isolating factors) would have an influence on the occurrence and characteristics of female victim homicides. Counties were categorized as rural, urban, or intermediate using the U.S. Census, and chi-squares analyses were conducted to identify trends. Findings indicated

that rates of female victim homicide were highest in the intermediate counties followed by urban and rural counties. While Sinauer et al. only had victim-offender relationship data for 60% of their 1,034 cases, 43% of those with a known relationship were current or former intimate partners. Findings examining intimate partner female victim homicide indicated that rates were significantly higher in rural and intermediate compared to urban counties. This initial investigation into the trends of female victim homicides across urban and rural locations represents a line of inquiry that has just begun to develop while still remaining relatively hidden in comparison to studies of intimate partner homicide that do not consider place.

Gallup-Black (2005) conducted one of the most comprehensive quantitative assessments of the importance of place for understanding trends in domestic homicides. She began her assessment of rural and urban trends in domestic homicides by delineating the ways in which family and intimate homicides are different from stranger and acquaintance homicides. Specifically, legal authorities have historically been hesitant to intervene in matters of domestic violence, domestic homicides are more often the culmination of ongoing violence and abuse, predictors of stranger or acquaintance homicide are not always predictors of domestic homicide, domestic violence and homicide is gendered in terms of both victims and offenders, and differences between domestic homicides and non-domestic homicides may be a function of degree of rurality or urbanicity. This last point was the emphasis of Gallup-Black's study, where she argued that the vast majority of research examining violence and homicide at the structural level has been either based on urban samples or has not controlled for rurality.

Utilizing Supplementary Homicide Report (SHR) data spanning 1980-1999, Gallup-Black (2005) conducted a county-level analysis of homicide rates. In order to capture urbanicity-rurality, county Beale codes (which were developed by the U.S. Department of Agriculture and take into consideration both population and proximity to metropolitan areas) were utilized to create four categories of county type. Calculating 5-year averages, rolling 5-year averages, and pooled 5-year averages, the study examined differences between intimate partner homicides, family homicides, and all other homicides. Results indicated that rates of intimate partner homicide were higher in rural counties compared to the other three categories of increasingly urban counties for all time periods. Additionally, the rate in rural counties increased through the 1990s, while the rates in non-rural counties declined during the time period. Rates of family murders also were higher in rural counties over time, but these rates showed decline over time across all categorizations of county population and proximity. In contrast, rates of other murders did not trend with county population or proximity, but the rates in rural counties were higher than rates in non-rural counties. Overall findings illustrated that the risk of murder is higher in rural areas and that risk for intimate partner murder is increasing in rural counties while the risk of family and other murder is declining or remaining fairly stable.

Finally, Gallup-Black (2005) engaged in exploratory correlational analysis to examine the relationship between population and proximity with the types of murder. The results indicated modest significant correlations between all types of murder and county proximity and population; however, the correlations for intimate partner and family murders were stronger than the correlations for other murder types. Therefore, Gallup-Black concluded that there was a stronger connection between place and intimate partner

and family murder than between place and all other types of murder. The findings of this study indicate that place does matter to domestic murder, and that specifically, rural place matters.

Gallup-Black's (2005) findings regarding trends in domestic homicide between rural and urban counties were supported by Jennings and Piquero (2008). In an effort to add to research on the role of rurality in understanding intimate partner homicide (IPH) rates, Jennings and Piquero (2008) used trajectory methodology to examine how rates of IPH and non-IPH had changed over time and whether considerations of place (specifically rurality) had an effect on trends over time. This study used the same SHR data used by Gallup-Black for years 1980-1999. The classification of rural was based on the 1980 U.S. Census definition that designates a county as rural if it has less than 2,500 persons (165 of 1,341 counties). This threshold was used in an effort to employ a more conservative definition of rural. Findings indicated that the aggregate mean rate of rural IPH was consistently higher than the aggregate mean rate of urban IPH supporting the findings of Gallup-Black. Findings also indicated that there were five trajectories among counties in their non-IPH trends, and in their IPH trends across the twenty year time period examined. When rurality was included as a covariate, results indicated that rural counties were more likely to have a non-declining IPH trajectory over time. These findings support the examination of disaggregated homicide data, and the importance of considering rurality in studies of intimate partner homicide.

The literature examining the relationship between intimate partner violence and place has highlighted the importance of 1) distinguishing between types of violence, particularly homicide, based on the relationship between the victim and offender, and 2)

examining differences in intimate partner violence occurring in rural and non-rural locations. Only two studies have explicitly (and quantitatively) explored structural explanations for variations in intimate partner violence while also considering place. One study in this vein rooted itself in social disorganization theory (Madkour et al., 2010), and the other examined social disorganization as well as structural female inequality in two cities (DeJong, Pizarro, & McGarrell, 2011). These studies are distinct from the previously discussed research due to their inclusion of theoretical context (in particular, theoretical context relevant to the present study) and assessment of the influence of geographical place. Both are described in detail below.

In their study of the relationship between county disadvantage and intimate partner homicide, Madkour et al. (2010) examined three years of county-level data in North Carolina. Madkour et al. utilized North Carolina Violent Death Reporting System (NC-VDRS) data to create rates of IPH and U.S. Census data for measures of county disadvantage based on social disorganization theory. Specifically, the study looked at whether the relationship between county disadvantage and IPH varied by county urbanicity-rurality (measured by the Department of Agriculture urban-rural continuum codes). Madkour et al. used poisson regression to assess if there were interaction effects between county disadvantage and urbanicity. Findings indicated that increases in county disadvantage were significantly related with increases in the rate of female victim IPH in metropolitan counties with an urban center but not in nonmetropolitan or rural counties. In comparison, county disadvantage was related to male-victim IPH regardless of county urbanicity. The findings indicated that disadvantage is more important to predicting urban femicide than it is to predicting nonmetropolitan or rural femicide.

DeJong et al. (2011) examined both case-level and structural level-characteristics of intimate partner (n=99) and “other” homicides (n=640) in Indianapolis and Newark. DeJong et al. utilized three theoretical frameworks in their study based on previous explanations of the concentration of homicide in geographic areas: social disorganization, strain, and feminist. They contended that social disorganization may lead to IPH because of a weakening of informal social control due to instability which minimizes monitoring of intimate violence; strain may lead to IPH when economic disadvantage creates environments accepting of violence; and gender inequality may lead to IPH when men hold more advantaged positions (income, education, employment) compared to women. While DeJong et al.’s research did not examine differences across urban and rural, they did compare two distinct places, and, as stated previously, is the only identified study to include structural indicators of social disorganization and female inequality/patriarchy.

DeJong et al. (2011) created three measures (indices) of social structure based on census-tract variables representing social disorganization, strain or economic deprivation, and feminist theories. Social disorganization was measured using percent vacant homes and percent moved in the past 5 years. Strain, or economic deprivation, was measured by percent unemployed, median income, percent of the population receiving public assistance, percent of the population below poverty, percent Black, and percent of population female-headed households with children. Feminist theory, or female inequality, was measured using the ratio of men to women in the labor force, ratio of men to women in administrative employment, and the ratio of men to women with high school degrees. While DeJong et al. did not find evidence that social disorganization and female inequality differentiated IPHs from non-IPHs, the inclusion of a feminist theoretical

framework in the examination of IPH is important considering the feminist literature related to IPH. Furthermore, social disorganization and female inequality measures may not differentiate between two types of homicide in city specific analyses but they may differentially explain femicide across rural and urban settings. This coincides with other research finding that patriarchy or female inequality is more strongly associated with male violence in rural areas compared to urban areas (see Donnermeyer & DeKeseredy, 2008; Websdale, 1998). Therefore, including female inequality is an important component previously neglected in studies examining structural differences in intimate violence across urban, suburban, and rural areas.

Taken together, the findings of these qualitative and quantitative studies indicate the importance of considering place in structural examinations of intimate partner violence. While several studies of rural intimate partner violence have included considerations of patriarchy, and others (mostly in urban settings, but some across place) have examined the relevance of social disorganization, there remains a paucity of research exploring the extent to which feminist and social disorganization theory explains variation in femicide across the rural-urban divide, and whether these explanations are unique to femicide in comparison to non-domestic homicide.

Chapter Three: Present Study

The purpose of the present study is to conduct an exploratory analysis bridging together multiple literatures that have addressed questions relating to the context of femicide. The domestic violence literature continues to expand, encompassing considerations of social structure and rurality. However, findings have been divergent and the relationship between social structure and the prevalence of intimate partner homicide remains unclear. Perhaps contributing to a lack of clarity has been the relative neglect of consideration of geographical place in structural analyses. Studies which examine structural factors while considering place indicate that explanations may be variable across rural and non-rural locations (Gallup-Black, 2005; Madkour et al., 2010; Sinauer et al., 1999). Thus, the current study is conducted in an effort to explore the relationships between structural factors and rates of intimate partner femicide, while explicitly considering the role of place, specifically the influence of rurality.

The present study also attempts to remedy some of the shortcomings of prior research in this vein. Research that has considered place has (1) relied on official data, which is subject to reporting error; (2) primarily tested indicators of social disorganization and (economic) resource disadvantage, neglecting a long standing feminist literature on the relationship between structural gender inequality and gendered violence; and (3) often focused specifically on domestic homicides without comparing results to other types of homicides. To address the first shortcoming, data on domestic

femicides was collected from the North Carolina Coalition Against Domestic Violence (NCCADV) (2012), and data on homicides was collected from the North Carolina State Center for Health Statistics (2012), avoiding issues of missing data inherent to official data sources such as the UCR and SHR. To address the second shortcoming, this study includes measures of structural female inequality/patriarchy in addition to structural antecedents of social disorganization. Inclusion of two theoretical concepts serves multiple purposes, including providing comparisons to existing research and examining if variables representative of one construct better explain disaggregated homicide rates or rates across the rural-urban divide, and extending existing research by including structural feminist theoretical perspectives that may be particularly relevant to femicide. To address the third shortcoming, all analyses are conducted for both femicides and non-domestic homicides in order to determine if findings are specific to femicide or generalizable across homicide type.

Extending existing research on structural explanations for rural violence and intimate partner violence across the rural-urban divide is both timely and important. Such research is timely because of the renewed appreciation of context in explaining and preventing crime (Wells & Weisheit, 2004), and is important for developing theory, research, and policy regarding intimate partner homicide. Research on rural places has claimed that rural places are not only different from urban ones, but also different from one another (Pruitt, 2008; Wells & Weisheit, 2004). This suggests the importance of social context in assessing rural and urban crime. Following this reasoning, examining explanations for differences in femicide across place can contribute to both research and policy that takes place into consideration. Websdale and Johnson's (1997) research is

illustrative of this point. In reviewing results of a Kentucky domestic violence program, Websdale and Johnson (1997) observed that battered women were not suffering from learned helplessness but rather from structural conditions associated with gender inequality including poverty, lack of education, lack of resources such as access to childcare, and no alternative housing. Evidence from the Kentucky program suggests that empowering women at a structural level by providing them with education, job training, housing services, can result in reducing the likelihood of revictimization. Furthermore, the needs of rural and urban women may be different as indicated by differences in their experiences (Websdale & Johnson, 1998). Thus, identifying structural risk factors can inform policy, which may differ across place. Assessing structural explanations for femicide across place, and comparing the findings to findings regarding non-domestic homicide further contributes to an understanding of whether structure and place matter differently for femicide and non-domestic homicide.

The present study contributes to the literature on the relationship between place and femicide through inclusion of a structural feminist framework in addition to a social disorganization framework. It does so by using 10 years of femicide and homicide data which increases the variability in both events across counties, and by using data from a state with distinct regional variation as well as high rates of male perpetrated-female victim homicide.

Research Questions

The current study is driven by several research questions relating to the role of social structure and place in understanding femicide rates across the state of North Carolina. The first research question is in regards to the importance of place in explaining

femicide rates: Is county rurality-urbanicity significantly related to femicide rates, and is county rurality related to non-domestic homicide rates? Based on studies exploring the importance of rural place for domestic violence and particularly domestic homicide (e.g., Gallup-Black, 2005) it is expected that rural counties are more likely to have a significant, positive relationship with rates of femicide (Gallup-Black, 2005; Jennings & Piquero, 2008). In comparison, research also examining non-domestic homicide or aggregate homicide rates has resulted in divergent findings indicating higher rates in rural areas (see Gallup-Black, 2005) and similar average rates between rural and urban areas (Jennings & Piquero, 2008). Therefore, the inclusion of non-domestic homicide rates as a comparison will contribute to this body of research as well.

The second and third research questions refer to the relationship between structural explanations for crime and observed femicide rates: Is there a significant relationship between indicators of structural gender inequality/patriarchy and femicide, and is there a significant relationship between social disorganization and femicide? Based on prior research, it is expected that gender inequality might exhibit a stronger relationship with femicide than social disorganization, but that both will be significant predictors of femicide rates. Referring to the results of their study which indicated that neighborhood disadvantage was important to intimate partner violence even after controlling for individual level factors, Benson et al. (2003) stated “this result is a particularly striking confirmation of social disorganization theory and the theory of concentration effects because it indicates that contextual effects operate even where they might be least expected, that is, inside the home between intimate partners” (p. 231). Thus it is expected that social disorganization will have an influence on femicide rates,

but social disorganization is hypothesized to have a stronger relationship with non-domestic homicide rates.

The fourth research question involves examining whether the relationship (if any) between gender inequality and femicide is conditioned by place: Is the relationship between gender inequality/patriarchy and femicide stronger in rural counties compared to non-rural ones? Research has provided support for both the ameliorative hypothesis and the backlash hypothesis. Following the reasoning of the ameliorative hypothesis, increased gender equality will be associated with reduced violence against women. Following the reasoning of the backlash hypothesis, increased gender equality (or female advantage) will be associated with increased violence against women. Given that support has been found for both of these hypotheses, and recent research has indicated that there may even be a curvilinear relationship between gender equality and gendered violence (Whaley et al., 2011), in which backlash is replaced by ameliorative processes as females become increasingly equal to males, directional predictions are unclear. Findings pertaining to this research questions will be used to contribute to the findings of this literature. In regards to the non-domestic homicide rates, it could be expected that no relationship will be present for indicators of gender inequality. In other words, patriarchy may be specific to understanding gendered violence and not generalizable to other types of violence. However, studies examining the relationship between gender inequality and gendered homicide have not included aggregate (or non-domestic) homicide rates as a comparison therefore the present study is novel in this regard.

The fifth research question addresses the relationship between social disorganization, place, and femicide: Is the relationship between femicide rates and

indicator(s) of social disorganization conditioned by place? Social disorganization may have a stronger relationship with femicide in non-rural places given that social disorganization receives consistently stronger support in explaining urban crime. However, components of disorganization have also been found to explain variance in rural crime. Therefore, it is once again unclear from existing literature precisely what the expectations should be regarding the relationship between rurality and social disorganization on femicide and non-domestic homicide rates. Given that antecedents of social disorganization have been tested using rural samples, but the conditioning influence of rurality on social disorganization indicators has not, this research question provides an exploratory examination of these relationships.

Method

The 100 counties in the state of North Carolina provide the context for the current study. The state of North Carolina was chosen for several reasons. First, the array of publicly available data for the state of North Carolina is more extensive than most states and therefore offers several advantages. Aside from ease of data access, the availability of data in North Carolina provides alternatives to data sources that have been criticized for inaccuracy. For example, the data collected by the North Carolina Coalition Against Domestic Violence (NCCADV) regarding domestic homicides (discussed in more detail below) provide an alternative to reliance on official data sources (e.g., SHR) for the measure of femicide, the primary phenomenon of interest. Second, North Carolina has been used as the object of analysis in several prior studies on female homicide and intimate partner homicide (e.g., Madkour et al., 2010), thereby providing comparisons for the findings of the current study. Third, North Carolina is consistently one of the states

with the highest rural population and percent of the population rural. Currently, North Carolina is second only to Texas in rural population and 15th in percent population rural in the country (U.S. Census Bureau, 2012). In addition to having a high rural population, North Carolina is also regionally diverse. Many of the challenges and deficiencies present in rural areas are generally considered to be amplified in rural Appalachia (Pruitt, 2008). This region is relevant to the current study because 29 North Carolina counties are considered to be a part of the Appalachia region (Appalachian Regional Commission, n.d.). While only one of the Appalachian counties in North Carolina was considered distressed in 2012 (ranking among the worst 10% of economically depressed counties in the nation), 10 were considered at-risk for becoming distressed, ranking between the worst 10-25% of counties nationwide (Appalachian Regional Commission, 2011). In sum, North Carolina was chosen for its relevance within domestic homicide research and because of its regional variation making it pertinent to an examination of place. The data come from several sources which are outlined below.

Data

Data come from the North Carolina Coalition Against Domestic Violence (NCCADV), the North Carolina State Center for Health Statistics (NCSCHS), the Department of Agriculture's Economic Research Service, and the 2000 U.S. Census. The intimate partner femicide data come from the NCCADV which has collected information on statewide domestic homicides since 2002 from a variety of public sources including media reports and official records (NCCADV, 2012). The coalition works with service providers across the state to identify domestic violence murders by conducting daily newspaper searches. In instances where a domestic homicide has taken place and news

coverage is minimal, official records and law enforcement officers are consulted (Richards, Gillespie, & Smith, 2011). These data are used by the state news media and law enforcement officials whom cite the coalition's compilation of domestic homicides in news reporting on domestic violence events. Furthermore, these data have been used in prior research examining the media's representation of domestic violence in the news (see Gillespie, Richards, Givens & Smith, 2013; Richards et al., 2011).

In determining domestic homicide events, the coalition adheres to the following definition:

Domestic violence homicides occur when a person murders their current or former intimate partner and/or their children. A domestic violence homicide includes the murder of third parties. Examples include the murder of relatives of the person's former or current intimate partner, someone attempting to protect their current or former intimate partner, or the current intimate partner of the person's ex-partner. Domestic violence homicides include acts of self-defense against an abusive partner. (NCCADV, 2012)

Each homicide event fitting this definition has an entry on its respective annual list. Most entries contain the date of the murder, the victim's name and age, the alleged perpetrator's name and age, the relationship between victim and perpetrator, the town or county of the murder, and the weapon used. Using these annual lists, the incidents that met the definition of a femicide for the present study were identified and used to form the population of femicide events.

Homicide data was collected from the North Carolina State Center for Health Statistics (NCSCHS). Specifically, the NCSCHS tracks vital statistics data outlining the

leading causes of death annually in the state (referred to as *North Carolina Vital Statistics, Volume 2: Leading Causes of Death*). Choosing “homicide” as the leading cause of death provides county level counts of deaths resulting from homicide for the chosen year. For the current study, the measure of homicide was restricted to non-domestic homicides in order to serve as a comparison with femicide analyses. Using the counts of all domestic homicides compiled annually by the NCCADV, counts of non-domestic homicides were calculated by subtracting domestic homicides from the total homicides in each county over the 10-year time frame.

The measure of county rurality comes from the Department of Agriculture’s Rural-Urban Continuum codes (Economic Research Service, 2012). This schema has been used to provide rural-urban designations in previous studies examining differences in crime across place (e.g., Gallup-Black, 2005; Kaylen & Pridemore, 2011; Lee & Ousey, 2001; Lee et al., 2003; Melde, 2006; Osgood & Chambers, 2000; Wells & Wesheit, 2004). The 2003 Rural-Urban Continuum Codes are based on the results of the 2000 Census and are the most recent version of the coding schema available (which will be updated in mid-2013). Rural-Urban Continuum Codes distinguish metropolitan (metro) counties by the population size of their metro area, and nonmetropolitan (nonmetro) counties by degree of urbanization and adjacency to metro areas. There are three metro groupings and six nonmetro groupings resulting from this classification. Metro counties are distinguished by population size of their Metropolitan Statistical Area and nonmetro counties are classified based on the aggregate size of their urban population. The metro classifications are as follows: 1) counties in metro areas of 1 million populations or more, 2) counties in metro areas of 250,000 to 1 million, 3)

counties in metro areas of fewer than 250,000. The nonmetro counties are classified as: 4) urban population of 20,000 or more, adjacent to a metro area; 5) urban population of 20,000 or more, not adjacent to a metro area; 6) urban population of 2,500 to 19,999, adjacent to a metro area; 7) urban population of 2,500 to 19,999, not adjacent to a metro area; 8) completely rural or less than 2,500 urban population, adjacent to a metro area; 9) completely rural or less than 2,500 urban population, not adjacent to a metro area. See Table 2A in the Appendix for a list of North Carolina counties by the Rural-Urban Continuum code classifications.

Following previous research, the proposed study will utilize 2000 Census data for county-level measures of social disorganization variables, gender inequality variables, and the control variables. Data from the 2000 Census is used because this census provides the context for the majority of femicide and homicide incidents included in the dependent measures that span the years 2002-2011. Given the dependent measures' 10-year span, there were three primary choices in regards to Census data: first, using the 2010 data; second, conducting straight-line interpolation across the 2000 and 2010 data for all measures; and third using the 2000 data. Using only the 2010 Census data would have been the least appropriate choice, methodologically, given that only 2 of the 8 years of homicide data would be informed by those data. Additionally, the measure of rural-urban continuum codes based on 2010 data will not be published until mid-late 2013. The second option, using straight-line interpolation was more seriously considered. However, preliminary comparisons of homicide rate calculations did not indicate drastic differences between interpolated population counts and counts based solely on the 2000 Census. Furthermore, (once again) one of the most important measures in the current study, the

measure of county rurality, was calculated by the Department of Agriculture using the 2000 Census population counts. Thus, using the 2000 Census across all measures provides consistency in measurement and interpretation of the variables of interest. Additionally, recent research has relied largely on 2000 Census data and thus results may be more readily compared to prior research through utilization of the same population context.

Unit of analysis. The data consist of a total of 528 femicide victims (2002-2011), and 5,295 total non-domestic homicide victims (2002-2011). Eighty-six of the 100 counties in North Carolina had at least one femicide between 2002 and 2011. County level analyses of homicide data have come under methodological criticism in recent years (e.g., Pridemore, 2005). Criticisms are largely centered on issues regarding reporting errors (especially for more rural counties) with data sources such as the Supplementary Homicide Reports (SHR), commonly used in county-level analyses. Several studies reviewed here utilized this data in order to carry out assessments of the relationship between social structure and crime, as well as place and crime (e.g., Diem & Pizarro, 2010; Gallup-Black, 2005; Jennings & Piquero, 2008; Weisheit & Wells, 2005). The current study, however, does not rely on SHR data, and is not limited by missing data associated with incomplete or non-reporting reporting by law enforcement agencies or, common among disaggregated homicide studies, missing data on the victim-offender relationship variable. Another issue that arises in using county level analyses for a single state has to do with the small sample size ($N=100$), although this is a population of North Carolina counties. However, recent research in the vein of the present study has been conducted with similarly small sample/population sizes. For instance, Madkour et al.

(2010) examined the population of counties in North Carolina ($N=100$) and Kaylen and Pridemore (2011) examined a sample of 106 counties in Missouri. Thus, while not ideal for the purposes of statistical power, the potential for the current study to explore the relationships between social structure, place and femicide outweighs preference for large sample sizes.

Measures

Dependent measures. Two dependent measures are included in the current study: county femicide rate (2002-2011) and county non-domestic homicide rate (2002-2011). For measures of femicide and non-domestic homicide, data for all 10 years was pooled together in order to increase variation across counties (important for femicide rates given the relatively rare occurrence of femicide particularly at small levels of aggregation). Pooling data across years is common in homicide and other rare-events analyses primarily for the purpose of increasing variation in events across units of analysis. While pooling 2-5 years of data is common in the literature (e.g., Gallup-Black, 2005; Madkour et al., 2010; Osgood & Chambers, 2000), the current study pools 10 years of data for the primary purpose of increasing variation in county-level femicide events. Ideally year would be controlled for in analyses, but due to the small sample size and given the exploratory nature of the study, controlling for year was deemed methodologically impractical.

Rates were calculated by summing the number of events (femicides and non-domestic homicides respectively) in each county across all 10 years and dividing the total number of incidents by the at-risk population. For the non-domestic homicide rates the reported 2000 Census population in each county was multiplied by 10 (to coincide with

the 10 years of pooled homicide data) to create the at-risk population. Femicide rates were calculated in a similar manner; but, instead of using the entire county population, the population at-risk for femicide was used, i.e. the population of females aged 15 and older as reported in the 2000 Census. This decision is rooted in prior research investigating intimate female-victim homicide (Gallup-Black, 2005; Sinauer et al., 1999). Rates are reported per 100,000 persons, and calculated by the following formula:

$$\frac{X}{(N/100,000)}$$

Where X is the number of victimization events, and N is the population at-risk for that victimization experience. The following is an example of femicide county rate calculation: Alamance County had a 10 year pooled count of 10 femicides (X) and an at-risk population (N) of 550,690 females aged 15 and older (the 2000 Census population at-risk multiplied by 10: $55,069 * 10$). First, the at-risk population is divided by 100,000 (resulting in 5.5069), and then the count of femicides (10) is divided by 5.5069 resulting in a rate of 1.82 femicides per 100,000 individuals at-risk for femicide victimization. See Figures 1 and 2, and Tables 1 and 2 for descriptive statistics relating to the dependent measures.

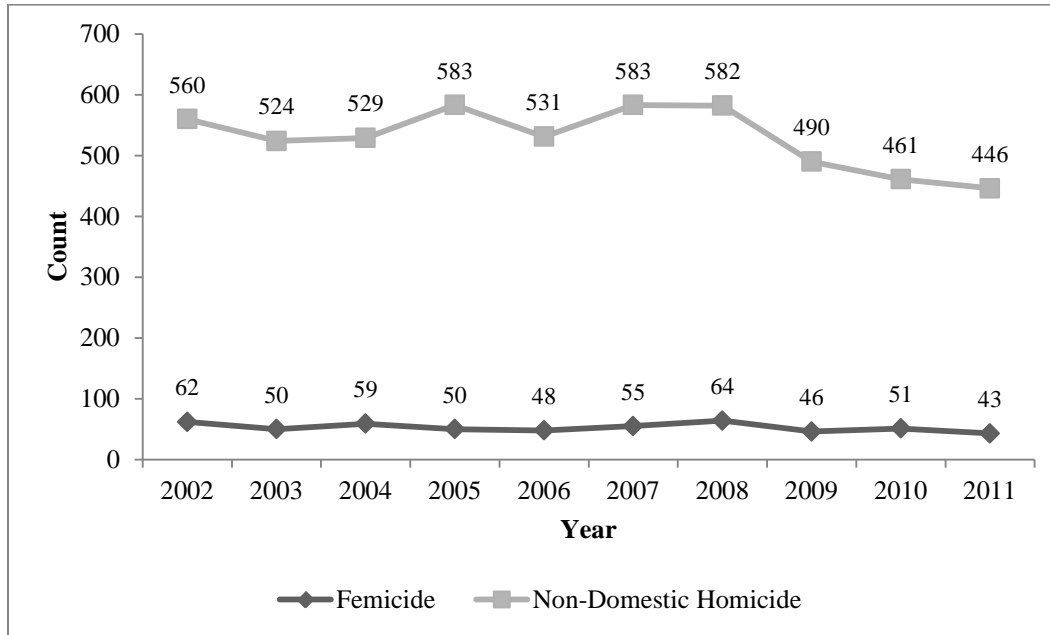


Figure 1. Counts of Femicide and Non-Domestic Homicide, 2002-2011

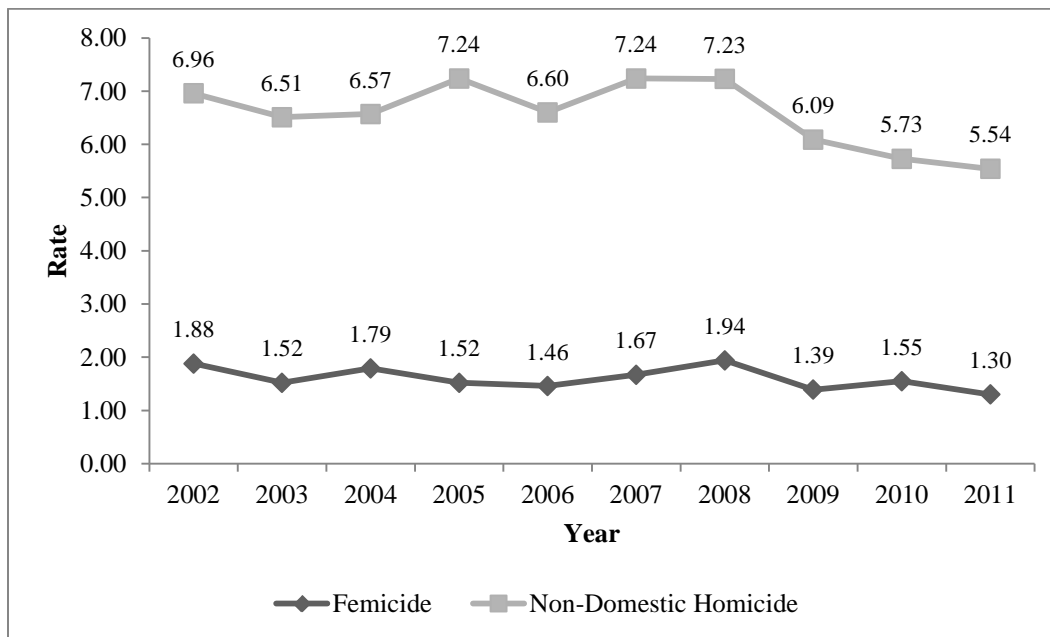


Figure 2. Rates of Femicide and Non-Domestic Homicide, 2002-2011

Table 1. Annual Counts and Rates of Femicide and Non-Domestic Homicide

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total/Avg.
Femicides											
Counts	62	50	59	50	48	55	64	46	51	43	528
Rates	0.77	0.62	0.73	0.62	0.60	0.68	0.80	0.57	0.63	0.53	0.66
At-Risk Rates ¹	1.88	1.52	1.79	1.52	1.46	1.67	1.94	1.39	1.55	1.30	1.60
Non-Domestic Homicides											
Counts	560	524	529	583	531	583	582	490	461	446	5295
Rates	6.96	6.51	6.57	7.24	6.60	7.24	7.23	6.09	5.73	5.54	6.58

¹Rates of femicide using the at-risk population (females age 15 and older) as opposed to the total statewide population. All subsequent analyses are based on the at-risk rate.

Table 2. Descriptive Statistics for Total Femicides and Non-Domestic Homicides, 2002-2011 (N=100)

	Mean (SD)	Median	Minimum	Maximum	Interquartile Range
Census 2000					
County Population	80,493 (108,092)	47,879	4,149	695,454	23,700-91,805
Femicides					
Count per county	5.28 (7.56)	3.00	0	54	1.00-6.00
Rate per county ¹	1.61 (1.18)	1.38	0	5.55	0.94-2.19
Non-Domestic Homicides					
Count per county	52.95 (84.56)	30.50	1	648	9.25-60.00
Rate per county	6.21 (3.39)	5.22	.73	21.57	4.13-8.44

¹Femicide rate is based on the at-risk population for femicide victimization (females age 15 and older).

There are some important notes regarding the femicide and non-domestic homicide measures. Both of these are measures of homicide events, not murders specifically. In other words, this study is examining fatalities regardless of the legal outcome or recourse. The use of homicide data from the NCCADV and NCSCHS overcome several potential limitations regarding use of official data sources (e.g., SHR data). First, official records may contain missing data regarding the identification of the relationship between the victim and the perpetrator, or may mislabel the actual relationship. Second, local agency reporting to the FBI is voluntary and thus SHR data is often incomplete. This second limitation applies to use of UCR or SHR data for calculating rates of femicide and homicide. Prior research has discussed the problems associated with reliance on official crime data (see Kaylen & Pridemore, 2011; Sampson & Groves, 1989). Examination of UCR homicide reporting in North Carolina indicated that reliance on such data would be problematic for the current study. Of the 100 counties in North Carolina, 52 were missing at least one year of data on county murders. The current study is able to overcome these limitations by utilizing homicide data from state sources which by comparison is more complete than official statistics. Additionally, the present study is interested in exploring explanations for lethal victimization events, regardless of their legal ramifications.

Independent measures. The independent variables of interest include the place measure and the measures representing the theoretical constructs of gender inequality and social disorganization. These are described in detail below and in Table 3, Figure 3, and Table 4. Because the population size is limited, the Rural-Urban Continuum code categories were collapsed into two groupings resulting in collapsed versions of the

general categorizations designated by Gallup-Black (2005) and Madkour et al. (2010): urban metropolitan and nonmetropolitan, i.e., non-rural ($N=71$), and rural ($N=21$). There were several ways in which counties could be dichotomized but since the emphasis of this study was on exploring rurality, the chosen split was meant to compare the most rural counties to all other counties. While other research has indicated the benefit of using a non-dichotomous split inclusive of three to four groupings of counties based on rural-urban classifications, the nature of the data in the current study assesses rural counties compared to non-rural counties in order to explore how rural counties vary from all other types of counties. In the analyses the rural designation is used as an independent variable in the main effects models and as a moderator variable in the interaction effects models.

Table 3. Frequency of North Carolina Counties Representing Classifications of the Rural-Urban Continuum Codes

Code	Rural-Urban Continuum Code Description	Number of Counties
1	Metro area 1 million plus	6
2	Metro area 250,000 to 1 million	27
3	Metro area fewer than 250,000	7
4	Nonmetro 20,000 plus, adj. to metro	17
5	Nonmetro 20,000 plus, not adj. to metro area	2
6	Nonmetro 2,500-19,999, adj. to metro	15
7	Nonmetro 2,500-19,999, not adj. to metro area	5
8	Nonmetro completely rural, adj. to metro area	9
9	Nonmetro completely rural, not adj. to metro area	12

Note: For analyses Non-Rural includes codes 1-7 ($N=79$) and Rural includes codes 8-9 ($N=21$).

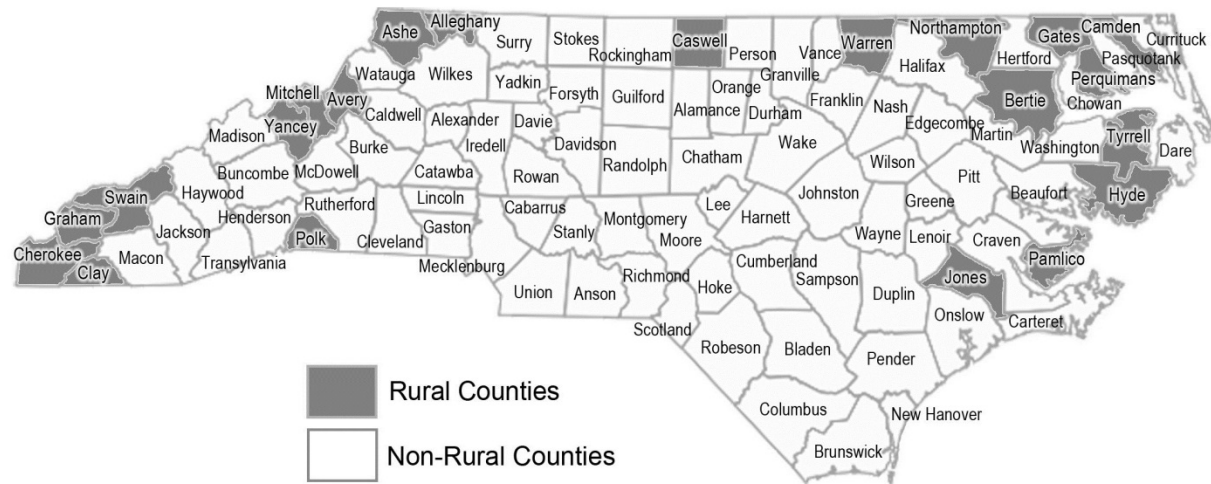


Figure 3. Map of North Carolina Designating Rural and Non-Rural Counties

Feminist theory emphasizing the role that structural patriarchy has on intimate violence will be measured in accordance with prior research. Considering the development of female inequality perspectives in rural domestic violence literature, it is important to consider the ways in which gender inequality may affect women differently based on place. Rural women tend to earn less than men, and have limited access to jobs opportunities and educational options (DeKeseredy & Schwartz, 2009; Websdale, 1998). While these are also hardships faced by non-rural women, they may result in even more adverse effects for rural women (Websdale & Johnson, 1998). Quantitative research measuring female inequality has included examinations of female offending (Parker & Reckdenwald, 2008; Reckdenwald & Parker, 2008; Steffensmeier & Haynie, 2000) and gendered victimization (DeJong et al., 2011; Pridemore & Freilich, 2005; Whaley & Messner, 2002; Whaley et al., 2011). Based on these studies the measures representative of female inequality/patriarchy are as follows: (1) ratio of the percent of females-to-males 25 years or older with four or more years of college education (Parker & Reckdenwald, 2008; Reckdenwald & Parker, 2008; Steffensmeier & Haynie, 2000; Whaley & Messner, 2002; Whaley et al., 2011); (2) ratio of female-to-male median income (Reckdenwald & Parker, 2008; Whaley & Messner, 2002; Whaley et al., 2011); (3) ratio of the percent of females-to-males aged 16 and older employed in the labor force (Whaley & Messner, 2002; Whaley et al., 2011); and (4) ratio of females-to-males in management and professional employment (DeJong et al., 2011; Parker & Reckdenwald, 2008; Reckdenwald & Parker, 2008; Steffensmeier & Haynie, 2000; Whaley & Messner, 2002).

Table 4. Descriptive Statistics of All Indicator Variables (N=100)

	<i>N</i>	Mean	<i>SD</i>
Place			
Rural	21		
Urban	79		
Gender Inequality			
F:M ratio in administrative employment		1.32	0.22
F:M ratio aged 16 and older employed in the labor force		0.89	0.06
F:M ratio 25 years or older with four or more years of college education		1.16	0.20
F:M median income ratio		0.60	0.06
Social Disorganization			
Ratio of female headed households to all households with children		0.18	0.05
Proportion of families below poverty		0.08	0.03
Proportion of households occupied by individuals moved in previous 5 years		0.40	0.06
Controls			
Index of racial diversity		0.31	0.16
F:M sex ratio		1.04	0.06
Proportion of population of crime prone age (15-24)		0.13	0.03

Note: F:M=Female:Male

These measures are intended to tap into differences between females and males in educational opportunities, earnings, employment, and work, representing public patriarchy as defined by Walby (1989). Measures are presented as female-to-male ratios with a mean of 1.00 signifying equality, a mean of less than 1.00 indicating male advantage relative to females, and a mean of more than 1.00 indicating female advantage relative to males. The mean female-to-male ratio in educational attainment ($M=1.16$) indicates that, on average in North Carolina, there are 116 women with four or more years of college education for every 100 men (range=0.90-1.86). The mean female-to-male ratio in median income ($M=0.60$) indicates that, on average, women's median income is 60% of the median income earned by men (range=0.41-0.80). The mean female-to-male ratio in labor force employment ($M=0.89$) indicates that, on average, there are 89 women employed in the labor force for every 100 men (range=0.77-1.11). The mean female-to-male ratio in management and professional employment ($M=1.32$) indicates that, on average, there are 132 women in management and professional employment positions for every 100 men (range=0.85-1.96). These measures indicate that gender inequality affects both men and women in different ways. Women benefit in terms of college education and occupational presence, whereas men benefit in terms of general labor force employment and average median income.

In an attempt to remain consistent with prior research examining measures representative of social disorganization, this study includes measures of residential instability, poverty, and family disruption. Residential instability is measured as the proportion of the population that moved in the previous five years (e.g. Bouffard & Muftić, 2006; DeJong et al., 2011; Kaylen & Pridemore, 2011; Melde, 2006; Osgood &

Chambers, 2000). Residential instability is measured on a scale of 0-1, with 0 indicating complete stability and 1 indicating complete instability. The mean residential instability score ($M=0.40$) indicates that on average 40% of households are occupied by individuals that moved in the previous five years (range=0.29-0.61). Poverty is measured as the proportion households below the poverty level (Bouffard & Muftić, 2006; Kaylen & Pridemore, 2011; Madkour et al., 2010; Osgood & Chambers, 2000). Poverty is measured on a scale of 0-1 with 0 indicating no households were below the poverty level and 1 indicating that all households were below the poverty level. The mean poverty score ($M=0.08$) indicates that on average, 8% of households were below the poverty level (range=0.03-0.15). Family disruption is measured as the ratio of female-headed households to all households with children, following the reasoning of Osgood and Chambers (2000) who argued that the burden of monitoring children falls to other households with children more so than households without children. A family disruption score of 0 would indicate no female headed households with children, and a score of 1 would indicate an equivalent number of female headed households with children to all households with children. The mean family disruption ratio ($M=0.18$) indicates that on average, there are 18 female headed households with children for every 100 households with children (range=0.11-0.30). While racial/ethnic heterogeneity is often included as a measure of social disorganization the current study includes a measure of diversity as a control variable in multivariate models, but not as an indicator of social disorganization.

The multivariate models used for analyses include controls for race/ethnicity, sex, and age. Specifically, ethnic heterogeneity is measured by calculating an index of diversity, $1 - (\sum p_i^2)$, where p^i is the proportion of households with a householder of a

given ethnic group squared and summed across all groups (see Bouffard & Muftić, 2006; Kaylen & Pridemore, 2011; Melde, 2006; Osgood & Chambers, 2000; Sampson & Groves, 1989). For the purpose of this study the two groups are White and non-White, thus the index represents “the probability that two randomly drawn individuals would differ in ethnicity” (Osgood & Chambers, 2000, p. 93). A county with all White or all non-White households would receive a score of 0, while a county with equal numbers of White and non- White households would receive a score of .5 (the maximum score). In other words, a score closer to zero indicates more homogeneity while a score closer to .5 indicates more heterogeneity. The mean value on ethnic diversity ($M=0.31$) indicates a 31% chance that one of two randomly chosen individuals would be non- White (range=0.02-0.50). In regards to age, the percent population 15 to 24 years, or the crime-prone age range, is controlled for and measured on a scale of 0 to 1 with 0 indicating 0% of the county population is between 15 and 24, and 1 indicating that 100% of the county population is between 15 and 24 years (Wells & Weisheit, 2004; Weisheit & Wells, 2005). The mean crime-prone age ($M=0.13$) indicates that on average 13% of the population is between 15 and 24 years old (range=0.09-0.31). The county ratio of females to males is used to control for sex, with a ratio of 1 indicating equal numbers of females and males (Bouffard & Muftić, 2006; D’Alessio & Stolzenberg, 2010). The mean ratio of females to males ($M=1.04$) indicates that, on average, there are 104 women for every 100 men (range=0.81-1.18).

Finally, the natural logarithm of the population at-risk for femicide is included in multivariate analyses of femicide models, and the natural logarithm of the population at-risk for homicide is included in multivariate analyses of homicide models, in order to aid

in the interpretability of rate models using count-based analysis procedures (Kaylen & Pridemore, 2011; Osgood, 2000; Osgood & Chamber, 2000). By including the natural log of the at-risk population, poisson regression becomes an analysis of rates of events per capita instead of counts (Osgood, 2000). In STATA, this variable is included as an offset (fixing the coefficient at 1) in poisson and negative binomial regression analyses.

Analytic Procedure

Analyses were conducted using both SPSS and STATA statistical software. First, bivariate analyses are presented including analyses of the difference in means of the variables across rural and non-rural counties. Second, principal components analyses were conducted to create theoretical indexes of gender inequality and social disorganization. Third, negative binomial regression analyses of place and social structure are presented. Because this study is conducting an examination of crime rates based on small population units and low base-rates, poisson based regression analysis was used. Osgood's (2000) application of poisson based approaches to aggregate crime analysis was one of the first, and has influenced the methodological decision making of the majority of studies that the current study is predicated upon. In regards to the current analysis, least squares regression would be inappropriate because the variation in population across North Carolina counties violates the assumption of variance homogeneity, and the femicide rate of zero in 14 of 100 counties could make the least squares regression coefficients susceptible to bias due to skewed error distribution.

Osgood (2000) suggested that poisson-based regression models are beneficial for aggregate crime rate analysis because they allow researchers to recognize how crime rates are dependent on crime counts. Because the explanatory variables included in the

models for this study are unlikely to account for all meaningful variation and because the assumption of independence among homicide events may be violated (femicide events as measured in the current study are less likely to violate this assumption because rare is a case where the offender is responsible for more than one femicide death, and rarely is there more than one perpetrator) overdispersed poisson regression, specifically, negative binomial poisson regression was used. Negative binomial model estimation procedures have become common among studies examining homicides and other violent crimes, especially at the county level (e.g., Kaylen & Pridemore, 2011; Melde, 2006; Osgood & Chambers, 2000). The presence of overdispersion was assessed by examining the significance of the likelihood ratio chi-square test pertaining to whether alpha value (dispersion parameter) is equal to zero. This test was significant for all models suggesting that overdispersion was present and that negative binomial regression was preferable to poisson regression.

Interpreting negative binomial regression results can be done in a number of ways, one of the simplest of which is to refer to the percent change in expected count (or rate) (Long, 1997). The unstandardized (beta or b) and standardized (incidence rate ratio or IRR) coefficients are both presented in tables. IRRs are simply the exponentiated value of the unstandardized coefficient and represent the factor change in the dependent variable associated with a one unit increase in the independent variable. Unstandardized coefficients may be interpreted by taking the exponentiated value (the IRR), subtracting one, and multiplying by 100, resulting in the percent mean difference in the dependent variable associated with a one unit increase in the independent variable. As an equation, the interpretation is presented as $(100[\exp(b)-1]) = \% \text{ change}$. For example, if the

unstandardized coefficient for female-to-male sex ratio is 1.12, the calculation would be as follows: $\exp(1.12) = 3.06$, $3.06 - 1 = 2.06$, $2.06 * 100 = 206\%$. The interpretation of this calculation would be: A one unit increase in the sex ratio corresponds with a 206% increase the expected mean femicide rate. For nominal variables calculations are the same as presented above but the interpretation is slightly different indicating the percent expected mean difference in one category of the independent variable compared to the other. For example, if the unstandardized coefficient for the variable indicating rural county location is 1.12, the interpretation would be as follows: The expected mean rate of femicide in rural counties is 206% greater than the expected mean rate of femicide in non-rural counties.

Each regression analysis is modeled for femicide and non-domestic homicide, resulting in the presentation of 12 pairs of negative binomial regression models. The first two pairs of models examine place specifically by illustrating whether place is related to the outcome variables before and after controlling for race, sex, and age. The second set of paired models examines the role of gender inequality while controlling for place. The first pair of models in this set looks at the individual indicators of gender inequality, while the second pair examines the structural female equality index along with the single measure of income inequality. The third set of paired models examines the role of social disorganization measures while controlling for place. The first pair of models in this set looks at the individual indicators of social disorganization, while the second pair examines the social disorganization index. The fourth set of paired models explores the interaction effect between the index of female equality and place on both outcomes. The second model in this set controls for the social disorganization index in order to examine

how social disorganization affects the relationship between rural female equality and the outcomes measures. The fifth set of paired models explores the interaction effect between social disorganization and place on femicide and non-domestic homicide rates. The second model in this set controls for female equality and income inequality in order to examine how gender inequality affects the relationship between rural social disorganization and the outcomes measures.

These 12 models serve to explore the relationship between place and femicide, the relationship between social structure and femicide, and whether or not any social structure-femicide relationships are enhanced by rurality. The non-domestic homicide models serve as a comparison to the femicide results as the findings of previous research examining disaggregated homicide rates have noted important similarities and differences between domestic and non-domestic homicide rates. These comparisons have noted higher rates of intimate partner homicide and other types of homicide in rural counties over time, variation in the predictive power of structural models for domestic compared to non-domestic homicide, and variation in structural indicators across homicide type (e.g., DeJong et al., 2011; Gallup-Black, 2005; Kubrin, 2003). Therefore, comparing femicide models to non-domestic homicide models has utility for identifying whether there is variation in structural correlates and if risk of homicide type is variable across rural and non-rural counties.

Chapter Four: Results

The results of bivariate analyses (difference in means and correlations) are presented first. The results of the principal components analyses, used for the purpose of data reduction to create indexes of the theoretical variables, are presented second. The negative binominal regression analyses exploring both the main effects and interaction effects are presented third.

Bivariate Analyses

The results of the mean difference analyses of all indicators across rural and non-rural counties are presented in Table 5. Neither femicide rate ($t=0.394$) nor non-domestic homicide rate ($t=1.382$) exhibit significant mean level differences between rural and non-rural counties.¹ Of the four measures of gender inequality, two differ significantly across rural and non-rural counties. The ratio of females to males with four or more years of college education is significantly lower in non-rural counties compared to rural counties this indicates that, while more females than males have four or more years of college education in both rural and non-rural counties, the gender gap in education is significantly lower in non-rural counties ($t=-2.204, p<.05$). The difference in the average female-to-male median income ratio between rural and non-rural counties indicates that

¹In order to discern whether a lack of statistical significance was due to the choice of codes collapsed to create the rural variable, t-tests were conducted on several alternative splits of more rural (or nonmetro) compared to less rural (or metro). The findings are included in Table 3A in the Appendix and do not indicate significant differences for femicide regardless of how the counties are collapsed, and only one significant difference across a rural-urban designation for NDH rates.

the gender gap is greater in rural counties compared to non-rural counties ($t=2.555$, $p<.05$). Specifically, the median income for females in rural counties is 57% of the median income of males in rural counties, 4% lower than the median income ratio of females to males, on average, in non-rural counties. The average sex ratio in administrative employment and labor force employment are not significantly different across rural and non-rural counties.

Two of the three measures of social disorganization indicate significant mean differences across rural and non-rural counties. The average proportion of families below the poverty line is significantly lower in non-rural counties (7%) compared to rural counties (9%) ($t=-2.297$, $p<.05$). This is largely supported by the literature on rural and urban differences which has indicated that rural areas are more likely to experience widespread and persistent poverty (Pruitt, 2008; Websdale, 1998; Weisheit & Donnermeyer, 2000; Weisheit et al., 2006). In comparison, but also consistent with prior research, the mean of the residential instability measure is significantly higher in non-rural counties (41%) compared to rural counties (34%), indicating that mean levels of residential instability are higher in non-rural counties ($t=6.338$, $p<.001$). The mean ratio of female headed households is not significantly different across rural and non-rural counties.

Examination of the control measures indicates that only one exhibits significant mean level differences across place. The average proportion of the population between the ages of 15 and 24 is significantly higher in non-rural counties (13%) compared to rural counties (11%) ($t=4.862$, $p<.001$). The mean levels of the ratio of females to males and racial diversity are not significantly different across rural and non-rural counties.

Table 5. Mean Differences Between Rural and Non-Rural Counties

	Rural (N=21)	Non-Rural (N=79)	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>
Dependent Measures			
Femicide rate	1.49 (1.69)	1.64 (1.02)	0.39
Non-Domestic Homicide rate	5.31 (2.58)	6.45 (3.56)	1.38
Gender Inequality			
F:M ratio in management and professional employment	1.40 (0.29)	1.29 (0.19)	-1.52
F:M ratio aged 16 and older employed in the labor force	0.87 (0.07)	0.89 (0.06)	0.91
F:M ratio 25 years or older with four or more years of college education	1.27 (0.27)	1.13 (0.17)	-2.20*
F:M median income ratio	0.57 (0.07)	0.61 (0.05)	2.56*
Social Disorganization			
Ratio of female headed households to all households with children	0.17 (0.06)	0.18 (0.05)	1.19
Proportion of families below poverty	0.09 (0.02)	0.07 (0.03)	-2.30*
Proportion of households occupied by individuals moved in previous 5 years	0.34 (0.03)	0.41 (0.06)	6.34***
Controls			
Index of racial diversity	0.27 (0.20)	0.32 (0.15)	0.94
F:M sex ratio	1.03 (0.07)	1.05 (0.06)	1.29
Proportion of population of crime prone age (15-24)	0.11 (0.01)	0.13 (0.04)	4.86***

* p<.05; *** p<.001; Note: *M (SD)*=Mean(Standard Deviation); F:M=Female:Male

As indicated in Table 6, several of the variables are significantly correlated. Of particular interest to the current study are the correlations among theoretical indicator variables. In terms of variables representing feminist theory, there is a moderate correlation between the female-to-male occupation ratio and the female-to-male education ratio ($r=.562, p<.001$), a moderate correlation between employment ratio and occupation ratio ($r=.305, p<.01$), and a moderately weak correlation between employment ratio and education ratio ($r=.271, p<.01$). Examining the variables representing social disorganization theory, the proportion of families below poverty is strongly correlated with the ratio of female headed households to all households with children ($r=.746, p<.001$), and residential instability is moderately correlated with the proportion of families living in poverty ($r=-.499, p<.001$). While some of the theoretical indicators are correlated with one another, the sizes of the correlations do not appear to be indicative of issues relating to collinearity, perhaps with the exception of the family disruption measure. Family disruption (female headed households) also has a strong, significant correlation with families below poverty ($r=.746, p<.001$), racial diversity ($r=.876, p<.001$), and with non-domestic homicide rate ($r=.732, p<.001$).

In order to determine the presence of multicollinearity, the variance inflation factor (VIF) and tolerance of each variable was examined through regression analysis in SPSS. The recommended cut-offs for these indicators varies. Allison (1999) suggested that multicollinearity is present if the VIF is greater than 2.5 and the tolerance is less than .40. Others have noted that the rule of 10 (VIF greater than 10, and tolerance of less than .10) is common as a potential indication of collinearity issues in the data (O'Brien, 2007). This analysis adhered to the latter guidelines. If concerns are present, further analyses

would benefit methodologically from data reduction techniques, such as principal components analysis. The results of this analysis, presented in Appendix Table 1A, indicate that collinearity may be an issue in regards to the ratio of female headed households with children to all households with children, which is just beyond the cut-off (VIF=10.453, tolerance=.096).

Although the majority of variables do not have corresponding VIFs that indicate multicollinearity concerns within the data, data reduction through principal components analysis was conducted and justified on the basis of prior research and practical concerns relating to statistical power. In regards to prior research, the theoretical variables included in this analysis were chosen explicitly for their use previously as indicators of largely underlying constructs, gender inequality and social disorganization. Combining these individual indicators into components representing the respective theories is well suited to the purpose of exploring the ability of structural theories to explain variation in femicide and non-domestic homicide rates. In terms of practical considerations, reducing the individual indicators into indexes representing the theoretical constructs enhances statistical power. Given the modest population of 100 counties, data reduction increases the likelihood of correctly identifying a relationship between the theoretical indicators and the outcomes, as well as the measure of place and the outcomes.

Table 6. Correlation Matrix of All Variables (N=100)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
F:M education ratio	(1)	1.00												
F:M occupation ratio	(2)	.56***	1.00											
F:M employment ratio	(3)	.27**	.31**	1.00										
F:M median income	(4)	-.07	-.14	.16	1.00									
FHH Ratio	(5)	.51***	.39***	.64***	.08	1.00								
Families below poverty	(6)	.65***	.55***	.38***	-.23*	.75***	1.00							
Residential instability	(7)	-.50***	-.43***	.21*	.12	-.14	-.50***	1.00						
Rural county	(8)	.28**	.19 ⁺	-.10	-.25*	-.12	.23*	-.42***	1.00					
Racial/ethnic diversity	(9)	.47***	.30**	.59***	.03	.88***	.62***	-.01	-.11	1.00				
F:M sex ratio	(10)	.23*	.15	.16	-.10	.33**	.19 ⁺	-.18 ⁺	-.13	.15	1.00			
Age 15-24	(11)	-.10	-.11	.44***	.16	.17 ⁺	.00	.58***	-.28**	.20 ⁺	-.17 ⁺	1.00		
Femicide rate	(12)	-.11	-.09	-.12	.18 ⁺	-.09	-.03	-.14	-.05	-.07	.09	-.03	1.00	
NDH rate	(13)	.35***	.24*	.34**	.11	.73***	.61***	-.11	-.14	.67***	.21*	.11	-.02	1.00

⁺p<.10, *p<.05, **p<.01, ***p<.001

Note: F:M=Female:Male; FHH=Female Headed Households; NDH=Non-Domestic Homicide.

Principal Component Analyses

Principal components analyses (PCA) were conducted in SPSS in order to create indexes representing the two theoretical constructs of gender inequality and social disorganization. The creation of the indices serves two purposes. The first is that it provides a solution for the correlations among theoretical variables, in particular the variables representing social disorganization; the second is that these indicators were picked because of their prior use as indicators of specific theoretical contexts. Given that they are meant to examine an underlying construct, combining the measures through PCA is an appropriate method for producing singular components representative of gender inequality and social disorganization. PCA with varimax rotation was used to create an index of feminist theory and an index of social disorganization theory.

The four indicators chosen to reflect feminist theorizing on the role of structural gender inequality produced a two factor solution with three of the four variables loading together (eigenvalue=1.776). These three variables, female-to-male education ratio, occupation ratio, and employment ratio, represent a *structural female equality index*. In other words, the status of females relative to males increases with increasing values on the index. This component explains 59.19% of the variance in the original three variables. The fourth variable, female-to-male median income ratio (which did not load with the other three), serves as a single indicator of *female income equality*. Higher values indicate increasing equality in median income between females and males. The results of the PCA conducted without the female-to-male median income measure are presented in Table 7 and support a single factor solution.

The ratio of female headed households, proportion of families below poverty, and proportion of residents moved in prior 5 years, loaded onto a single factor representing a *social disorganization index* (eigenvalue=1.967). Higher values on the social disorganization index are indicative of increasing levels of social disorganization in a given county. This component explains 65.58% of the variance in the original three variables. The results of this PCA are presented in Table 8.

The reliability of both indexes is fairly low ($\alpha=.618$ and $.589$, respectively). However, given the consistent prior use of these variables as indicators of their respective underlying theoretical contexts, prior research and theory is used to justify retaining the two components. Additionally, prior research has often neglected to include reliability statistics for gender inequality indexes, in particular, and thus it is unknown how these indexes compare to those using similar measures in previous studies.

Table 7. Principal Component Factor Analysis for Variables Representing Structural Female Equality

	Factor Loadings
F:M ratio in administrative employment	0.842
F:M ratio aged 16 and older employed in the labor force	0.619
F:M ratio 25 years or older with four or more years of college education	0.826

$\alpha=.618$; Note: F:M=Female:Male; the measure of F:M median income ratio did not load with the other gender inequality indicators and is therefore included in analyses as an independent indicator.

Table 8. Principal Component Factor Analysis for Variables Representing Social Disorganization

	Factor Loadings
Ratio of female headed households to all households with children	0.826
Proportion of families below poverty	0.953
Proportion of households occupied by individuals moved in previous 5 years	0.613

$\alpha=.589$; Note: Residential instability was reverse coded to reverse the polarity of the factor loading from negative to positive.

Negative Binomial Regression Analyses

The multivariate regression analyses are presented in Tables 9-15. Given the population size and resulting lack of statistical power, coefficients with $\alpha=.10$ (or $p \leq .10$) are reported as significant. First, the measure of place is explored excluding the theoretical variables. Second, the feminist theoretical context is explored. Third, the social disorganization theoretical context is explored. And finally, the interactions between place and the theoretical constructs are examined.

Table 9 illustrates the independent relationship between place and the outcome measures, as well as the influence of controlling for the natural log of the population at-risk as an offset in the models (represented by comparing the unadjusted and adjusted models in the table). As indicated, place is not significantly related to femicide rates in the unadjusted model (not adjusting for population at-risk). However, the adjusted model indicates that rurality is significantly related to femicide rate. The expected mean rate of femicide in rural counties is 327% greater than the expected mean rate of femicide in non-rural counties.

Examination of the models for non-domestic homicide (NDH) illustrates similar findings. In the adjusted model rural county location is significantly related to non-domestic homicide rate. The expected mean rate of NDH in rural counties is 290% greater than the expected mean rate of NDH in non-rural counties. In other words, without controlling for any other factors and given the size of the population at-risk, femicide and non-domestic homicide rates are significantly higher in rural counties than non-rural counties in North Carolina.

Table 9. Negative Binomial Regression Analysis of Place without Control Variables ($N=100$)

	Femicide		Non-Domestic Homicide	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Non-Adjusted Model¹				
Rural county	-0.10 (0.20) 0.91	(0.61, 1.34)	-0.20 (0.13) 0.82	(0.64, 1.06)
Adjusted Model²				
Rural county	1.45 (0.28) 4.27 ^{***}	(2.47, 7.37)	1.36 (0.21) 3.90 ^{***}	(2.57, 5.91)

*** $p < .001$

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval)

¹This model does not include the offset term for femicide and non-domestic homicide, respectively.

²This model does include the offset term: the logged population at-risk with coefficient set to 1.

Table 10. Negative Binomial Regression Analysis of Place with Control Variables ($N=100$)

	Femicide ¹		Non-Domestic Homicide ²	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Rural county	1.35(0.29) 3.85 ^{***}	(2.17, 6.82)	1.39(0.21) 4.03 ^{***}	(2.70, 6.02)
Racial diversity index	-0.33(0.76) 0.72	(0.16, 3.22)	2.98(.52) 19.76 ^{***}	(7.11, 54.96)
F:M sex ratio	1.14(2.20) 3.12	(0.04, 232.93)	-0.24(1.34) 0.78	(0.06, 10.88)
Proportion age 15-24	-4.28(4.03) 0.01	(5.16e-6, 37.48)	-6.24(3.07) 0.00 [*]	(4.77e-6, 0.80)

* $p < .05$; *** $p < .001$

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval);

F:M=Female:Male

¹The log of the population at risk for femicide is adjusted for in the femicide model.

²The log of the population at risk for homicide is adjusted for in the non-domestic homicide model.

Table 10 illustrates the relationship between rurality and the outcomes measures while controlling for race, sex, and age. Looking first at femicide rates, the only significant measure is rurality. Rural county location, compared to non-rural county location, increases the expected mean rate of femicide by a 285%. In comparison, two control variables, in addition to rurality, are significantly associated with non-domestic homicide rates. Rural county location, compared to non-rural county location, corresponds to an approximate 300% increase in the expected mean rate of NDH. The measures of racial composition and crime-prone age range are also significant.

Table 11 illustrates the relationships between the indicators of feminist theory, as individual variables and as an index, and the outcome measures while controlling for county rurality in addition to the control variables. Model 1 indicates that several of the sex inequality measures are significantly associated with femicide and non-domestic homicide rates, as well as rurality. Every one unit increase in the female-to-male occupation ratio corresponds to a 282% increase in the average femicide rate. Exhibiting a marginally significant relationship, a one unit increase in female-to-male employment ratio is associated with a 99% decrease in the mean femicide rate. Rurality remains significant in this model indicating the expected mean rate of femicide is 227% higher in rural counties compared to non-rural ones. In comparison to the results of Model 1 in reference to femicide rates, all four measures of sex inequality are significantly related to non-domestic homicide rates, in addition to rurality. A one unit increase in female-to-male education ratio and occupation ratio are associated with a 313% and 137%, respectively, higher expected mean NDH rate. Every one unit increase in female-to-male employment ratio and median income ratio correspond with a 93% and 94% decrease,

Table 11. Negative Binomial Main Effects Models of Gender Inequality on Femicide and Non-Domestic Homicide Rates (N=100)

	Femicide		Non-Domestic Homicide	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Model 1				
F:M education ratio	0.70(0.74) 2.01	(0.47, 8.60)	1.42(0.48) 4.13**	(1.62, 10.53)
F:M occupation ratio	1.34(0.64) 3.82*	(1.08, 13.51)	0.86(0.41) 2.37*	(1.07, 5.29)
F:M employment ratio	-4.51(2.54) 0.01 ⁺	(0.00, 1.61)	-2.69(1.66) 0.07 ^b	(0.00, 1.75)
F:M median income ratio	-0.42(2.11) 0.66	(0.01, 40.96)	-2.81(1.30) 0.06*	(0.00, 0.77)
Rural	1.18(0.31) 3.27***	(1.79, 5.98)	1.08(0.20) 2.95***	(1.99, 4.36)
Diversity index	-0.54(0.96) 0.58	(0.09, 3.79)	2.12(0.62) 8.30**	(2.46, 28.02)
F:M sex ratio	1.18(2.21) 3.24	(0.04, 244.30)	-0.97(1.27) 0.38	(0.03, 4.57)
Age 15-24	0.68(4.26) 1.98	(0.00, 8378.65)	-2.13(3.00) 0.12	(0.00, 43.02)
Model 2				
Female equality index	0.10(0.07) 1.11 ^a	(0.98, 1.26)	0.14(0.04) 1.15**	(1.06, 1.25)
F:M median income ratio	-1.43(2.11) 0.24	(0.00, 15.13)	-3.51(1.34) 0.03**	(0.00, 0.41)
Rural	1.16(0.31) 3.20**	(1.76, 5.83)	1.09(0.21) 2.96***	(1.97, 4.44)
Diversity index	-1.23(0.93) 0.29	(0.05, 1.81)	1.77(0.60) 5.85**	(1.80, 19.05)
F:M sex ratio	0.43(2.19) 1.53	(0.02, 112.24)	-1.71(1.33) 0.18	(0.01, 2.44)
Age 15-24	-4.99(3.99) 0.01	(2.76e-6, 16.89)	-6.73(2.95) 0.00*	(3.64e-6, 0.39)

^a p=.111, ^b p=.105, ⁺ p<.10, * p<.05, ** p<.01, *** p<.001

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval); Model 1 contains individual theoretical indicators of gender inequality compared to Model 2 which utilizes the three-item index of female equality and the measure of income inequality.

respectively, in the expected mean NDH rate. Additionally, rural county location is associated with an expected mean rate of NDH approximately 200% higher than in non-rural counties.

Model 2 examines the relationship between indexed measure of gender inequality, the individual indicator of income inequality, and the outcome measures. Results indicate that a one unit increase in the gender inequality index corresponds with a 11% increase in the expected mean femicide rate. The income inequality measure is not statistically significant in the model for femicide, but rurality remains a significant predictor of femicide rates as rural county location is associated with a 220% higher expected mean rate of femicide. Turning to the results of this model for the non-domestic homicide rate, several measures exhibit a significant relationship. A one unit increase in the gender inequality index corresponds with a 15% increase in the expected mean NDH rate. In comparison, a one unit increase in the female-to-male median income ratio is associated with a 97% decrease in the expected mean NDH rate. Rural county location corresponds with a 196% higher expected mean NDH rate compared to non-rural county location. Two of the control variables, racial diversity and size of the crime-prone age group are also significant in the non-domestic homicide model.

The results of the main effects models examining indicators of social disorganization and their effects on the outcome measures are presented in Table 12. Model 1 illustrates the influence of the individual measures representing social disorganization on expected femicide and non-domestic homicide rates, while Model 2 illustrates the impact of these variables as an index of social disorganization. First, a one unit increase in the ratio of female headed households with children to all households

with children decreases the expected mean femicide rate by 99.99%, however the family disruption measures is not significantly associated with NDH rates. Second, in regards to poverty, a one unit increase in the proportion of families below poverty corresponds with an incalculably large increase in the expected mean rate of femicide and NDH. Third, a one unit increase in residential instability corresponds with a 99.99% reduction in the expected mean femicide rate, and a 99% reduction in the expected mean NDH rate. Rural counties remain significantly more likely to be associated with higher rates of femicide and non-domestic homicide.

Model 2 in Table 12 indicates that for both femicide and non-domestic homicide social disorganization and rurality are important. A one unit increase in the social disorganization index corresponds with a 37% increase in the mean expected femicide rate, and a 39% increase in the mean expected NDH rate. Rural county location, compared to non-rural, corresponds with an approximate 133% greater expected mean femicide rate, and an approximate 153% greater expected mean non-domestic homicide rate.

Table 12. Negative Binomial Main Effects Models of Social Disorganization on Femicide and Non-Domestic Homicide Rates (N=100)

	Femicide		Non-Domestic Homicide	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Model 1				
Female headed households	-15.76(5.16) 1.42e-7**	(5.74e-12, 0.00)	-3.33(2.98) 0.04	(0.00, 12.33)
Families below poverty	15.16(6.94) 3,839,623*	(4.77, 3.09e+12)	21.69(4.27) 2.64e+9***	(616,561.80, 1.13e+13)
Residential instability	-10.67(2.59) 0.00***	(1.46e-7, 0.00)	-4.70(1.59) 0.01**	(0.00, 0.21)
Rural	0.55(0.27) 1.74*	(1.02, 2.97)	0.76(0.17) 2.13***	(1.54, 2.97)
Diversity index	1.64(1.27) 5.14	(0.43, 61.51)	1.01(0.80) 2.74	(0.57, 13.13)
F:M sex ratio	2.17(2.17) 8.83	(0.12, 624.28)	-1.22(1.16) 0.29	(0.03, 2.84)
Age 15-24	8.70(4.07) 6,009.66*	(2.07, 1.74e+7)	-1.09(3.08) 0.34	(0.00, 140.05)
Model 2				
Social disorganization index	0.31(0.06) 1.37***	(1.21, 1.55)	0.33(0.04) 1.39***	(1.29, 1.50)
Rural	0.84(0.29) 2.33**	(1.32, 4.09)	0.93(0.17) 2.53***	(1.81, 3.54)
Diversity index	-3.31(0.90) 0.04***	(0.01, 0.21)	-0.60(0.58) 0.55	(0.18, 1.72)
F:M sex ratio	-1.73(2.03) 0.18	(0.00, 9.36)	-2.67(1.10) 0.07*	(0.01, 0.60)
Age 15-24	-9.18(2.29) 1.32	(0.00, 2333.35)	-1.36(2.50) 0.26	(0.00, 34.02)

* p<.05, ** p<.01, *** p<.001

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval); F:M=Female:Male; Model 1 contains individual theoretical indicators of social disorganization compared to Model 2 which utilizes the three-item index of social disorganization.

The results of the interaction effect analyses are presented in Tables 13-15. Table 13 contains the interaction effects models examining the influence of rurality on the relationship between female equality and the outcomes. The results presented in Model 1 indicate a significant interaction effect between rurality and female equality on femicide and non-domestic homicide rates. A one unit increase in female equality, in rural counties, is associated with a 22% decrease in the expected mean femicide rate. Given that female equality is measured as the ratio of females to males, increasing values are associated with increasing gender equality (or female advantage). Therefore, rural counties in which women are more equal to men have lower expected mean rates of femicide. In regards to non-domestic homicide, a one unit increase in female equality in rural counties is associated with a 19% decrease in the expected mean rate of NDH. Furthermore, the measure of income inequality is significant in the NDH model, indicating that a one unit increase in the female-to-male median income ratio corresponds with a 97% decrease in NDH.

Model 2 in Table 13 illustrates the effect of controlling for social disorganization in Model 1 analyses. Most notably, social disorganization appears to have a mediating influence on the relationship between rural female equality and femicide (as well as non-domestic homicide), indicated by the reduction in significance of the coefficients for the interaction term. The relationship between rural female equality and the expected mean femicide rate is rendered non-significant ($p=.155$), while a one unit increase in rural structural female equality corresponds with a 9% decrease in the NDH rate ($p<.10$). Model 2 also illustrates that social disorganization is significantly and positively associated with both femicide and NDH rates.

Table 13. Negative Binomial Interaction Effects Models of Gender Inequality and Place (N=100)

	Femicide		Non-Domestic Homicide	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Model 1				
Rural*Female equality	-0.24(0.10) 0.78*	(0.64, 0.96)	-0.21(0.07) 0.81**	(0.72, 0.93)
Rural	1.17(0.30) 3.22***	(1.80, 5.75)	1.18(0.20) 3.24***	(2.20, 4.77)
Female equality index	0.19(0.07) 1.21**	(1.06, 1.39)	0.21(0.05) 1.23***	(1.13, 1.35)
F:M median income	-1.72(2.04) 0.18	(0.00, 9.69)	-3.50(1.27) 0.03**	(0.00, 0.36)
Diversity index	-1.22(0.89) 0.29	(0.05, 1.69)	1.70(0.58) 5.50**	(1.76, 17.21)
F:M sex ratio	0.04(2.10) 1.05	(0.02, 64.06)	-1.68(1.27) 0.19	(0.02, 2.23)
Age 15-24	-6.36(4.07) 0.00	(5.87e-7, 5.07)	-7.85(2.92) 0.00**	(1.27e-6, 0.12)
Model 2				
Rural* Female equality	-0.14(0.10) 0.87 ^a	(0.72, 1.05)	-0.10(0.06) 0.91 ⁺	(0.81, 1.02)
Rural	0.89(0.29) 2.43**	(1.38, 4.29)	0.92(0.17) 2.50***	(1.78, 3.52)
Female equality index	0.02(0.08) 1.02	(0.87, 1.19)	0.05(0.04) 1.05	(0.96, 1.14)
F:M median income	-0.87(1.99) 0.42	(0.01, 20.73)	-2.80(1.08) 0.06*	(0.01, 0.51)
Social disorganization index	0.30(0.08) 1.36***	(1.16, 1.58)	0.29(0.04) 1.34***	(1.23, 1.46)
Diversity index	-2.96(0.92) 0.05**	(0.01, 0.32)	-0.38(0.58) 0.69	(0.22, 2.14)
F:M sex ratio	-1.65(1.99) 0.19	(0.00, 9.39)	-2.77(1.07) 0.06*	(0.01, 0.51)
Age 15-24	-0.09(4.11) 0.92	(0.00, 2906.29)	-2.21(2.60) 0.11	(0.00, 18.21)

^a p=.155, ⁺ p<.10, * p<.05, ** p<.01, *** p<.001

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval); F:M=Female:Male; Models 1 and 2 examine the interaction between the female equality index and place on the outcome variables. Model 2 illustrates the partial mediation effect of social disorganization on the relationship between rural female equality and the outcome variables.

Table 14 contains the interaction effect models examining the influence of rurality on the relationship between income inequality and the outcomes. Results indicate that there is not a significant interaction effect between rurality and income inequality for femicide rates or non-domestic homicide rates. Examination of Model 2 in Table 14 illustrates that the findings for femicide rates are similar after adding social disorganization (which is significant) to the model, while the addition of social disorganization does mediate the main effect of income inequality in the non-domestic homicide model, rendering it non-significant. Social disorganization does have a significant main effect in both femicide and non-domestic homicide models.

Table 15 contains the interaction effects models examining the influence of rurality on the relationship between social disorganization and the two outcomes. Findings indicate that rurality does not have a significant effect on the relationship between social disorganization and femicide rates ($p=.13$), but does influence the relationship between social disorganization and non-domestic homicide rates. A one unit increase in social disorganization in rural counties corresponds with a 16% decrease in the mean non-domestic homicide rate ($p<.05$). Model 2 illustrates the influence of including the gender and income inequality measures to Model 1. Female equality does not appear to exert the same mediating influence on the interaction between rurality and social disorganization with the outcomes that social disorganization exerted on the rural female equality interaction term.

Table 14. Negative Binomial Interaction Effects Models of Income Inequality and Place (N=100)

	Femicide		Non-Domestic Homicide	
	b(se) IRR	(95% CI)	b(se) IRR	(95% CI)
Model 1				
Rural*Income inequality	4.42(5.03) 82.81	(0.00, 1568301)	1.23(3.01) 3.42	(0.01, 1243.22)
Rural	1.22(0.31) 3.39***	(1.84, 6.25)	1.11(0.22) 3.03***	(1.99, 4.63)
F:M median income	-2.53(2.45) 0.08	(0.00, 9.69)	-3.86(1.59) 0.02*	(0.00, 0.47)
Female equality index	0.10(0.06) 1.11 ^a	(0.97, 1.26)	0.14(0.04) 1.15**	(1.06, 1.25)
Diversity index	-1.07(0.95) 0.34	(0.05, 2.21)	1.82(0.61) 6.14**	(1.84, 20.46)
F:M sex ratio	0.18(2.21) 1.20	(0.02, 90.43)	-1.78(1.34) 0.17	(0.01, 2.33)
Age 15-24	-5.19(4.01) 0.01	(2.13e-6, 14.54)	-6.77(2.96) 0.00*	(3.49e-6, 0.38)
Model 2				
Rural*Income inequality	0.12(5.00) 1.13	(0.00, 20277.04)	-3.46(2.56) 0.03	(0.00, 4.72)
Rural	0.86(0.30) 2.36**	(1.31, 4.25)	0.76(0.18) 2.15***	(1.51, 3.06)
F:M median income	-0.76(2.29) 0.47	(0.01, 41.55)	-1.86(1.28) 0.16	(0.01, 1.90)
Female equality index	-0.05(0.07) 0.95	(0.83, 1.09)	0.01(0.04) 1.01	(0.94, 1.09)
Social disorganization index	0.34(0.08) 1.40***	(1.21, 1.63)	0.33(0.04) 1.39***	(1.28, 1.51)
Diversity index	-3.16(0.94) 0.04**	(0.01, 0.27)	-0.76(0.59) 0.47	(0.15, 1.50)
F:M sex ratio	-1.79(2.04) 0.17	(0.00, 9.01)	-2.79(1.09) 0.06*	(0.01, 0.51)
Age 15-24	1.08(3.97) 2.95	(0.00, 7073.78)	-0.94(2.52) 0.39	(0.00, 54.94)

^a p=.12, * p<.05, ** p<.01, *** p<.001

Note: b(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval); F:M=Female:Male; Models 1 and 2 examine the interaction between income inequality and place on the outcome variables. Model 2 includes social disorganization as a control.

Table 15. Negative Binomial Interaction Effects Models of Social Disorganization and Place (N=100)

	Femicide		Non-Domestic Homicide	
	<i>b</i> (se) IRR	(95% CI)	<i>b</i> (se) IRR	(95% CI)
Model 1				
Rural*Social Disorganization	-0.19(0.13) 0.83 ^b	(0.64, 1.06)	-0.17(0.07) 0.84 [*]	(0.73, 0.97)
Rural	1.04(0.31) 2.82 ^{**}	(1.54, 5.14)	1.17(0.19) 3.21 ^{***}	(2.20, 4.68)
Social disorganization index	0.33(0.06) 1.39 ^{***}	(1.22, 1.57)	0.34(0.04) 1.41 ^{***}	(1.31, 1.51)
Diversity index	-2.95(0.92) 0.05 ^{**}	(0.01, 0.32)	-0.25(0.59) 0.78	(0.25, 2.47)
F:M sex ratio	-1.83(2.01) 0.16	(0.00, 8.22)	-2.86(1.07) 0.06 ^{**}	(0.01, 0.47)
Age 15-24	0.31(3.86) 1.37	(0.00, 2646.34)	-1.46(2.50) 0.23	(0.00, 31.03)
Model 2				
Rural*Social Disorganization	-0.18(0.13) 0.83 ^a	(0.65, 1.07)	-0.17(0.07) 0.85 [*]	(0.74, 0.97)
Rural	1.03(0.31) 2.79 ^{**}	(1.52, 5.12)	1.07(0.19) 2.91 ^{***}	(2.00, 4.23)
Social disorganization index	0.34(0.07) 1.40 ^{***}	(1.21, 1.63)	0.33(0.04) 1.39 ^{***}	(1.28, 1.50)
Female equality index	-0.03(0.07) 0.97	(0.85, 1.11)	0.02(0.04) 1.02	(0.94, 1.09)
F:M median income	-0.80(1.97) 0.45	(0.01, 21.60)	-2.70(1.06) 0.07 [*]	(0.01, 0.54)
Diversity index	-2.87(0.93) 0.06 ^{**}	(0.01, 0.36)	-0.25(0.58) 0.78	(0.25, 2.43)
F:M sex ratio	-1.92(2.02) 0.15	(0.00, 7.73)	-3.09(1.07) 0.05 ^{**}	(0.01, 0.37)
Age 15-24	0.83(4.00) 2.30	(0.00, 5880.38)	-1.43(2.54) 0.24	(0.00, 34.61)

^a p=.16, ^b p=.13, * p<.05, ** p<.01, *** p<.001

Note: *b*(se)IRR (95% CI)=unstandardized coefficient(standard error) Incidence Rate Ratio (95% Confidence Interval); F:M=Female:Male; Models 1 and 2 examine the interaction between social disorganization and place on the outcome variables. Model 2 includes the measures of gender and income inequality as controls.

The preceding analyses result in several key findings pertinent to addressing the research questions regarding place, social structure, and homicide: 1) place matters evidenced by consistently higher risk for homicide in rural counties compared to non-rural counties; 2) in regards to feminist theory, the main effect models show support for a backlash hypothesis whereby females in counties with increasing female equality are at greater risk for femicide. However, the risk of non-domestic homicide is also higher in these counties, complicating feminist interpretations. The interaction models do indicate that higher levels of female equality may serve as a protective factor against femicide and NDH; and 3) in regards to social disorganization, there is a consistent relationship with both femicide and NDH which appears to be even more powerful than gender equality, indicated by social disorganization's mediating influence on the interaction effect between female equality and rurality. In addition, social disorganization does not enhance the relationship between rurality and femicide, but does enhance the effect for NDH such that rural counties that are more disorganized have lower expected mean rates of NDH.

Taken together the negative binomial regression results indicate that place does matter, but *why* and *how* place matters is theoretically complex, perhaps even more so than prior research has suggested. These findings and their implications for future research are discussed in greater detail in the following section.

Chapter Five: Discussion

The research on intimate partner violence in rural communities has often emphasized the role of structural characteristics and their relationship either directly or indirectly to rates of intimate partner violence in rural areas. The most commonly addressed structural component is economic distress or change. Pruitt (2008) argued that “given the links between economic crisis and domestic violence [...] it becomes important to think about the ways in which unique social and economic conditions in rural locals inform the incidence of domestic violence” (p. 402). The current study considers both social and economic conditions through indicators of patriarchy and social disorganization. In the context of the present study, several literatures pertaining to the relationship between place, social structure, and crime were explored with the primary purpose of investigating explanations for the prevalence of femicide. Generally, homicide research has highlighted the importance of examining disaggregated homicide rates, particularly in terms of identifying structural risk factors (Gallup-Black, 2005; Jennings & Piquero, 2008; Kubrin, 2003). Therefore, in order to better understand the relationships between social structure, place, and homicide, examinations of specific types of homicide benefit from comparison to other types of homicide. The results discussed previously accomplish this by a comparison of rates of femicide with rates of non-domestic homicide.

The key findings resulting from this study's analyses are presented below in reference to how they answer the corresponding research questions. Recall that research question one asked if place (rurality) would be significantly associated with femicide rates. Research question two asked if gender inequality would be significantly associated with femicide rates, and research question four questioned whether the relationship (if any) between gender inequality and femicide would be conditioned by rurality. Research questions three and five pertained specifically to social disorganization questioning whether social disorganization would be significantly associated with femicide and, if so, whether that relationship was conditioned by rurality. The preceding research questions were explored for non-domestic homicide as well. Discussion of the key findings appears below in the following manner: first, findings specifically pertaining to the importance of place for the outcomes measures will be discussed; second, the findings pertaining to feminist theory, place, and the outcomes measures are assessed; and third the findings of analyses examining social disorganization, place, and the outcomes measures are discussed. Subsequently, the implications of these findings, suggestions for future research, and limitations of this study are presented.

Key Findings

Place, femicide, and non-domestic homicide. Findings from multivariate analyses demonstrate that, in response to research question one, rurality *is* significantly related to femicide rates and non-domestic homicide rates. While there are no significant differences at the bivariate level between rates of femicide or non-domestic homicide across county rurality, significant relationships are indicated in the multivariate analyses attributable to controlling for the population at risk. In other words, rural counties do not

average higher rates of femicide and NDH (illustrated in Table 5), but rural county residents are at significantly greater *risk* for femicide and NDH victimization compared to non-rural residents. Negative binomial results indicate a strong, consistent relationship between place and femicide, as well as between place and non-domestic homicide. Given the discussions in the rural domestic research pertaining to the increased risk of domestic violence, specifically in rural places (DeKeseredy & Schwartz, 2009, Donnermeyer & Weisheit, 2000; Websdale, 1998; Weisheit et al., 2006), it may have been expected that only femicide would be significantly associated with rurality. The research exploring rates of disaggregated homicide have consistently found higher rates of intimate homicide in rural counties (Gallup-Black, 2005; Jennings & Piquero, 2008; Sinauer et al., 1999). In addition, Gallup-Black's (2005) analysis of disaggregated homicide rates over time found a stronger connection between place (rural) and family and intimate partner murder than between place and all other types of murder. However, Gallup-Black also found that non-domestic murders had higher average rates based on population at-risk in rural counties compared to non-rural counties. Therefore, the findings of the present study both support and are supported by Gallup-Black's conclusion that the "story" is one of higher *risk* for murder in rural counties. The results of this study indicate that in North Carolina, rural place is an important consideration for research directed at understanding domestic and non-domestic lethal violence.

Gender inequality and place. The second and fourth research questions were explored by examining the relationships between gender inequality, place, and femicide (as well as non-domestic homicide). In general, results indicated that there was a significant relationship between gender inequality and femicide (research question two),

and this relationship was conditioned by place (research question four). However, the results illustrate some complex relationships among feminist theoretical variables and the outcomes which require a more detailed discussion.

Mean level differences across place were present for the gender inequality measures of college education and median income. A higher average ratio of females to males earning four or more years of college education is observed for rural counties compared to non-rural counties, and a lower average ratio of females to males in median income is observed in rural counties compared to non-rural ones. While the finding in regards to college education is contrary to expectations, a simple explanation may be that the colleges and universities in or proximate to rural counties in North Carolina have a higher ratio of females to males than those in urban counties. Bureau of Labor Statistics data indicates that the ratio of women to men completing bachelor's degrees favors women nationwide with a mean ratio of about 1.36 (Coy, 2013). So, finding that females outnumber males in the current study's data is supported by national trends.

The difference between rural and non-rural may be attributable to the offerings of colleges in those areas. For example, women still lag behind men in science and engineering majors (Coy, 2013). In the state of North Carolina, three of the more prominent science and engineering programs are at the University of North Carolina-Chapel Hill, University of North Carolina at Charlotte, and North Carolina State University, all of which are in urban counties. In other words, the gender gap in education may be larger in rural counties because of a gender gap in attendance potentially associated with degree offerings. While overall more females than males have completed

four years of college education, there may be gender differences in the educational fields' males and females are pursuing resulting in differences in career (and salary) outcomes.

The gender gap in median income provides some support for this hypothesis. In spite of females benefiting from a gender gap in education, this does not appear to translate to income. In line with previous research referencing depressed incomes in rural areas (DeKeseredy & Schwartz, 2009; Websdale, 1998; Weisheit et al., 2006), the average median income is significantly lower in rural counties. Furthermore, the gender ratio in median income is lower in rural counties compared to non-rural counties. This indicates that females in rural counties are the most disadvantaged when it comes to average median income, making less than both males and their non-rural counterparts. In sum, analysis of the differences between rural and non-rural places indicates that rural women are disadvantaged compared to men when it comes to earnings, but are not disadvantaged in educational attainment, and are not significantly different from their non-rural counterparts in regards to occupation and employment.

In referencing the multivariate results, it is useful to keep in mind the common context within which gendered violence results are discussed. The quantitative literature examining the relationships between gender inequality and gendered violence often uses the feminist hypotheses of amelioration and backlash to contextualize their findings. According to the ameliorative hypothesis, higher levels of gender equality should be associated with lower levels of gendered violence (sexual assault, domestic abuse). In contrast, the backlash hypothesis predicts that strides towards gender equality may actually result in increased gender violence against women in reaction to the perceived threat of female equality to the power dynamic in society. These hypotheses have been

extended to examining and explaining gendered violence (Brewer & Smith, 1995; Pridemore & Freilich, 2005; Smith & Brewer, 1995; Whaley et al., 2011; Whaley & Messner, 2002) and are useful for assigning meaning to the current study's findings.

Only two of the four indicators of gender inequality are significant predictors of femicide rates. Increases in the ratio of females-to-males in management and professional occupations are associated with increases in the expected femicide rate for a given county. In contrast, increases in the ratio of females-to-males in the labor force are associated with a decrease in the expected femicide rate in a given county. The first association potentially supports the backlash hypothesis, indicating that as the power differential between females and males shifts to favor females, males may react with increased levels of domestic or interpersonal violence. The second association provides support for the ameliorative hypothesis suggesting that as females' position advances towards equality with males', gendered violence is reduced. Thus, the main effect results present conflicting findings in regards to the role of gender inequality.

In terms of understanding the relationship between indicators of gender inequality and femicide, the results modeling the structural female equality index are somewhat more straightforward. Increases in female equality are associated with higher mean rates of femicide, a finding which supports the backlash hypothesis. Prior research has also found support for the backlash hypothesis in examining gendered violence (e.g., Pridemore & Freilich, 2005); additionally, the presence of a curvilinear relationship as tested by Whaley et al. (2011) may also be at play. However, comparison of these findings with the findings pertaining to the non-domestic homicide models complicates the interpretations.

Without running analyses on non-domestic homicide rates, it could be concluded that gender differences indicative of feminist theoretical hypotheses (backlash in particular) are useful for understanding femicide rates. The results of the non-domestic homicide model, however, show that these indicators are significant across models. In fact, all four indicators of gender inequality are relevant to non-domestic homicide rates. Increases in the female-to-male ratio of college education and management and professional employment are associated with increased expected rates of non-domestic homicide, and increases in the female-to-male ratio of employment in the labor force and median income are associated with decreases in the expected non-domestic homicide rate. This overlap raises questions regarding the interpretation of the femicide results. Are backlash and ameliorative hypotheses relevant to non-domestic homicide as well? The answer is probably not, given that these explanations are specifically meant to explain sexual and/or gendered violence. But, other questions are raised. Do these findings then require two different theoretical explanations? Or, perhaps, is there an alternative explanation for these findings?

One possibility is that there is a third variable effect operating that has not been accounted for, particularly geographic place. If female equality is influenced by place that could explain the findings pertaining to femicide. In particular, female equality may have a positive relationship with femicide in non-rural counties, but a negative relationship in rural counties. In other words, increased levels of female equality, or female social position relative to men, may be significantly related to higher femicide rates in non-rural counties, and lower femicide rates in rural counties. This would indicate that gender equality serves as a protective factor, but only for rural women. The results relating to

place indicate that femicide rates are higher in rural places, that the average occupation ratio is higher in rural counties, and the average labor force ratio is lower in rural counties. The interaction analyses indicate that rurality does, in fact, moderate the relationship between female equality and femicide such that increasing levels of female equality are associated with lower rates of femicide in rural counties. This result suggests that female equality may serve as a protective factor against femicide for women in rural counties. In other words, the social benefits of increased gender equality (or decreased male power in socio-structural arenas) are enhanced, or concentrated, in rural places.

In considering the relationship between female equality and non-domestic homicide there are several possible explanations. Gender equality may be relevant to non-domestic homicide through a common social process, the relationship may be specifically moderated by place (as discussed above), or the relationship may be spurious. The two gender inequality indicators that were also significant in the femicide model have the same directional relationship with non-domestic homicide. This indicates that the explanation offered above for femicide may also apply to non-domestic homicide given that, in this study, non-domestic homicide rates are higher in rural counties than non-rural counties. In other words, once you consider the role of place, the parallel findings are less unexpected. This is confirmed by the results of the interactive model which illustrates that female equality is also a protective factor against non-domestic homicide in rural places. This finding suggests that considerations of gender equality may be important not only for gendered violence but for violence more broadly in rural communities. Previous studies have not examined these relationships in the same manner as the present study (simultaneously considering place and gendered social structure

among disaggregated homicide rates) so there are not ready comparisons to draw against these findings. It may be that increased equality broadly is associated with reduced violence. Equality of all types (gender, racial, economic) may act as a protective factor against interpersonal violence in rural places.

A final important finding in regards to the relationship between gender inequality and femicide is the apparent mediating effect of social disorganization. When social disorganization is added to the female equality models, the significant relationship between the interaction term (rural female equality) and femicide is reduced to non-significance. This indicates that the protective qualities of female equality in rural counties are diminished when social disorganization is considered. Women in rural counties with increased levels of social disorganization do not benefit from female equality. Social disorganization also partially mediates the significant interactive relationship between rurality and female equality on non-domestic homicide rates. While the protective nature of female equality in rural counties remains even when social disorganization is present, confidence in the accurate identification of this relationship is reduced ($p < .01$ to $p < .10$). The finding that female equality maintains a more noticeable relationship with non-domestic homicide throughout the analyses is unexpected and highlights the importance of comparing results across disaggregated homicide types. To summarize, gender inequality is relevant to femicide and non-domestic homicide, though not always in the same way, and is variable across the rural, non-rural divide. Furthermore, the effects of gender inequality do not appear to be independent of the influence of social disorganization.

Social disorganization and place. The third and fifth research questions were explored by examining the relationships between social disorganization, place, and femicide (as well as non-domestic homicide). In general, results indicated that there was a significant relationship between social disorganization and femicide (research question three), but this relationship was not conditioned by place (research question five). However, the relationship between social disorganization and non-domestic homicide was conditioned by place. Furthermore, as indicated above, social disorganization also exerted influence over the conditioning effect of rurality on gender inequality for both femicide and non-domestic homicide. The findings in regards to two social disorganization centered research questions are discussed below in more detail.

Examination of rural and non-rural differences among the antecedents of social disorganization indicates that poverty and residential mobility are variable, but that family instability is not. The proportion of families living below the poverty line is higher in rural counties than in non-rural counties. This finding supports previous research which has discussed persistent and high levels of poverty in rural places (e.g., Osgood & Cambers, 2000; Weishiet et al., 2006). The second measure, the proportion of households moved in previous 5 years is lower in rural counties than in non-rural counties. Once again, this is in line with rural research which has discussed the increased stability in rural populations compared to urban populations (Weisheit et al., 2006). The third indicator, the ratio of female headed households with children to all households with children to all households with children is not significantly different across rural and non-rural counties. Given this variable's consistent use as an indicator of urban social disorganization, this finding is somewhat surprising. However, research examining the

applicability of social disorganization to explaining rural crime has indicated that this is one of the few indicators that has exhibited a consistent relationship with rural crime as well (Kaylen & Pridemore, 2012). Thus, if family disruption is associated with crime in rural and urban studies, then levels of family disruption may be similar across rural and non-rural places.

Turning to the findings representative of regression analyses, social disorganization does appear to be relevant to explaining femicide rates. This result generally supports the findings of previous studies that have applied a social disorganization context to domestic violence (Diem & Pizzaro, 2010; Miles-Doan, 1998; Wooldredge & Thistlewaite, 2003). Poverty, residential instability, and family disruption are significantly associated with femicide rates. The relationship between poverty and crime is as expected based on prior research—increases in poverty are associated with increased expected femicide. In comparison, the relationship between residential instability and femicide is not as would be predicted by social disorganization. Increased residential instability is associated with a decrease in the expected rates of femicide. Family disruption also has a negative relationship with femicide rates such that increases in the ratio of female headed households are associated with a decrease in the expected rate of femicide. This finding also is contrary to expectations regarding the relationship between social disorganization and domestic violence and prior research findings (e.g., Miles-Doan, 1998).

Turning to the modeling of non-domestic homicide, only two of the three measures of social disorganization are significant predictors: poverty and residential instability. Similar to the findings for femicide, poverty is in the expected direction while

residential instability is not. For both models, poverty exhibits a very strong relationship with the outcome measures, further supporting the conclusions of prior research (i.e., Pridemore, 2002) of a powerful poverty-homicide relationship. Examining the indexed measure of social disorganization and how that measure varies with rurality assists with interpretations of the relationships.

When using the index of social disorganization in analyses, poverty appears to drive the directionality of the relationships, which are in the theoretically expected direction. Increases in social disorganization are associated with increases in the expected femicide and non-domestic homicide rate. While these results are supportive of the theory and its applicability across types of violence, the inconsistency in the findings for both femicide and non-domestic homicide raise questions about the generalizability of the theory. The contrary findings regarding the individual indicators may be a product of improper modeling, including unit of analysis (county not neighborhood) and failure to test the mediating processes (e.g., social cohesion, collective efficacy) through which social disorganization is hypothesized to impact crime. However, in terms of the unit of analysis, many previous studies have also utilized counties and have found results in the expected directions. It is possible that modeling the intervening processes would clarify these results, but as an exploratory endeavor this was beyond the scope of the present study. Perhaps the most straightforward explanation is that a third factor, place, and is obscuring the relationship between residential mobility and homicide. Rates of femicide and non-domestic homicide are higher in rural counties, and rates of residential mobility are higher in non-rural counties perhaps accounting for the direction of this relationship.

Turning to the findings in regards to the influence of place, results indicate that rurality does not condition the relationship between social disorganization and femicide. Based on prior research, it may have been predicted that non-rural place would enhance the relationship between social disorganization and femicide, given that social disorganization is an urban theory. In fact, Madkour et al. (2010) found just that in their analysis of the relationship between county disadvantage and female victim intimate homicide in North Carolina. According to their results, increases in county disadvantage were associated with increases in female victim intimate homicide in the most urban counties. However, the results of the current study do not replicate this finding. Furthermore, the domestic violence-social disorganization literature has found less consistent results than the violence-social disorganization literature broadly. So it is reasonable to conclude that place would not enhance the relationship between indicators of disorganization and femicide.

Place does condition the relationship between social disorganization non-domestic homicide rates, such that rural counties with higher amounts of social disorganization have lower expected non-domestic homicide rates. On the surface this relationship appears somewhat perplexing; however, flipping the place designation to non-rural clarifies the conditioning effect. Increased social disorganization is associated with increased expected mean rates of non-domestic homicide in non-rural counties (just as would be predicted by social disorganization theory). This finding illustrates the importance of place for non-domestic homicide. The effects of social disorganization are exacerbated in non-rural counties but not rural counties. This finding could be used to

support the conclusions made by Kaylen and Pridemore (2012) regarding the lack of success in generalizing the theory to explain rural crime.

Implications

The present study has several implications for both theory and research exploring social structural explanations for femicide and disaggregated homicide more generally. First, these findings, in combination with results of prior studies, illustrate the necessity of considering geographic location in modeling theoretical indicators and processes. The most consistent finding across all models was the significance of rural place for femicide and non-domestic homicide. The rural crime literature often discusses the variability across rural places as well as in comparison to urban places. Thus, the findings of the current study may be specific to rural North Carolina and not generalize to patterns of rural crime in other places. However, they are in line with Gallup-Black's (2005) results using national SHR data and they suggest that policy aimed at reducing violence should consider place. North Carolina has a very active domestic violence coalition as well as contacts and resources in the majority of counties within the state, including about two-thirds of the rural counties. While increased resources is almost always beneficial, there may be issues or processes at work, aside from a need for more resources, in rural counties which are contributing to the higher rates of femicide based on at-risk population. In addition, efforts aimed more broadly at curbing violence should not overlook rural counties. There may be overlapping risk factors or social processes at play that also have an impact on non-domestic violence (i.e., poverty).

Second, the significance of certain theoretical indicators representing both gender inequality and social disorganization contribute to the development of a matrix of risk

that can be used to encourage and/or justify the more arduous task of testing fully specified models of the theories across place. As described by Almgren (2005) “investigations into the prevalence and mechanisms of collective efficacy that can be generalized will require an increased level of commitment to community studies that are expensive, time consuming, and demanding of a creative partnership between quantitatively and qualitatively oriented researchers” (p. 222). This is an undertaking that, in regards to social disorganization, has only recently been attempted (see Kaylen and Pridemore [2012] for a summary of their study currently under review) and in regards to patriarchy/gender inequality, is also underdeveloped. Testing fully specified theoretical models may also aid in the development of policy through the establishment of risk factors (gender inequality and social disorganization broadly, the gender gap in employment and poverty, specifically) and processes relevant to rural femicide.

Third, the present study contributes to the literatures extending social disorganization to rural places and to domestic violence, and the role of structural gender inequality in gendered violence. In regards to rural social disorganization, the results of the current study indicate that social disorganization appears better suited to explaining non-rural lethal violence than rural lethal violence. This finding is expected considering the mixed findings within the rural social disorganization literature and Kaylen and Pridemore’s (2012) conclusion that there is very limited evidence for the generalizability of social disorganization in rural places at this time.

The current study does, however, suggest that social disorganization has relevance to understanding domestic violence in addition to non-domestic violence. The existing literature pertaining to tests of the generalizability of social disorganization to domestic

violence indicate that antecedents of disorganization are predictors of intimate abuse, but that comparisons to non-domestic violence indicates a gap in the predictive power of these theoretical models. Although negative binomial regression analyses precludes meaningful comparisons of model power, examination of the regression coefficients, significance levels, and relationship directions indicates very similar findings for the models examining the relationship between the social disorganization index and both outcome measures.

The implications for structural feminist theory are less straightforward. While significant relationships are present for both femicide and non-domestic homicide, the findings relating to non-domestic homicide obscure gender-informed conclusions. Additionally, the measure of income inequality was not significant in the femicide models and was not enhanced by rural county location. The lack of this effect is particularly surprising given the discussion regarding the role of economic inequality in the domestic violence literature (Aizer, 2010; Walby, 1989). However, some studies have produced similar findings (Grana, 2001; Wells & Weisheit, 2004). It is not suggested that gendered theory be disregarded in future analyses of domestic violence, but structural patriarchal theorizing may benefit from further development and testing (see Hunnicutt, 2009).

Fourth, the findings of the current study raise some interesting questions regarding gender differences, their relationship with gendered violence, and the use of specific terminology. The results, first of all, indicate that there is gender inequality in North Carolina. However, this gender inequality is to the disadvantage of females for median income and employment in the labor force, but to the disadvantage of males in

education and occupation. This draws attention to the need to discuss the use of the terms *gender inequality* and *gender equality*, especially within the feminist framework. The feminist criminological literature at large appears to use these terms with implicit meaning. That is, when referring to gender inequality it is assumed that females are unequal, or disadvantaged, compared to males, but when referring to gender equality it is not always clear whether equality refers to the precise 1:1 ratio of statistical equality, or if it refers to any situation in which females are at least equal if not advantaged compared to males. In other words, there is minimal discussion of whether and how *males' inequality* relative to females' is important in examining gendered violence.

Historically, this is perhaps not surprising given the rarity with which women held advantage in social, political or economic realms (particularly as measured in the criminological literature); however, as time passes, shifts in gender gaps may call into question the relationship between traditional measures of gender inequality and gendered violence. To be clear, the present study does not find that gender inequality is irrelevant, or that females and males are equal in society. In fact, results indicate that gender equality may serve as a protective factor against femicide in rural places. Implications of this study's findings do, however, raise questions about the measurement of gender inequality and the processes through which gendered social structure affects lethal violence.

Limitations and Future Research

This study is not without its limitations, both methodological and theoretical. In regards to methodological limitations, the power to conduct multivariate analyses is limited sample, or population, size. While the sample in the current study did not

preclude significant findings, larger samples (constructed by using multi-state or national analyses) would provide more confidence in results and also may reveal significant findings where ones were not found, or where only marginally significant findings were identified, in the present study. Additionally, the population of 100 North Carolina counties is subject to an even greater power limitations when divided into rural ($N=21$) and non-rural ($N=79$) designations. This makes analysis and discussion of rural-only and non-rural-only models susceptible to error and therefore statistically unreliable. Future research is encouraged to conduct similar analyses using larger multi-state and national samples.

The power restrictions created by the location-specific sub-samples are not the only limitations in regards to considerations of place. The data also precludes the use of a more nuanced measure of place. For instance, several studies (Gallup-Black, 2005; Wells & Weisheit, 2004) have argued the merits of looking beyond dichotomous measures of rural and non-rural. For the present study, the decision was made to focus on rural place and how it differs from all other places. Future research conducting multistate or national analyses of these relationships should consider a place measure more closely related to a continuum in order to assess differences between metropolitan and non-metropolitan locations (see Wells & Weisheit, 2004). Furthermore, future analyses should also consider the influence of population density specifically (e.g., Osgood & Chambers, 2000; Kaylen & Pridemore, 2011). The 2003 Rural-Urban Continuum designations are based on the Office of Management and Budget's classification of metro and non-metro counties:

Metro counties are distinguished by population size of the Metropolitan Statistical Area of which they are part. Nonmetro counties are classified according to the aggregate size of their urban population. Within the three urban size categories, nonmetro counties are further identified by whether or not they have some functional adjacency to a metro area or areas. A nonmetro county is defined as adjacent if it physically adjoins one or more metro areas, and has at least 2 percent of its employed labor force commuting to central metro counties. Nonmetro counties that do not meet these criteria are classed as nonadjacent. (Economic Research Service, 2012)

These designations are based primarily on population size of the metropolitan statistical area for metropolitan counties, and degree of urbanization and adjacency to metro area(s) for nonmetropolitan counties. Using a measure of population density may provide additional information pertaining to the relationship between geographical location and homicide, particularly when considering homicide *risk*, not just raw counts.

In terms of limitations relating to theory, the present study utilizes measures available from the U.S. Census which have been previously used as indicators of theoretical constructs. However, these measures are indicators of the structural antecedents of crime, but not the processes through which these antecedents affect crime. Social disorganization theory testing, largely with urban samples, has emphasized the need to analyze the processes through which the structural antecedents of disorganization influence crime rates. Specifically, research has examined the mediating effect of collective efficacy or community cohesion on the relationship between social disorganization and crime (Sampson & Groves, 1989). Scholars examining structural

explanations for homicide also emphasize the need to test a fully specified model of social disorganization, particularly in rural areas (Kaylen & Pridemore, 2012).

This same limitation and suggestion for future research applies to theorizing on patriarchy and gender inequality. Identification of the processes through which patriarchy impacts gendered violence is important for research and for domestic violence policy. Furthermore, there remains debate within the patriarchy literature regarding how to best measure structural gender inequality. Walby (1989) discussed the differences between private patriarchy and public patriarchy and the overlap between the two in creating gendered structural inequality (Smith [1990] also refers to dual processes of inequality). The present study only examined indicators of public patriarchy, and the measures only represented two of the six structures composing patriarchy as delineated by Walby (1989). Considerations of private patriarchy as well as additional indicators of public patriarchy may assist in developing a patriarchy model for gendered research. Future research will benefit from more nuanced assessments of both the indicators and processes through which gender inequality and social disorganization affect homicide. At the same time, tests of a full social disorganization and/or patriarchy model may be premature for rural domestic violence research. In fact, full scale model testing (and the necessary data collection required for such an effort) may benefit from continued development of a “matrix of risk” (DeKeseredy & Schwartz, 2009; Sampson, 2006). Given that indicators and social processes may be different in rural places (and for domestic violence), identification of the antecedents of domestic violence as predicted by structural theories could lead to better informed theory testing.

Conclusion

The vast majority of criminological research renders the impression that crime is a uniquely urban phenomenon; however, crime does not solely occur or consistently occur with more frequency, in urban environments. In particular, rural locales are acknowledged as having high rates of violence: “While urban areas, even before the advent of industrialization, contended with offenders who were ‘harassed’ and ‘ill-fed’, the rural environment provided at least subsistence income for those of its inhabitants. Its crimes were, therefore, not those of desperation and need but rather ones that resulted from interpersonal tensions exacerbated over time,” (Shelley, 1981, p. 19-20). The results of the current study serve to illustrate the fallacy in assumptions of tranquil rural life.

It is important to underscore the interpersonal nature of violence commonly associated with rural areas in order to understand why rural violence has only recently become a subject of research. Historical trends in the justice system’s treatment of certain types of crimes have contributed to the masking of rural violence. Given its often interpersonal nature, rural violent acts, particularly domestic violence were either not codified in criminal law or were largely not enforced by local law enforcement because of the desire to stay out of private issues. Laws against domestic violence date back to the Puritans, but these laws were only enforced when domestic violence moved from the private sphere of the home to impact the public sphere of the community (Websdale, 1998). Progress has been made in regards to raising awareness of domestic violence, but the reality of rural abuse appears to remain largely hidden from the public and within criminological research.

In an attempt to shed light on rural femicide, the present study serves as an exploratory examination of the relationship between social disorganization, gender inequality, and femicide, while considering the role of place. Although the findings of the current study are complex, they serve to illustrate that both place and social structure are important to understanding variation in femicide, as well as non-domestic homicide. The findings also suggest that some of the same underlying factors contribute to domestic and non-domestic homicide, but that the role of these factors may vary across place. The results of this study will certainly be made more meaningful through replication and extension. The hope is that this analysis will contribute to continued interest in investigating these types of relationships in the fields of rural domestic violence and homicide research.

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Appendices

Appendix A: Additional Tables

Table 1A. Collinearity Diagnostics for Place, Theoretical, and Control Variables ($N=100$)

Variable	Tolerance	VIF
Rural	.646	1.549
F:M education ratio	.432	2.316
F:M occupation ratio	.555	1.801
F:M employment ratio	.403	2.484
F:M median income ratio	.651	1.537
Female headed households	.096	10.453
Families below poverty	.168	5.970
Residential instability	.277	3.606
Racial diversity	.183	5.457
F:M sex ratio	.657	1.523
Age 15-24	.469	2.133

Table 2A. North Carolina Counties by Rural-Urban Continuum Code Designation (N=100)

	County	County Population
Code 1 (N=6) Metro area 1 million plus	Anson	25,275
	Cabarrus	131,063
	Currituck	18,190
	Gaston	190,365
	Mecklenburg	695,454
	Union	123,677
Code 2 (N=27) Metro area 250,000 to 1 million	Alexander	33,603
	Brunswick	73,143
	Buncombe	206,330
	Burke	89,148
	Caldwell	77,415
	Catawba	141,685
	Chatham	49,329
	Cumberland	302,963
	Davie	34,835
	Durham	223,314
	Forsyth	306,067
	Franklin	47,260
	Guilford	421,048
	Haywood	54,033
	Henderson	89,173
	Hoke	33,646
	Johnston	121,965
	Madison	19,635
	New Hanover	160,307
	Orange	118,227
Pender	41,082	
Person	35,623	
Randolph	130,454	
Rockingham	91,928	
Stokes	44,711	
Wake	627,846	
Yadkin	36,348	

	County	County Population
Code 3 (N=7) Metro area < 250,000	Alamance	130,800
	Edgecombe	55,606
	Greene	18,974
	Nash	87,420
	Onslow	150,355
	Pitt	133,798
	Wayne	113,329
Code 4 (N=17) Nonmetro 20,000 +, metro adj.	Carteret	59,383
	Cleveland	96,287
	Davidson	147,246
	Halifax	57,370
	Harnett	91,025
	Iredell	122,660
	Lee	49,040
	Lenoir	59,648
	Lincoln	63,780
	Moore	74,769
	Richmond	46,564
	Robeson	123,339
	Rowan	130,340
	Rutherford	62,899
Surry	71,219	
Vance	42,954	
Wilson	73,814	
Code 5 (N=2) Nonmetro 20,000 +, not adj. to metro area	Craven	91,436
	Dare	29,967
Code 6 (N=15) Nonmetro 2,500-19,999, metro adj.	Beaufort	44,958
	Bladen	32,278
	Columbus	54,749
	Duplin	49,063
	Granville	48,498
	Jackson	33,121
	McDowell	42,151
	Martin	25,593
	Montgomery	26,822
Sampson	60,161	

	County	County Population
Code 6 cont. (N=15) Nonmetro 2,500-19,999, metro adj.	Scotland	35,998
	Stanly	58,100
	Transylvania	29,334
	Watauga	42,695
	Wilkes	65,632
Code 7 (N=5) Nonmetro 2,500-19,999, not adj. to metro area	Chowan	14,526
	Hertford	22,601
	Macon	29,811
	Pasquotank	34,897
	Washington	13,723
Code 8 (N=9) Nonmetro completely rural, metro adj.	Avery	17,167
	Camden	6,885
	Caswell	23,501
	Gates	10,516
	Jones	10,381
	Polk	18,324
	Swain	12,968
	Warren	19,972
Yancey	17,774	
Code 9 (N=12) Nonmetro completely rural, not adj. to metro area	Alleghany	10,677
	Ashe	24,384
	Bertie	19,773
	Cherokee	24,298
	Clay	8,775
	Graham	7,993
	Hyde	5,826
	Mitchell	15,687
	Northampton	22,086
	Pamlico	12,934
	Perquimans	11,368
	Tyrrell	4,149

Table 3A. Mean Differences Across Various Rural-Urban Continuum Code Splits

	Codes 1-9	Designations (N)	Femicide Rate	NDH Rate
			M (SD)	M (SD)
Split 1				
	8, 9	Non-Metro/Rural (21)	1.49 (1.69)	5.31 (2.58)
	1, 2, 3, 4, 5, 6, 7	Metro/Non-Rural (79)	1.64 (1.02)	6.45 (3.56)
Split 2				
	8, 9	Non-Metro Rural (21)	1.49 (1.69)	5.31 (2.58)
	1, 2	Metro (33)	1.69 (0.83)	5.35 (2.49)
Split 3				
	7, 8, 9	Non-Metro (26)	1.61 (1.70)	5.12 (2.55)
	1, 2	Metro (33)	1.69 (0.83)	5.35 (2.49)
Split 4				
	7, 8, 9	Non-Metro (26)	1.61 (1.70)	5.12 (2.55)
	1, 2, 3	Metro (40)	1.67 (0.84)	5.82 (2.72)
Split 5				
	7, 8, 9	Non-Metro (26)	1.61 (1.70)	5.12 (2.55)*
	1, 2, 3, 4, 5, 6	Metro & Non-Metro (74)	1.61 (0.95)	6.60 (3.58)
Split 6				
	4, 5, 6, 7, 8, 9	Non-Metro (60)	1.57 (1.37)	6.47 (3.78)
	1, 2, 3	Metro (40)	1.67 (0.84)	5.82 (2.72)

* p<.05; NDH=Non-domestic homicide rate

Note: Split 1 is the designation used in the present study; The Rural-Urban Continuum Code definitions are as follows, 1=counties in metro areas of 1 million populations or more; 2=counties in metro areas of 250,000 to 1 million; 3=counties in metro areas of fewer than 250,000; 4=urban population of 20,000 or more, adjacent to a metro area; 5=urban population of 20,000 or more, not adjacent to a metro area; 6=urban population of 2,500 to 19,999, adjacent to a metro area; 7=urban population of 2,500 to 19,999, not adjacent to a metro area; 8=completely rural or less than 2,500 urban population, adjacent to a metro area; 9=completely rural or less than 2,500 urban population, not adjacent to a metro area.