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Macro-level predictors of assaults against police in Kentucky.

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MACROLEVEL PREDICTORS OF ASSAULTS AGAINST POLICE IN KENTUCKY

By

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B.A., Northern Kentucky University, 2012
M.S., University of Cincinnati, 2013

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A Dissertation Approved on

July 20, 2018

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DEDICATION

This dissertation is dedicated to my daughter, Alyssa. You are an amazing young lady.

 I love you.

ACKNOWLEDGEMENTS

I would like to thank Dr. Viviana Andreescue for agreeing to chair my committee. You have taught me so much during this venture. You have been my mentor and an inspiration and I am truly grateful for all that you have done. I would like to thank Dr. Gennaro Vito, Dr. Thomas Hughes, and Dr. Mark Austin. Without you I would not be at this juncture. I would also like to thank Dr. Deborah Keeling, who believed in me. Thank you. I would also like to express my thanks to my sister, Jill. She always believed in me and encouraged me. To my mother and father, who always allowed me to believe I could. Most of all, I give thanks to GOD, through HIS grace, anything is possible.

ABSTRACT

MACRO-LEVEL PREDICTORS OF ASSAULTS AGAINST POLICE IN KENTUCKY

Virginia Paulette Redman

July 20, 2018

Law enforcement is one of the most dangerous careers. Every day, while performing their jobs, police officers may find themselves in situations that place them at a high risk of being victimized or even feloniously killed by members of the public. Over the past five decades, several quantitative and qualitative research studies tried to identify the circumstances and the individual-level factors associated with an increased risk of police victimization. While most of the research studies focusing on police victimization were descriptive and/or were based on micro-level analyses, macro-level research on this topic is relatively scant. This dissertation intends to reduce this gap in the literature.

Informed by the social disorganization theory (Shaw & McKay, 1942/1969), this dissertation attempts to identify the community-level factors more likely to predict variations in police victimization recently registered in Kentucky. Using the county as a unit of analysis (N = 120), the research examined the effects of social disorganization predictors, as well as the effects of several types of criminal activity on variations in public assaults against the police registered in Kentucky from 2012 to 2016. Additionally, considering the recent developments of the social disorganization theory, the proposed research tried to determine if social ties at the community level, as indicated by church adherence and participation in religious activities, lower the risk of police victimization

and/or appear to mediate the effect of the main predictors on variations in police victimization. The results of the multivariate regression analyses indicate that police are more likely to be assaulted by the public in predominantly rural areas and in counties characterized by a higher incidence of disorganized families, by lower poverty levels, and by higher rates of church membership. Although social capital does not have the anticipated crime-deterrent effect, it indirectly affects police victimization by reducing the impact of family disruption on the dependent variable. The policy implications of the study and directions for future research are also discussed.

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CHAPTER ONE

INTRODUCTION

At any given moment, law enforcement officers across the United States
are working to serve their communities. When these officers are on duty (and in
some cases, off duty) they cover a myriad of possible scenarios. Some of these
scenarios present a heightened risk of being assaulted and incurring injuries and
even being killed. This risk is all too real, given the fact that from 2006 to 2015,
approximately 556,095 officers have been assaulted by members of the public
while they were performing their duty (FBI, 2016). Breaking this down even
further, on average, about one in four officers (27.1%) of those who had been
assaulted, suffered injuries.   There are about 1.1 million full-time police officers
in United States and according to the FBI's (2016) recent historical data, every
year, on average 50,000 officers are assaulted and about 50 of them are killed in
the line of duty (e.g., from 2006 to 2015, 491 officers were killed).

In United States, law enforcement is one of the most dangerous careers
(Crifasi, Pollack, & Webster, 2016; Fridell, Faggiani, Taylor, Brito, & Kubo,
2009). According to the National Institute for Occupational Safety and Health
(NIOSH) there are ten risk factors for workplace violence. Seven of these ten risk
factors generally characterize the work environment of the police. They are:
contact with the public; working alone or in small numbers; a mobile work
setting; working in high crime areas; working with unstable or volatile people;

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working in community based settings; and, working late at night or early morning hours (Crifasi, Polack, & Webster, 2016; Fridell et al., 2009; NIOSH, 1996).

Narrowing the focus to individual states, in Kentucky, between 2012 and 2016 there were 4,585 reported assaults against law enforcement officers and five of those officers have been fatally wounded. On average, every year 917 officers have been assaulted in Kentucky (Kentucky State Police 2012, 2013, 2014, 2015, 2016). Considering that in 2016, there were 8,722 law enforcement officers working in the state of Kentucky (KSP, 2016), data indicate that over the past five years, annually, about one in ten KY officers have been assaulted or sustained injuries.

Assaults on police negatively affect the victim and can have an impact that extends far beyond the assaulted police officer. There are physical injuries, which range from minor (no medical treatment) to life threatening and even death, and beyond those, any assault may have a serious psychological impact. This can range from emotional strain to post-traumatic stress syndrome (Carlier, Lamberts, & Gersons, 1997; Maguen et al., 2009; McCaslin et al., 2006). The psychological impact can be equally devastating and of longer duration as any physical injury. Assaults may harm the future performance of the victimized officer or his/her coworkers. The assaulted officer may feel that his/her individual authority has been threatened and may lessen his/her ability to control situations, which could increase the risk of further injury or death (Boyles & Little, 1990).

The officer's family could also be impacted. The knowledge that their loved one was injured (or even killed) could create an enormous amount of stress

and anxiety. This includes caring for the injured officer, taking on shared responsibilities, as well as the fear of loss of income and the cost of medical treatment.

Citizens' assaults of police officers could trigger concerns among the victims' co-workers within the department and surrounding departments about the police perceived legitimacy. As Tyler (2011) points out, police legitimacy reflects the citizens' trust in police as an institution, as well as the public confidence in officers' ability to do their job and protect citizens and their property. Therefore, when officers are assaulted by the public, the victims of assault, as well as their colleagues, may feel disrespected and may doubt their authority. Consequently, the officers' ability to control situations could be jeopardized. In response to these emotions and feelings of insecurity, officers may alter their job performance, they may request sophisticated protective equipment, and they may require additional training (Covington, 2010; McMurray, 1990; Moyer, 1986). In extreme cases, police officers may leave the profession in search of a safer career.

Violence against police also has a more general impact on police departments. First, there are financial repercussions, such as the cost of any medical treatment, insurance claims, lost time that requires shift coverage, which may require authorizing overtime, and the purchase of additional equipment to address officer safety (Bayley & Garofalo, 1989; Brandl & Stroshine, 2003; Covington, 2010). There is also the investment of time relevant to policy reviews, implementing new policies, and providing additional training. Police assaults can

also result in having to replace officers who leave for "safer" employment opportunities, as well as making it difficult for the agency to recruit new officers (Boylen & Little, 1990; Covington, 2010).

Finally, there is the community. The police - community relationship is critically important to both parties. Police assault victimization could undermine police-community relations. Potential consequences from an assault on police in any given community can set into motion the questioning of the police department's ability to protect the community. When a police officer is assaulted by a member of the public, citizens may question his/her ability to protect the community, when he was unable to protect himself/herself (Boyles & Little, 1990).

Because of the far-reaching impacts that assaults on police have within the departments and communities, assaults on police should be of great concern to everyone. To prevent or at least reduce the incidence of public assaults against law enforcement officers, research should examine the determinants of police victimization because the deleterious consequences of this phenomenon at the individual and societal levels are numerous.

In recent years, qualitative and quantitative research studies have tried to identify factors and circumstances associated with the police being victimized by the public (MacDonald et al, 2003; Meyer, Magedanz, Kieselhorst, & Chapman, 1979; Margarita, 1980; Uchida, et al., 1987; Wilson, 2005). According to Sherman (1980) there are four categories of analysis. Specifically, the individual level of analysis focuses on officer characteristics (e.g. length of service, training,

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sex, age, race, etc.). A second type of analysis refers to the situational factors associated with an assault against the police (e.g. relationship between officer and suspect; number of police officers present when the incident occurred; circumstances preceding the assault; who initiated the contact, etc.). A third type of analysis refers to the organizational aspect of police agencies whose members have been victimized. It examines the police behavior at the organizational level focusing on patrol strategies (Sherman, 1980). The fourth level of inquiry, which is the focus of the present research, examines the community characteristics, such as economic structure and demographic composition, political ethos, or structure of government, as correlates of police victimization (Sherman, 1980).

The majority of the research studies focusing on predictors of police victimization examined individual level characteristics associated with the victim (e.g. sex, age, race, training, years in law enforcement, and overall health) and/or the offender (e.g. sex, race, age, criminal history, and level of sobriety) (Hirschel, et al., 1994; MacDonald, Manz, Alpert, & Dunham, 2003; Margarita, 1980; Meyer, Magedanz, Kieselhorst, & Chapman, 1979; Meyer, Magedanz, Dahlin, & Chapman, 1981; Rabe-Hemp & Schuck, 2007; Stobart, 1972; Uchida, Brooks, & Koper, 1987). Additionally, other studies examined the circumstances of the assaults. This includes weapons used in the performance of the assaults and level of injury sustained from those weapons. Several types of weapons used have included firearms, knives, body parts such as hands, feet, or teeth, or other blunt instruments (Brandl, 2001; Margarita, 1980; Meyer, et al., 1981; Wilson, 2005; Wilson & Meyer, 1990). Moreover, studies also considered the location of

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assault, times when these assaults occur, and types of calls/citizen encounters that attract a higher incidence of assaults against the police (Brown, 1994; Chamlin & Cochran, 1994; Margarita, 1980; Morrison & Meyer, 1974).

Nonetheless, only a limited number of studies examined the impact of the social environment on variations in police victimization (e.g. Bailey, 1982; Kaminski, 2008; Kaminski, Jeffris, & Gu, 2003; Kent,2010; Morrison & Meyer, 1974; Peterson & Baily, 1988). Additionally, only a limited number of studies explored the impact of crime rates at the community level on police victimization (Fridell, Faggiani, Taylor, Brito, & Kubo, 2009; Jacobs & Carmichael, 2002; Kaminski, Jefferies, and Gu, 2003; Rossler, 2015). The proposed study intends to contribute to this literature and to expand it.

While research relevant to violence against the police does exist, as Kaminski (2008) points out, there is still a need for further research to better understand both social and economic conditions that increase the risk of serious violence against police officers. Informed by social disorganization theory, this study will examine the influence of macro-level indicators (poverty, residential mobility, racial heterogeneity, family disorganization, social capital, and crime rates) on variations in police victimization registered in Kentucky from 2012 to 2016.

The Current Study

By focusing on community characteristics at the county level, this dissertation seeks to increase our understanding of what contributes to police victimization. While prior macro-level research has focused on police

victimization at the city level (e.g. Kent, 2010; Kaminski, Jeffris, & Gu, 2003; Morrison & Meyer, (1974), the number of studies that used the county as a unit of analysis is limited. Additionally, to the author's knowledge, there are no studies that examined the correlates of police victimization in Kentucky. The present research intends to diminish this gap in the literature.

The study is informed by the social disorganization theory (Shaw & McKay, 1942). This theory addresses the macro-level factors that have been associated with increased likelihood of crime experienced by communities and larger population units. By seeking to discern the influence of macro-level indicators upon assaults against the police, the proposed study will explore the generalizability and the explanatory power of the social disorganization theory when applied to assaults against the police, which has not been typically examined when the theory has been empirically tested.

Certain counties may feature characteristics that make police victimization more likely, regardless of the officers' and perpetrators' individual characteristics. For instance, research on violence against police tends to focus on micro-level factors and indicates that officers and departments can take steps to reduce the likelihood of victimization. While these steps are beneficial, contextual factors outside an agency's immediate control may lead to an increased risk of police victimization. By using social disorganization theory to explain variations in police victimization in Kentucky, this research should be able to identify county-level characteristics associated with a higher incidence of assaults against the police, a finding that could inform public policy.

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To accomplish this, the study will provide answers to the following research questions: Do counties in Kentucky with a higher percentage of residents residing in poverty have a higher rate of assaults against police? Do counties in Kentucky that experience a higher level of residential mobility have a higher rate of police officers being assaulted in comparison to counties with lower levels of residential mobility? Are counties in Kentucky that have higher percentages of female-headed households more likely to have higher rates of police victimization than counties with lower levels of family disorganization? Do counties in Kentucky that have higher levels of social ties to religious institutions have lower rates of assaults against police officers than counties that have lower levels of social capital? Do Kentucky counties with higher rates of crime have higher rates of police victimization when compared to Kentucky counties with lower crime rates?

The source of the data will be derived from 2010 census, ARDA, UCR, and FBI/Kentucky state police data. The current study will employ quantitative analysis of ecological factors associated with social disorganization theory and assaults against police officers to establish if a statistically significant relationship exists between social disorganization variables and police victimization levels. This will be accomplished by using bivariate and multivariate statistical analyses. Additionally, this study will discuss the policy implications of the research findings, which can potentially aid in identifying policy measures that can be taken to reduce the risk of police victimization. However, some of the proposed

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policy measures may in all likelihood require additional resources that extend beyond the ability of police departments.

This dissertation is organized in several chapters. The following section will offer a general overview of police victimization and of the circumstances surrounding public assaults against the police, as presented in the literature. It will present the types of assaults, the weapons commonly used in assaults against the police, and the characteristics of the victims and offenders. It will also offer information about the most common locations of assaults against the police and time of the offense. The third chapter will present the theoretical framework of the study and will review the literature that examined the applicability of the theory when examining variations in violent crimes, including assaults against the police. Based on the theory, research hypotheses will be formulated. The methodology of the study will be presented in the fourth chapter of the dissertation and chapter five will include the results of the statistical analyses. Chapter six will discuss the research findings, the study limitations, and the policy implications of the results. The goal of this analysis is to provide valid and reliable information that could be used to prevent and reduce the victimization of police officers in Kentucky.

CHAPTER TWO
POLICE VICTIMIZATION: A GENERAL OVERVIEW

Many researchers have sought to understand the victimization of police officers through various avenues. In the quest for understanding and expanding upon research on assaults against the police, frequently, researchers have looked at micro-level indicators of police victimization. These indicators include: officers' and perpetrators' characteristics (e.g., age, race, gender, department tenure, criminal history), the physical environment (location, time of day), temporal aspects associated with the offense, circumstances of the offense, and how the assaults were committed (Brandl, 2001; Brown & Langan, 2001; Chapman, 1976; Garner & Maxwell, 2002; Margarita, 1980; Wilson & Meyer, 1990; Yocum & Hasner, 2008). This chapter will review assaults, personal characteristics of both the victim police officer and assailant, situational factors, officer/citizen contact, and weapons used by the assailant.

Assaults Against the Police

The International Association of Chiefs of Police (IACP) defines assault against the police as "any overt physical act that the officer perceives or has reason to believe was intended to cause him/her harm (IACP, 1975, p. 1). In Kentucky, according to the Kentucky Revised Statute 508.025, "a person is guilty of assault in the third degree when the actor: (a) Recklessly, with a deadly weapon or dangerous instrument, or intentionally causes or attempts to cause physical injury to: 1. A state, county, city, or federal peace officer…"

Assaults against the police can be premeditated or spontaneous. Researchers describe spontaneous assaults as emotional or reactive assaults, while planned and pre-planned assaults are considered predatory violence (Meloy, 2006; Schouten & Brennan, 2016; Siegel & Victoroff, 2009). In general, assaults against the police are also classified based on the seriousness of the injuries suffered by the victim. When an officer is assaulted, the officer may incur no injury, minor injuries, or serious or life-threatening injuries resulting in death. Most assaults however, do not result in death, are spontaneous, and generally occur during an investigation, a pursuit of a suspect, or an arrest.

With the spontaneous or reactive assault, the encounter with the police is generally not planned. The assault is impulsive and in most cases, there is an interaction between the officer and the assailant, many times in the form of a confrontation or a heated emotional situation. Such situations may include the officer's intent to arrest or the suspect's desire to escape the arrest (Boylen & Little, 1990; Cardarelli, 1968; Margarita, 1980; Meyer, Magedanz, Dahlin, & Chapman, 1981). For instance, Cardarelli's (1968) analysis of police killed by criminal action lead to the conclusion that police officers that were killed on the "street" were in fact murdered because of relatively unplanned reactions of individuals who believed they were going to be taken into custody because they previously committed a crime. Margarita (1980) also found that apprehension avoidance was a primary motive for fatally assaulting a police officer.

Unlike spontaneous assaults against police, planned assaults or predatory violence are strategic and are premeditated. They are purposeful and goal-directed (Meloy, 2006; Siegel & Victoroff, 2009; Schouten & Brennan, 2016). The IACP (1974, p. 1) lays out

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three conditions that must be met for an assault to be categorized as a planned attack, or more commonly referred to as an ambush. First, the attack must be sudden. Second, there must be the element of surprise. Third, there must not have been any provocation from the officer prior to the attack. This particular type of assault is committed with the intent of deliberately causing harm to the police officer (Meyer, Thomas, Magedanz, Dahlin, & Chapman, 1981).

These planned attacks or ambushes are rare and in comparison to other citizens' acts that target police officers, they are by far the most dangerous (Meyer, et al., 1981). As previously noted, there is little to no contact or interaction between the officer and the perpetrator(s) prior to this form of assault and therefore the officer is unaware of the danger he/she is in. Because of the lack of warning, the officer is unprepared and taken by surprise, raising the probability of the officer being seriously injured, if not killed (Fachner & Thorkildsen, 2015).

Some researchers have included a third category of assaults, the robbery-related assaults (Meyer, Magedanz, Dahlin, & Chapman, 1981; Meyer, Magedanz, & Chapman, 1982). According to Meyer et al. (1981), there is a distinction among ambush-related assaults, general assaults, and robbery-related assaults. In the general assault situation, the offender's temper and ego play a role in the assault, while when officers are ambushed, the assault is premeditated. In a robbery-related assault, the perpetrator is trying to avoid capture and the robber is willing to engage in physical violence to deflect that capture. However, a robber is not the only type of criminal that may assault an officer to avoid being captured. Offenders committing other crimes assaulted officers as well, to avoid apprehension (Chapman, 1976). One example is found in Chapman's

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(1976) study that examined police killings in Oklahoma City between 1950 and 1974. In this study, in most cases, officers were attempting arrests other than for robberies, when they were fatally assaulted.

Assaults are also classified based on the level of injury to the victim. There are three general categorizations – minor non-lethal; non-lethal, but require medical attention; and, lethal. Minor non-lethal assaults can be simple assaults that result in no physical injury or those assaults that result in minor injuries that do not require professional medical attention. Examples of this type of assault include minor scrapes, strains, and bruises. Non-lethal injuries that require medical attention are those assaults that require medical attention because the officer has been injured. The incurred injury may require medical treatment, but does not require admission to the hospital for extended care or it can be serious, requiring hospitalization before the officer would recover. Lethal assaults are those assaults that result in life threatening injuries that cause the immediate or eventual death of the officer. Most lethal assaults are the result of the officer being shot (Boylen, & Little, 1990; Chapman, 1976; FBI, 2015).

To better understand why a suspect would resist apprehension, researchers examined police characteristics that may increase the risk of being assaulted when trying to affect an arrest (Brown & Langan, 2001; Johnson, 1998; Margarita, 1980; Yocum & Hasner, 2008). In conjunction with what personal characteristics of an officer may contribute to their victimization, researchers have also looked at the suspect/ perpetrator's characteristics and situational characteristics that may influence the perpetrator to resist an arrest and confront the police officer.

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Individual Explanations

Much research has evaluated variables associated with individual victims and the offenders (Chapman, 1988; Little, 1984; Rabe-Hemp & Schuck, 2007; Margarita, 1980; Johnson, 2008; 2011). Researchers have found that there are personal characteristics that are common among the victims and perpetrators of assaults, in terms of age, race, gender, and psychological state at the time of the assault.

Characteristics of the Assault Victim

In an effort to shed light on police who were victims of assault, researchers have examined characteristics of officers who have been victims of assaults. Several characteristics were prominent in most of assaults and in particular assaults that resulted in the deaths of officers. For instance, most officers who were assaulted were white male officers (Brown & Langan, 2001; Boylen & Little, 1990; Chapman, 1986; Lester, 1978b; Margarita, 1980). French's (2011), report on assaults against police in New South Wales, Australia found that female officers were less likely to be assaulted than their male counterparts, except female officers that had assignments that were considered more dangerous or those who had been reassigned a new duty early in their careers. A study conducted by Rabe-Hemp and Schuck (2007) also examined gender differences in victimization of officers. These authors found that female officers were not more likely to be assaulted than their male counterparts were. Domestic violence calls however, were the exception. Rabe-Hemp and Schuck (2007) concluded that female officers were at a higher risk of victimization than male officers were, when they were responding to calls of domestic violence.

Another characteristic of police assault victims that some researchers explored

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was the police officer's age at the time of the assault. Several studies found that the age of the victim did not increase or decrease the risk of police victimization (Chapman, 1998; Yocum & Hasner, 2008). For instance, Yocum and Hasner's (2008) study on the line- of- duty officer deaths in Nebraska found a minimal age difference between officers who have been assaulted and those who had not.

Regarding other factors, such as police officers' experience and competence, Brooks (1975) found that officers who remained alert and cautious, or in other words, remained diligent in avoiding "patterns of deadly errors" were less likely to be a victim of an assault. One reason for this may be that as officers' gain experience in handling diverse types of calls and situations, they may also build insight into how to read a subject and be better prepared to react and deal with a potentially dangerous situation (Cardarelli, 1968; Yocum & Hasner, 2008).

Characteristics of the Offender

While no unique assailant characteristics have been found, some general features and predispositions characterizing perpetrators who have committed acts of violence against the police do exist (Chapman, 1986; Meyer, Megedanz, Kieselhorst, & Chapman, 1979). Meyer et al. (1979) conducted a study that looked at citizens who committed acts of violence against police. The authors revealed that most of the assaults were committed by males (88%). The study also found that young adults were overrepresented among the police assailants. Finally, results showed that the majority of perpetrators had consumed alcohol prior to assaulting the police. Noaks and Christopher (1990) obtained comparable results. Their study found that assailants tended to be young adults, had consumed alcohol, and tended to have a criminal record. In their study on assaults

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against the police, Rabe-Hemp and Schuck (2007) also found that alcohol, as well as drugs had been consumed prior to the assault.

Other characteristics that were examined include the race of the assailant. Meyer et al.'s (1979) research indicated that most assailants were white. However, Hirschel et al. (1994) and Margarita (1980), found that many assailants were black. Meyer et al., (1981) also found that non-white offenders were over represented among those who committed robberies and ambush police assaults.

Several studies found that assailants who assaulted police officers tended to have previous encounters with police (Chapman, 1986; Wilson, 1991; Schouten & Brennan, 2016). In a study conducted by Chapman (1986), results showed that many of the offenders in assaults against police had had prior encounters with the police, such as previous arrests. In a similar study, Schouten and Brennan (2016) found that citizens were more likely to commit assaults against police officers if they had a prior record, history of violence, having been in detention, or had a history of physical abuse in conjunction with mental illness.

Few studies have focused on the connection between mental illness among assailants and assaults against police. MacDonald, Manz, Alpert, and Dunham (2003), noted, for instance, that mental illness could intensify the appearance of a hostile demeanor, as well as the appearance of resisting an arrest. Kerr, Morabito, and Watson (2010), explored injuries sustained during the officers' encounters with individuals with mental illness in Chicago Police Department in 2008. Their study revealed that encounters with citizens who had mental illness rarely resulted in an officer incurring an injury. When an officer did incur an injury, the injuries were no different from what may

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have incurred from someone without mental illness.

Situational Factors

Researchers also examined the types of police calls that were more likely to result in assaults against officers. Schouten, Douglas, and Brenan (2016) describe situational risk factors as "triggers" or events that set-in motion a violent act, which has been building and explodes into a violent act. In this situation, the officer may be unaware of the emotional state of the citizens they met. When police officers interact with an emotionally charged individual, it is the final event that triggers violence in the citizen, which is directed at the police officer.

According to Kavanagh (1997, p.17), "the most consistent and powerful situational finding has been that the arrestees' disrespect towards the police is strongly related to violence in the arrest encounter." Kavanagh found that the most shared form of disrespect was verbal abuse that was directed at the officer. In some cases, disrespect could be an early stage of the arrestee's violence, which according to Kavanagh (1997), could be brought on by other causes. Several other prior studies reached a similar conclusion (see Black, 1980; Chevigny, 1969; Friedrich, 1980; Manning, 1980; Muir, 1980).

In other studies, that examined the link between hostility toward police and arrest, the citizen's demeanor influenced the officer's behavior. For instance, Engel et al. (2011) point out that qualitative and quantitative studies show that citizen demeanor has a strong influence on officer behavior and decision to arrest, which can further escalate the situation (see Van Maanen, 1974; Westley, 1953). Klinger (1994), however, found that suspects who displayed a hostile demeanor were not significantly more likely to be

arrested than those who did not and concluded that one's potential involvement in a criminal act may mediate a suspect's reaction toward the police

Officer - Public Contact

Domestic violence and the risk this type of call posed to police officers attracted the attention of researchers. Bard (1970) contended that domestic violence calls were the most dangerous calls an officer could respond to. Other studies also concluded that officers are at a higher risk of being victimized when responding to domestic-dispute calls (Auten, 1972; Bard, 1974; Muir, 1977). Yet, other researchers have found that officers were more likely to be assaulted in calls other than domestic violence calls (Ellis, Choi, & Blau, 1993; Garner & Clemmer, 1986; Hirschel, Dean, & Lumb, 1994).

In the state of Kentucky, recent statistical information regarding citizens' assaults against the police indicates that the ten most common situations in which assaults occur are: disturbance calls, burglary in progress/ pursuing burglary suspect, attempting other arrest, civil disorder, handling/ transporting/ custody of prisoner, investigating suspicious person/circumstance, ambush, handling person with mental illness, and traffic stops (FBI, 2015).

In situations where the police officer is attempting to make an arrest, researchers have found that this is the most dangerous policing activity (Brandl & Stroshine, 2003; Brandl, 1996; Buchannan & Perry, 1986; Ellis, 1987; FBI, 1992; Little, 1984). However, Brandl (2001) found that more officers were assaulted in situations where the police officer was trying to control a suspect. Calls for robberies and burglaries increase the likelihood of police being assaulted, as well. Some researchers even argue that officers are exposed to greater risks when they are responding to these types of calls in

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comparison to other calls (Geller & Karales, 1981; Margarita, 1980).

Weapons

Various weapons have been used in the assault of police officers. Evidence from prior studies suggest that the seriousness of the injury a police officer incurs during an assault is partially dependent upon the type of weapon the assailant is using during the encounter (Brandl, 2001; Margarita, 1980; Meyer et al, 1981; Wilson, 2005; Wilson & Meyer, 1980).

In 2016, there were 57,180 reported assaults against the police in the United States. Almost three out of ten (28.9%) officers assaulted (N =16,535) sustained injuries. Zimring and Arisiniega (2015) noted that between 2008 and 2012, the weapon of choice in over 90% of all police homicides was a firearm, followed by a motor vehicle. According to the FBI, in 2016, firearms killed sixty-two of the sixty-six officers who were fatally assaulted. The firearms used were handguns, rifles, and shotguns, with handguns accounting for most of all officer deaths (FBI, 2016). At the national level, firearms were used in 12% of the police officers' assaults and in 4% of the assaults against the police registered in Kentucky (FBI, 2016).

Regarding non-lethal assaults, in 79% of the reported cases in the United States and in Kentucky, personal weapons, such as hands, fists, and feet were used to assault the officer and 31.4% of the assaulted officers have been injured. Almost 11% of victimized officers in the United States were assaulted with knives or some other cutting instrument. Another 23.3% of officers assaulted in 2016 were attacked with some other dangerous weapon that resulted in some form of injury (FBI, 2016).

In sum, what we know about police victimization is that most of assaults against

police are unplanned and non-lethal. While an officer's age does not impact the likelihood of being assaulted, the officer's level of professionalism, competence, and experience do tend to matter. Also, assaults against the police are more likely to be perpetrated by young males against male officers. With respect to situational factors, violence against police tends to occur more frequently when the officers attempt to make an arrest. Finally, while personal weapons are used in most public assaults against the police, assaults that are lethal are more likely to involve the use of a firearm by the offender.

CHAPTER THREE

THEORETICAL BACKGROUND AND REVIEW OF THE LITERATURE ON

MACRO-LEVEL PREDICTORS OF POLICE VICTIMIZATION

Although the literature on police victimization increased over the past decades, most studies focusing on this topic are descriptive. When multivariate analyses are conducted, the research focus is predominantly on individual-level predictors of police victimization. As noted by several authors (e.g., Covington, 2010; Covington, Huff-Corzine, & Corzine, 2014; Wilson & Meyer, 1991), macro-level theoretical perspectives have been used less frequently to frame and explain assaults against police officers. In order to improve our understanding of the factors that increase the likelihood of assaults against police, the current study uses a macro-level theoretical perspective.

As Pratt and Cullen (2005) explain, macro-level analysis examines how characteristics of established geographic areas such as cities, counties, and states are related to crime rates. The theories that frame these studies attempt to elucidate why certain characteristics of ecological units, but not others, account for variations in the geographic distribution crime. Among these theories are Cohen and Felson's (1979) routine activities theory, Sacco & Kennedy's (2002) criminal events perspective, and Shaw and McKay's (1942) social disorganization theory, which will constitute the theoretical framework of this study.

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Social Disorganization Theory

Social disorganization theory is a macro-level theory used by researchers to assess the impact of social structure and community-level processes on criminal offending. Social disorganization theory originated from the Chicago School in the 1900s (Deegan, 2001; Kubrin & Wo, 2016). At the time, Chicago, as well as other American cities were seeing a substantial increase in population due to the opportunity of employment in businesses and factories that were in the central business district. Along with this huge influx of people, there was an increase in crime and other types of deviant behavior (Bulmer, 1986). This attracted the interest of scholars, who wanted to understand better how changes in the society's structure were affecting individuals and communities.

Ernst Burgess (1925) was one such scholar. Burgess was a sociologist at the University of Chicago and is credited with developing the concentric zones theory. He observed that urban areas that were experiencing continuous growth were also expanding outward. Burgess (1925) suggested that there were five distinct zones in a city. The first zone encompassed the *central business district*, made up of factories and other types of businesses. Immigrants and residents belonging to the lower class mostly inhabited the second zone, referred to as the *zone of transition*. These were the new city dwellers who were working in low-wage occupations in the business district. The third zone (*working class zone*), which was more distant from the center of the city, was predominantly comprised of working class families who could afford to live further away from the business district. The fourth zone *(residential zone)*, located even further away from the business district encompassed those families that were even better off financially, such as the middle class. The fifth zone (*commuter zone*), which was in the outermost region of

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the city, was occupied by those who were affluent. Residents within each of these zones were not necessarily destined to remain in the zone that they first took up residence in. For instance, when new immigrants would arrive they might take up residence in zone one. As existing families in zone one were financially able to move out of the zone they were currently in and relocate to a zone further away from the center, they would do so. The same desire and eventual moves would occur with residents in the rest of zones, as they were financially able to, creating a fluidity between the zones (Burgess, 1925).

Clifford Shaw and Henry McKay (1942), also from the Chicago School, were heavily influenced by Burgess's (1925) work and are credited with the development of social disorganization theory. Shaw and McKay (1942) observed that juvenile delinquency was higher in certain areas of Chicago, which belonged to the transition zone, as identified by Burgess (1925). Studying official records and plotting the delinquent acts on maps of the city of Chicago, Shaw and McKay observed significant differences in delinquency and crime rates among the city's neighborhoods. Specifically, the highest delinquency rates were found in areas near to the city center, where in addition to small businesses there were people living in poverty and belonging to various ethnic groups (Kubrin & Wo, 2016; Shaw & McKay, 1942). In their diachronic analysis of delinquency and crime in Chicago, Shaw & McKay (1942) found that crime and delinquency were stable over time in certain areas of the city, even with the ever-changing ethnic composition of the population within the inner city. This led to the conclusion that crime and delinquency did not result from personal characteristics of the neighborhood residents, but instead the neighborhoods themselves had traits that influenced variations in crime and delinquency rates. What these crime-prone

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neighborhoods had in common were higher levels of poverty, residential mobility, and ethnic heterogeneity. Shaw and McKay argued that all these factors contributed to the social disorganization of the community, which in turn increased the likelihood of delinquency and crime (Kurbin & Wo, 2016; Shaw & McKay, 1942).

Shaw and McKay (1942) contended that communities with low socio-economic status would suffer from an organizational base that was weak or non-existent in comparison to communities that had a higher socio-economic status. Additionally, communities with residential mobility would encounter a disruption in their network of social relations (Kornhauser, 1978; Kassarda & Janowitz, 1974; Sampson & Groves, 1989). As Kassarda and Janowitz (1974) highlighted, residential mobility can and does inhibit the development of friendships, networks, and bonds, which is partially due to a lack of infusing new residents into the social fabric of local communities/neighborhoods. Because of sparse and ineffective interpersonal relationships, socially disorganized communities would have a lower ability to enact and maintain effective informal social controls and solve problems that are commonly experienced by the residents, including delinquency and crime (Bursik, 1988; Kubrin & Wo, 2016). As Bursik (1988, p.521) states, "in its purist form, social disorganization refers to the ability of local communities to realize common values of their residents or solve commonly experienced problems."

As previously mentioned, characteristics that have been associated with social disorganization include such factors as poverty, unemployment, residential mobility, family disruption, and racial/ethnic heterogeneity (Kubrin & Wo, 2016; Sampson & Groves, 1989; Shaw & McKay, 1942). While these characteristics do not cause crime, indirectly, they may negatively affect the community's capacity to fight and control

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crime. As Sampson (1987) noted, when the erosion of social ties occurs, a community experiences a handicap in its ability to "police their own" and becomes more tolerant toward crime and deviance.

Social disorganization theory has not been without challenges. While popular among scholars for about three decades, social disorganization theory came under scrutiny, eventually losing popularity in the 1970s with a shift from community level to individual level theories of crime (Bursik, 1988; Smith & Jarjoura, 1988). One of the challenges Shaw and McKay's (1942) social disorganization theory has confronted was that the relationship between social disorganization and delinquency/crime was not clearly developed and explained (Bursik, 1988; Kornhauser, 1978). Shaw and McKay's (1942) social disorganization model was by some accounts a mixed model which contained both social control and social learning aspects, which, as Kornhauser (1978) argued were competing views of human nature. Kornhauser (1978) further argued that social disorganization should come from a control prospective and that much work still needed to be done in linking structure to crime. Bursik (1988) later pointed out that criminologists had additional concerns regarding social disorganization theory. The author argued that by omitting the influence of individual predispositions on crime, many criminologists did not regard the social disorganization theory as a viable theory of crime.

Nonetheless, in recent years there has been considerable empirical testing and support for social disorganization theory. For example, Sampson and Groves tested Shaw and McKay's (1942) social disorganization theory, examining the mediating effects of community social organization on crime. The authors hypothesized that low economic status, ethnic heterogeneity, residential mobility, and family disruption lead to

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community social disorganization, which, in turn, led to an increase in crime and delinquency rates (Sampson and Groves, 1989, p.774). Analyzing data collected in 1982 from a sample of 238 localities in Great Britain and Wales, Sampson and Groves replicated and extended Shaw and McKay's systemic model of social disorganization. The authors found that communities with few friendship networks, large groups of unsupervised teenagers, and sparse organizational participation had a much larger rate of crime and delinquency than communities that had more friendship networks, higher levels of organizational participation, and higher levels of teenage supervision (Sampson & Groves, 1989, p. 799). The authors contended that social disorganization theory was relevant in the explanation of macro-level variations in crime rate.

Sampson, Raudenbush, and Earls (1997) also contributed to the advancement of Shaw and McKay's (1942) social disorganization theory with the introduction of a new concept - *collective efficacy*, which they defined as, "the linage of mutual trust and the willingness to intervene for the common good" (p.921). Sampson and his colleagues believed that variations in crime rates were not solely attributable to individual characteristics, but rather social and organizational characteristics of neighborhoods played a key role in explaining variation in crime. The authors argued that variations in the neighborhoods' ability to bring to fruition common values, as well as maintain social controls, or the neighborhood's collective efficacy, were pivotal in explaining inter-neighborhood differences in violence (Sampson et al., 1997). Using survey data from 343 neighborhood clusters in Chicago, Sampson, Raudenbush, and Earls (1997) examined the association between neighborhood social composition and collective efficacy, as well as collective efficacy as a mediator of social compositions. The authors

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found that concentrated disadvantage and immigrant concentration were significantly and negatively associated with collective efficacy. When they examined the collective efficacy - violent victimization relationship, Sampson and colleagues identified a significant negative relationship as well. Perceived neighborhood violence, homicide events, and violent victimization were significantly lower in neighborhoods characterized by collective efficacy, while the impact of poverty on violence became not significant and the effect of ethnic heterogeneity on crime diminished, when controlling for collective efficacy. The authors concluded that "associations of concentrated disadvantage and residential instability with violence are largely mediated by collective efficacy (Sampson et al., 1997, p. 918)."

In addition to collective efficacy, *social capital* is another concept that has been used as a possible mediator when examining the effect of social disorganization predictors on crime (Beyerlein & Hipp, 2005; Kubrin & Wo, 2016). Social capital has been praised by social scientists as having immense potential for contributing to the understanding in the variation of community crime rates when the impact of local organizations, social ties, and social networks is examined. As previously mentioned, there is the presumption that local organizations such as churches, charities, and civic groups, which create prosocial interactions among community members, can enhance the community's capacity to informally control its members (Beyerlein & Hipp, 2005; Kubrin & Wo, 2016; Lee, 2008; Putnam, 1995). Various social organizations may encourage the sharing of common values and goals among the residents within their respective communities. This in turn increases the community's collective ability to disseminate information, utilize social networks and resources to combat crime

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(Beyerlein & Hipp, 2005; Kubrin & Wo, 2016; Lee, 2008). Several studies have found support for the crime control benefits of social capital (see Kubrin & Wo, 2016, for a review). Beyerlein and Hipp (2005), for example, found that greater numbers of religious congregations per capita were associated with lower crime rates across counties, regardless of what the denomination was. Peterson, Krivo, and Harris (2000) found that the presence of recreation centers appeared to offset violent crime in Columbus neighborhoods that experienced the most disadvantage. Finally, Lee (2008) also found that higher levels of civic engagement resulted in lower crime rates.

Pratt and Cullen (2005) conducted a meta-analysis of macro-level studies that tested empirically the social disorganization theory's assertions. They reviewed quantitative criminological research that had been conducted on social aggregates between 1960 and 1999. The results of their meta-analysis demonstrated that social disorganization theory had the strongest empirical support of all the macro-level theories of delinquency and crime. Results also showed that when the predictive ability of various macro-level predictors of crime has been assessed, ethnic heterogeneity, unemployment, family structure, poverty, collective efficacy, socioeconomic status, and residential mobility were among the top twenty-five predictors of delinquency and crime.

Empirical Tests Social Disorganization Theory in Non-Metropolitan Areas

Social disorganization theory has been predominantly tested in metropolitan/urban areas. However, that does not imply that social disorganization theory is not applicable to non-metropolitan geographical areas. Several studies have shown that social disorganization theory can also be applied to explain variations in crime, particularly violent crime, in less populated areas, such as small towns, rural and

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suburban areas. Several researchers that empirically tested social disorganization theory in settings are than cities have concluded that social disorganization theory is applicable to non-urban areas as well (Barnett & Menckin, 2002; Bouffard & Muftic, 2006; Chelinski, Syvertsen, & Greenberf, 2015; Osgood & Chambers, 2001; Petee & Kowelski,1993).

For instance, using 1980 census data, Petee and Kowalski (1993) examined variations in crime rates in rural areas (N =630 rural counties). Their results indicated that racial heterogeneity, residential mobility, and percentage of single-parent households were positively related to both assaults and robbery. Osgood and Chambers (2000) reached a similar conclusion in their quest to determine if Shaw and McKay's (1942) social disorganization theoretical framework could be used to explain violence in rural areas. The authors found that apart from poverty, residential instability, and ethnic heterogeneity, family disruption played a significant role in the incidence of violence in rural communities.

Barnett and Mencken's (2002) study also focused on violence as well as property crimes at the county level. The authors wanted to see if predictors of crime derived from social disorganization theory had different effects on violence and property crimes at various levels of population change in nonmetropolitan counties within the contiguous United States. The results of their analysis demonstrated the applicability of social disorganization theory outside the urban setting. Specifically, as it relates to population characteristics, counties with unstable populations and resource disadvantage had higher levels of violent crime. The authors found that resource disadvantage also had a positive and significant effect on property crime in nonmetropolitan counties that were losing

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populations (Barnett & Mencken, 2002).

Andreescu, Shutt and Vito (2011) also found social disorganization theory to be applicable in non-metropolitan areas when they conducted a county-level analysis of the impact of cultural and structural characteristics on argument-related homicide rates in the predominantly white section of Appalachia. Consistent with the theoretical expectations, economic disadvantage and lethal argument-related violent crime were significantly and positively related in the entire sample of southern Appalachia and family stability appeared to act as a crime deterrent. While church adherence did not appear to significantly affect variations in argument-related homicide rates, the type of dominant religion at the county level did have a significant effect on the amount of homicides registered in the region. Specifically, counties where most residents belonged to Catholic churches had significantly lower murder rates, while counties where most adherents belonged to Conservative Protestant churches had significantly higher murder rates.

Social Disorganization and Assaults on Police Officers

Based on Shaw and McKay's (1942, 1969, 1972) work, social disorganization theory has been used to predict variations in assaults against police officers, as well. According to the theory, assaults against the police would be more likely to occur in communities characterized by economic disadvantage, ethnic heterogeneity, residential mobility, and family disruption. The rationale is that violence against the police and violence in general, share common structural causes (Kaminski, Jeffers, & Gu, 2003; Kaminski & Marvell, 2002; Peterson & Bailey, 1988).

As previously noted, only a limited number of studies focused on violence against police at the macro level and when they did, most of those studies concentrated on

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serious violence or lethal aggression against police. When indicators of social disorganization have been used, findings as they relate to assaults against police officers have been mixed.

To reiterate, prior research generally found a positive relationship between economic disadvantage and violent crimes in both urban and non-urban settings (Andreescu et al, 2011; Barnett & Mencken, 2002; Bouffard & Muftic, 2006; Chelinski, Syvertsen, & Greenberf, 2015; Osgood and Chambers, 2002; Petee & Kowalski, 1993; Sampson & Groves, 1989). Similarly, Bailey's (1982) research of lethal assaults against the police, also showed that poverty and unemployment were significant predictors of police killings. Kaminski (2008) found comparable results in a study that looked at county-level structural covariates of police homicides. Specifically, local police had a greater risk of being murdered in counties that had low-income levels and elevated levels of both unemployment and poverty. Similar results were obtained by Kaminski, Jeffris, and Gu (2003). In a study that examined violence against the police at the city-level, economic distress was found to increase the risk of serious assaults on police. Peterson and Bailey (1998) found poverty to be a significant predictor of police killings at the aggregate level and Morrison and Meyer (1974) found unemployment to be statistically significant in the prediction of assaults against police in Austin, Texas. Consistent with prior research, Kent (2010) found that unemployment was significantly related to police killings in large urban cities. Additionally, the author found a higher incidence of police being killed in cities characterized by income competition between blacks and whites.

However, not all studies found measures of poverty to be significant predictors of police victimization. For instance, Jacobs and Carmichael (2002) found poverty to be

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unrelated to police lethal victimization.

Regarding the effect of ethnic heterogeneity on crime rates, prior research studies have generally found that ethnic/racial heterogeneity is positively related to both violent and property crimes (Kaminski, 2008; Kaminski, Jeffris, & Gu, 2003; Pratt & Cullen, 2005; Sampson & Groves, 1989). As it relates to violence against the police, several studies have found that ethnic heterogeneity has been significantly related to the killing of police, while in other studies, the ethnic composition at the area level was not a significant predictor of police victimization. For example, Kaminski, Jeffris, and Gu's (2008) study focusing on serious police assaults demonstrated that areas with larger non-Hispanic black populations had a higher incidence of serious assaults against the police. Kaminski's (2008) study that looked at county-level covariates of police homicides found that police officers were more likely to be feloniously killed in counties with larger black populations. Peterson and Bailey (1988) also obtained comparable results when they examined the structural influences on police homicides. The results of their study indicated that the percent black population was a predictor of aggregated police homicide rates. Lester (1974) and Wilson (2005) also found a positive relationship between racial heterogeneity and violence against police. However, in Wilson's (2005) study, racial heterogeneity was a non-significant predictor of lethal violence against the police.

As with other indicators associated with social disorganization, residential stability has been shown to be an indicator of assaults against police. Residential mobility refers to how fluid the population is in a community. When a community has a stable population, it is believed that this structural characteristic strengthens the community and its ability to regulate informally the social behavior within the

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community. When population turnover has been included among structural correlates of police victimization, results lacked consistency. For instance, Morrison and Meyer (1974) found that residential mobility was among the factors that explained assaults against police. Additional support was found in Kaminski et al.'s study (2003), which explored the effects of local-level risk factors on serious assaults against the police. This study indicated that the risk of serious assaults against the police was substantially higher in areas which were densely populated by large numbers of young college students who were residentially mobile (p. 137). However, not all studies found a significant positive relationship between residential instability and violence against the police. Kaminski (2008), for instance, did not find residential stability to be related to police killings at the county-level.

Family stability is another structural characteristic that has been included among predictors of crime when social disorganization theory has been tested. Generally, prior research identified a positive relationship between family disruption and crime (Andreescu et al., 2011; Pratt & Cullen, 2005; Sampson & Groves, 1989). When family disorganization has been used in statistical models meant to explain variations in assaults against police officers, the results have been mixed. For example, while Kaminski, Jeffris, and Gu (2003) found that family disruption, viewed as a component of concentrated disadvantage, increased the risk of serious assaults against the police, other studies (e.g., Kaminski, 2008) found no significant relationship between lethal assaults against police and percent female-headed households. Yet, Kaminski (2008) found a positive and significant relationship between divorce rates and police homicides.

Social ties (social capital) is a more recent development of social disorganization

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theory. Kubrin and Wo (2016) explain that at the community level, social capital has the capacity to increase the community level of informal social control, which in turn would decrease the incidence of crime. Two indicators that are frequently used when social capital is operationalized are the levels of religious and political participation within communities (Kubrin & Wo, 2016). Pratt and Cullen's (2005) meta-analysis of studies that used macro-level predictors of crime, found the strength of non-economic institutions to be number one of twenty-three most important predictors of crime. Baier and Wright (2001), who conducted a meta-analysis of studies examining the effect of religion on crime also concluded that religion does have a deterrent effect on crime. On the other hand, Andreescu et al. (2011), did not find that church membership at the county level was a significant violent crime deterrent in Appalachia. However, the type of the dominant religion in an area was a significant predictor of homicidal violence.

Current Study: Research Questions and Hypotheses

Informed by the social disorganization theory the present research will attempt to answer a series of research questions. These questions and the research hypotheses are listed below:

Research Question #1: Do counties in Kentucky featuring a higher percentage of the residents residing in poverty have higher rates of assaults against police officers than counties with lower poverty levels?

Hypothesis # 1: Economic disadvantage and police victimization are expected to be positively related.

Research Question #2: Do Kentucky counties with higher level of residential mobility experience higher rates of police victimization than counties with lower levels of

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residential mobility?

> Hypothesis #2: An increase in residential mobility is expected to predict a higher rate of public assaults against the police.

Research Question #3: Do Kentucky counties characterized by higher levels of ethnic heterogeneity experience a higher incidence of police victimization than counties featuring lower levels of ethnic heterogeneity?

> Hypothesis #3: A positive relationship between ethnic heterogeneity and police victimization is anticipated in Kentucky.

Research Question #4: Do Kentucky counties featuring higher levels of family disruption will have a higher incidence of police victimization than counties featuring lower levels of family disorganization?

> Hypothesis #4: It is hypothesized that assaults against the police will be more frequent in counties with a higher percentage of female-headed households.

Research Question #5: Do Kentucky counties featuring higher levels of urbanization experience higher incidence of police victimization than that of counties featuring lower levels of urbanization?

> Hypothesis #5: Kentucky counties featuring higher levels of urbanization will experience higher level of police victimization than counties featuring lower levels of urbanization.

Research Question #6: Do Kentucky counties featuring higher levels of community/social ties (social capital) will experience a lower incidence of police victimization than counties featuring lower levels of social capital?

> Hypothesis #6: Police victimization is expected to decrease with an increase in

church adherence rates.

Research Question #7: Do Kentucky counties featuring higher levels of violent crime rates experience higher levels of police victimization than counties with lower levels of violent crime?

Hypothesis #7: Police victimization will be more common in Kentucky counties that experience higher violent crime rates.

CHAPTER FOUR

METHODOLOGY

This study utilizes theoretically relevant predictors of crime derived from community characteristics commonly used in empirical tests of the social disorganization theory. This chapter will present the data sources, the operationalization of concepts and variables, and the methods of analysis that will be used to determine which factors are more likely to influence the rate of public assaults against police officers.

Sources of Data

The analysis is based on a newly created data set that merged data from several sources. The Statistical Package for the Social Sciences (SPSS) version 24.0 has been used to analyze the data. The data sources for the dependent variable, assaults against police, are the 2012, 2013, 2014, 2015, and 2016 iterations of the Kentucky State Police Crime in Kentucky Annual Reports. Various crime rates at the county level have been computed based on the FBI's Uniform Crime Reports (UCR) for the years 2006 to 2010. The 2010 US Census and the 2010 US Religion Census of Religious Congregations are the data sources for the other independent variables to be included in the analysis.

Kentucky State Police Crime in Kentucky Annual Reports. This annual report is managed by the Kentucky State Police records section and contains detailed information on all crime incidents investigated by law enforcement agencies within the state of Kentucky. This is the central agency that is responsible for collecting and submitting

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crime related information to the FBI, through UCR reports. The crimes reported are categorized based on the seriousness of the offense. Type I crimes are more serious crimes such as murder, non-negligent manslaughter, forcible rape, aggravated assault, and burglary. Type II crimes are of lesser degree of seriousness. In Kentucky, the Kentucky State Police provide standardized UCR forms to all law enforcement agencies within the state. As with the UCR data, the information that is collected is limited relevant to the details of each criminal incident that is reported by these agencies. The submission of crime data is voluntary and because not all law enforcement agencies submit crime reports, the level of a crime in a jurisdiction may be underestimated. Also, UCR reports include only crimes reported to the police (Addington, 2009; Faggiani & McLaughlin, 1999; Reaves, 1993).

Reports of assaults against police officers are also collected by KSP's central records branch. This includes information on the number of law enforcement officers who have been killed or assaulted. These reports are initiated by the Kentucky law enforcement agencies. Once these reports are completed they are electronically transmitted to Kentucky State Police Records division, which in turn transmits the information to the FBI. The specific information collected includes the type of weapon used, the type of assignment (e.g. patrol or detective), and type of activity (e.g. traffic stop, transport, ambush) the officer was involved in when he/she has been victimized. This information is readily available through reports that are published annually by both Kentucky State Police and the FBI.

UCR. Uniform Crime Reports are collected by a central agency in each US state. At the state level, each law enforcement agency collects crime information and sends

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reports to the state's delegated agency. This also includes reports related to law enforcement officers who have been assaulted. However, the information that is collected is limited regarding the details of each assault that is reported. The reporting is voluntary, therefore not all assaults against the police may be reported.

United States Census. The United States Census is conducted by the U.S. Census Bureau every 10 years. The U.S. Census gathers a wide variety of information about the U.S. population. Because of the wide range of topics, the construction of measures related to social disorganization was possible. Each of the social disorganization measures employed in this study relies upon county-level census data in Kentucky.

The 2010 U.S. Religion Census. Religious congregations and Membership Study served as a data source for the data on religious participation in Kentucky. The referenced study was designed and carried out by the Association of Statisticians of American Religious Bodies (ASARB). Data have been compiled on the number of congregations and adherents for 236 religious groups in each county of the United Stated (Grammich et al., 2012).

Measures

The county is the unit of analysis in this study (N=120). Following the tenets of social disorganization theory, it is anticipated that public assaults against the police will be more frequent in socially disorganized communities. These communities are expected to be characterized by higher levels of economic disadvantage, ethnic heterogeneity, residential mobility, and family disruption. The effect of ecological variables on police victimization is expected to be mediated by social capital. Church adherence rate at the county level serves as a proxy measure of social capital. Additionally, police

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victimization is hypothesized to be higher in counties that generally registered higher crime rates.

Dependent variable

Utilizing assaults against police for any one year as a dependent variable presents the potential for bias because counts for a single year could potentially be abnormally high or low. For instance, a county may experience a one-year anomaly in assaults against police that is not representative of the normal rate of assaults against police in that area. Therefore, accounting for the fact that assaults against the police are not frequent events, to avoid potential errors in measurement and increase the stability of the indicator, the dependent variable in this study is the 2012-2016 rate of assaults against the police per 100,000 people (see Roman, Reid, Bhati & Tereschenko, 2008; Wilcox, Cabrera & Jones 2004). The measure includes lethal and non-lethal assaults against police. It should be noted that non-lethal assaults represent most of assaults against police. During the period under observation, out of 4,585 assaults against the police in Kentucky, only 5 deadly cases (3 in 2012 and 2 in 2015) were recorded in Kentucky. The dependent variable takes values from 7.41 to 257.68 and has a relatively normal distribution (Skewness = .411; Kurtosis = -.377).

Independent Variables

To assess the impact of social disorganization indicators on police victimization, measures used in the current study are drawn from the literature (e.g., Andreescu et al, 2011; Bouffard & Muftic, 2006; Osgood & Chambers, 2000; Petee & Kowalski, 1993). The selection of the relevant variables was also informed by macro-level studies of police victimization (Kaminski, 2008; Kaminski, Jeffris & Gu, 2003; Kent, 2010; Morrison &

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Meyer, 1974). The following indicators will be used in this study as predictors of police victimization:

Economic deprivation: This composite measure has been created through principal component analysis (PCA) and includes three measures (percent of population below poverty in 2009, percent unemployed in 2010, and percent of social security beneficiaries that also receive old age, survivors, and disability insurance in 2010). The reliability coefficient Alpha for this measure is .52. When PCA was conducted, only one factor with a value higher than one has been obtained (Eigenvalue - 2.325; variance explained =77.50; factor loadings vary from .77 to .936).

Racial Heterogeneity: This measure has been calculated based on Blau's (1977) formula for the ethnic diversity index (D) and takes into account the proportion of individuals belonging to various ethnic groups in each county. Theoretically, the ethnic diversity index takes values from zero (a perfectly homogenous population) to 1 (a perfectly heterogeneous population). For Kentucky, the ethnic diversity index takes into account the proportion of people belonging to five different ethnicities (White, African American, Hispanic, other race, and two or more races) based on 2010 census data. Among Kentucky counties, the ethnic diversity index varies from .02 to .44.

$$D = 1 - \sum_{i=1}^{N} p_i^2$$

Where, *p* = proportion of individuals in an ethnic category; *N* = number of ethnic groups.

Residential Instability: This is a composite measure constructed through PCA. It takes into account the 2005-2009 average percentage of residents who were not homeowners and the 2005-2009 average percentage of people who lived in a different house one year ago. The measure is reliable and appears to have construct validity

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(Alpha =.745; Eigenvalue =1.638; variance explained 81.88%; factor loadings =.905). Higher index values indicate a higher level of residential instability.

Family disorganization: The percentage of female-headed households in 2010 has been used to measure family disorganization at the county level.

Social Capital: As previously noted, recent developments of the social disorganization theory (Kubrin & Wo, 2016) indicate that social ties (social capital) at the community level have the capacity to increase the community level of informal social control, which in turn would decrease the incidence of crime. As a proxy measure of social capital, this study uses the county-level rate of church adherence per 1,000 people in 2010. According to the 2010 religious census, church adherence is defined as "the count of people affiliated with a congregation, which includes children, members, & attendees who are not members. If a participating group did not provide the number of adherents, the U.S. Religion Census may estimate the number of adherents through the use of a statistical procedure (see U.S. Religious Census for statistical procedure) with the permission of the participating group. The variable takes values from 51.32 to 1065.48 and has a relatively normal distribution (skewness = .193; kurtosis = .074). Social capital is expected to mediate the effect of county-level ecological characteristics on crime- public assaults against police officers.

Control Variables

Homicide crime rate per 100,000 people: This is the annual average rate of homicides registered in each Kentucky county from 2006-2010.

Violent crime rate per 100,000 people: This indicator represents the rape, robbery, and aggravated assault average rate registered in each Kentucky county from 2006-2010.

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Drug-related offenses per 100,000 people: The variable is the annual average rate of drug-related offenses registered in each Kentucky county from 2006-2010.

Driving under the influence (D.U.I.) related offenses per 100,000 people: The variable is the annual average rate in each Kentucky county from 2006-2010.

Urbanization: A dummy variable coded 1 for metro counties and zero otherwise.

Analytic Strategy

The analysis for this study will proceed in three main steps. The first step involves univariate analyses. Univariate statistics (means, standard deviations, and range) for all the variables to be included in multivariate analyses will be provided. The second step involves bivariate analyses. To observe the strength of the relationship between the main predictors and the dependent variables, as well as the strength of the association among independent variables, bivariate correlations will be conducted. The inter-correlation matrix will be examined to determine potential multicollinearity issues pertaining to the selected predictors.

The third step will consist of the presentation of several alternative multivariate regression models. The models will be estimated using Ordinary Least Square (OLS) regression analysis. OLS regression is used because the dependent variable is a continuous indicator with a relatively normal distribution and multivariate regression analysis is an appropriate statistical procedure to use in order to determine variations in public assaults against the police in Kentucky (Berry, 1993). In order to determine which combination of factors better predicts police victimization, eight alternative multiple regression models will be estimated.

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CHAPTER FIVE

RESULTS

Following, are presented the results of the univariate, bivariate, and multivariate

analyses that try to identify the macro-level factors more likely to predict variations in

police victimization in Kentucky. To reiterate, the conceptual model hypothesizes that

social disorganization predictors, such as poverty, ethnic heterogeneity, and residential

instability will be associated with higher crime levels, which will increase the risk of

police being assaulted. While police victimization is expected to be directly influenced

by the selected predictors, the analysis will also examine the potential crime-protective

direct and indirect effects of social capital (i.e., county-level participation in religious

organizations).

Univariate Analyses

Table 1 presents the descriptive statistics (minimum and maximum values, mean,

standard deviation, skewness, and kurtosis) corresponding to all the variables to be used

in multivariate analyses. As previously noted, assaults against police are not frequent

events. To avoid potential errors in measurement and increase the stability of the

findings, the dependent variable is the 2012-2016 rate of assaults against the police per

100,000 people. The average assault rate against police officers takes values from 7.41 to

257.68 per 100,000 population (mean = 112.62; SD = 60.28) and has a relatively normal

distribution (skewness = .411; kurtosis = -.377).

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Turning to independent variables, poverty is a composite measure which has been created through principal component analysis (PCA) and includes three measures (percent of population below poverty in 2009, percent unemployed in 2010, and percent of social security beneficiaries that also receive old age survivors, and disability insurance in 2010). Among Kentucky counties, the measure of poverty ranged from -1.98 to 2.57. Additional analyses (not shown) indicate that during the period under observation, the unemployment rate was 11.37% in Kentucky. Approximately a third of KY counties had unemployment rates above the mean and 21% of the Kentucky residents were living below the poverty line, a percentage higher than the national average. In 2010, about 15.3% of the U.S. population had income below the poverty level (Bishaw, 2012)

Racial heterogeneity has been calculated based on Blau's (1977) formula for the ethnic diversity index and takes into account the proportion of individuals belonging to various ethnic groups in each county. As previously mentioned, theoretically, the ethnic diversity index takes values form zero (a perfectly homogenous population) to 1 (a perfectly heterogeneous population). For Kentucky, the ethnic diversity index takes into account the proportion of people belonging to five different ethnicities (White, African American, Hispanic, other race, and two or more races). Among Kentucky counties, the ethnic diversity index varies from .02 to .44. It can be noticed that the ethnic/racial diversity in Kentucky is relatively low (mean = .12; std. dev. = .08). An inspection of the variable's frequency distribution shows that more than half (53.3%) of the counties have an index of ethnic diversity lower than .10.

Residential instability is a composite measure constructed through PCA. It takes into account the 2005-2009 average percentage of residents who were not homeowners and the 2005-2009 average percentage of people who lived in a different house one year ago. Among Kentucky counties, residential stability ranged from -3.15 to 2.57 (mean = .00; std. dev. = 1.00). Additional analyses (not shown) indicate that the residential mobility in Kentucky is relatively low. During the period under observation, only 14% of the residents changed their residence during the year preceding the data collection and 74% of the KY residents were homeowners, while nationwide, the 2010 homeownership rate was 65.1% (US Census 2010). The percentage of female headed household varied among Kentucky counties from 7.70% to 16.50%. On average, at the state level, about 12% of the households are headed by women. In Kentucky, about 51% of the residents belong to various religious denominations (i.e., average church adherence rate is 506 per 1,000 people).

Regarding the control variables, the 2006-2010 average homicide rate for Kentucky was 3.93 murders for every 100,000 people. This is lower than the national 5-year average of 5.3 homicides per 100,000 people for the period between 2006-2010 (FBI, 2006-2010). It should be noted that 5.83% of Kentucky counties reported no homicides during the period under observation. The 2006-2010 violent crime rate for Kentucky averaged 141.8 reported violent crimes per 100,000 people, which was lower than the national 5-year average of 445.58 violent crimes per 100,000 people during the corresponding period (FBI, 2006-2010). Results show that 29% of KY counties are metropolitan areas.

Table 1. Descriptive Statistics

Variable	Min.	Max.	Mean	SD	Skew.	Kurtosis
Police assault rate	7.41	257.68	112.62	60.28	.411	-.377
Poverty	-1.98	2.57	.00	1.00	.666	-.209
Ethnic heterogeneity	.02	.44	.12	.08	1.601	2.946
Residential instability	-3.15	1.62	.00	1.00	-.746	.554
Female-headed households (%)	7.70	16.50	11.82	1.65	.193	.231
Church adherence rate	51.32	1065.48	505.88	192.03	0.193	2.604
Homicide rate	.00	15.86	3.93	2.87	1.356	12.015
Violent crime rate	29.17	599.32	141.81	83.04	2.783	.497
Drug related offenses	2.72	34.32	13.32	5.78	.599	1.349
DUI offense rate	2.72	17.83	7.53	2.71	.964	-1.158
Metropolitan county	.00	1.00	.29	.45	.928	-1.938

Bivariate Analysis

Table 2 presents the inter-correlation matrix for all the variables to be included in the multivariate statistical models. The bivariate analysis shows the strength of the relationship between the dependent and the independent variables and helps us detect potential multicollinearity issues, which could affect the results of the multivariate analysis, if identified (Berry & Feldman, 1985).

Except for homicide rate and urbanization, all the predictors are significantly related to the dependent variable at a probability level lower than .05, 2-tailed test. As predicted, the dependent variable is positively and significantly related to ethnic heterogeneity (r=.37; p<.01), residential instability (r=.36; p<.01), and family disruption (r = .33; p<.01). Results show that KY counties with higher levels of ethnic heterogeneity, residential instability, and a higher percentage of female-headed households have higher rates of law enforcement officers being assaulted by citizens.

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Table 2. Bivariate Statistics (N=120)

	1	2	3	4	5	6	7	8	9	10
1. Police assault	1									
2. Poverty	-.30**	1								
3. Ethnic heterogeneity	.37**	-.44**	1							
4. Res. instability	.36**	-.23**	.62**	1						
5. FFH (%)	.33**	.29**	.36**	-.43**	1					
6. Church Adherence	.37**	-.43**	.39**	.02	-.03	1				
7. Homicide rate	-.17	.45**	-.04	.07	.20*	-.33**	1			
8. Violent crime rate	.30**	-.29**	.69**	-.58**	.39**	.10	.07	1		
9. DUI rate	.20*	.17	.11	-.22*	.29**	.03	.22*	.11	1	
10. Drug rel. crimes	.19*	.05	.09	-.14	.24**	.09	.08	.12	.55**	1
11. Metro County	-.01	-.56**	.32**	-.25**	.01	.06	-.23**	.26**	-.19*	-.08

**p<.01; *p<.05

However, contrary to theoretical expectations, the poverty index (r=-.30; p<.01) is negatively and significantly related to the dependent variable, indicating assaults against the police were less likely to occur in economically disadvantaged counties. Social capital also has a positive rather than a negative association with assaults against police, as the theory would predict. Moreover, counties with higher church adherence rates are less likely to be poor, are more ethnically heterogeneous, and have significantly lower murder rates. Counties with higher levels of ethnic heterogeneity also have higher levels of residential instability (r =.62; p<.01).

As hypothesized, results show that counties in Kentucky with higher crime rates (except homicide) have also a higher incidence of assaults against the police. Police victimization rates are significantly and positively related to violent crime rate (r=.30, p<.01), DUI rate (r=.20, p<.05), and drug related offenses (r=.19, p< .05).

Although the inter-correlation matrix shows a few relatively high bivariate correlations among predictors, no correlation (Pearson's r) is higher than .69, suggesting

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that multicollinearity is less likely to be an issue (Walker & Maddan, 2013). Nonetheless, further tests and collinearity statistics will be calculated when multivariate analyses will be conducted.

Multivariate Analysis

This section presents the results of the multivariate analysis. Data have been analyzed using ordinary least square (OLS) regression. The dependent variable is a continuous measure with a relatively normal distribution suggesting that OLS is an appropriate statistical procedure for the proposed multivariate analysis (skewness = .411; kurtosis = -.377). As noted earlier, the objective of this research is to examine the impact of macro-level predictors that are hypothesized to be associated with assaults against police in Kentucky. Several alternative statistical models are further presented.

Table 3 shows the results of the OLS regression analysis, which includes only the social disorganization predictors. Model 1 explores the effects of poverty, ethnic heterogeneity, residential instability, and family disruption on the overall risk of assaults against police, when no control variables are included in the equation. Approximately 28% of the variation in assaults against the police is explained by model 1. This model also indicates that in Kentucky, police officers are more likely to be assaulted in counties with a higher proportion of disorganized families. Specifically, with every 1% increase in the proportion of female-headed households, the five-year police officers' victimization rate is expected to increase by 14.40 units. Alternatively, for each standard deviation increase in the proportion of female-headed households, the rate of police victimization will increase by almost half of a standard deviation (Beta= .40). While the effect of family disruption is in the expected direction, the same is not true for poverty.

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Contrary to theoretical expectations, poverty has a significant effect, but is negatively related to the dependent variable. Law enforcement victimization is less likely to occur in economically disadvantaged counties. While the bivariate analyses showed significant relationships between police assault rates and ethnic heterogeneity and residential instability, respectively, as social disorganization theory would predict, the effects are positive but no longer significant, when controlling for other variables in the model.

Model 2 also explores the effects of poverty, ethnic heterogeneity, residential instability, and family disruption on police victimization, when controlling for social capital. Approximately 31% of the variation in the dependent variable is explained by model 2. Kentucky counties with higher proportions of family disruption are associated with an increase in the likelihood of police officers being assaulted. With every 1% increase in the proportion of female-headed household, the five-year police officers' victimization rate is expected to increase by 13.56 points. Although the proxy measure of social capital is positively related to the dependent variable it can be noticed that after the introduction of the variable in the model, the effect of family disorganization on police victimization was slightly lower than in the previous model, suggesting that social capital acted as a mediator. Yet, contrary to theoretical expectations, Kentucky counties with higher levels of social capital have a significantly higher incidence of police victimization. As is the case in model 1, assaults against the police are less likely to occur in economically disadvantaged counties

Table 3 also presents the values corresponding to the variance inflation factor (VIF), a measure of multicollinearity. It can be noticed that in both statistical models the

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VIF values are lower than 4, indicating that multicollinearity is not problematic (Walker

& Maddan, 2013, p. 419).

**Table 3. OLS Regression Estimates of Police Victimization in Kentucky 2012-2016:
Examining the Effect of Social Disorganization Predictors and Social
Capital**

	MODEL 1			MODEL 2		
Variables	**B(SE)**	**Beta**	**VIF**	**B(SE)**	**Beta**	**VIF**
Poverty	-23.42(6.30)***	-.39	1.74	-17.11(6.35)**	-.28	1.92
Ethnic heterogeneity	4.35(80.48)	.00	2.18	-84.95(82.02)	-.12	2.46
Res. Instability	5.48(6.42)	.09	1.84	12.13(6.50)	.20	2.00
Family Disruption	14.40(3.82)***	.40	1.76	13.56(3.68)***	.37	1.77
Social Capital				.09(.03)***	.30	1.45
Constant	-58.09(43.00)			-.85.12(42.13)*		
Adj. R Square	**.28**			**.31**		

*p<.05; **p<.01; ***p<.001

Figure 1 presents a graphic representation of the findings presented in model 1

Figure 1. The effects of Social Disorganization Predictors on Police Victimization
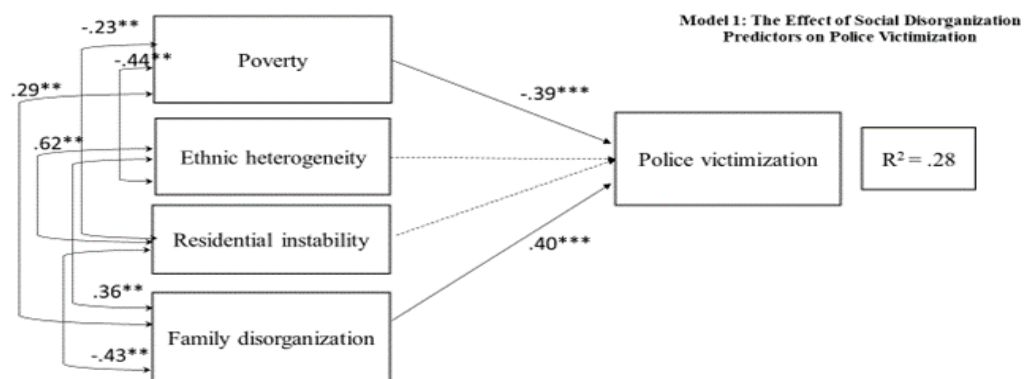
Figure 2 presents a graphic representation of the findings presented in model 2.

Figure 2: The Effect of Social Disorganization Predictors and Social Capital on Police Victimization
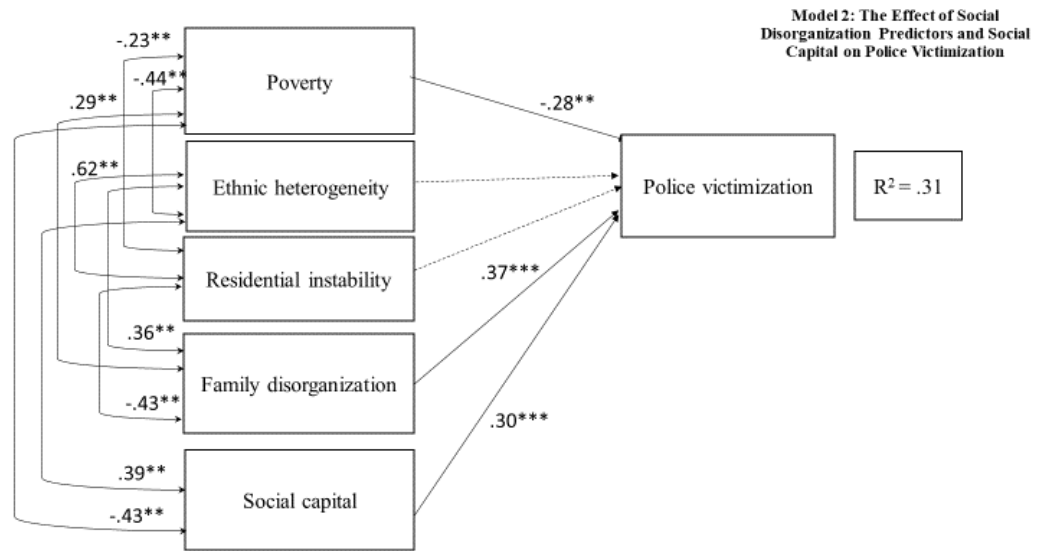

Table 4 presents two alternative models that include additional control variables. Model 3 explores the effects on the dependent variable of poverty, ethnic heterogeneity, residential instability, and family disruption, when controlling for the degree of urbanization. Model 3 explains approximately 38% of the variation in police victimization. Compared to the previous two models (see Table 3), the explanatory power of the statistical model increased when the control variable entered the equation.

As was evident in models one and two, police officers are more likely to be assaulted in Kentucky counties with a higher proportion of disorganized families and lower poverty levels. In model four, comparable results are found. When social capital is introduced in the equation, family instability is still significant and associated with the

increased likelihood of officers being assaulted. As anticipated, social capital decreases the effect of family disorganization on police victimization (i.e. the standardized regression coefficient Beta decreases from .47 in model 3 to .44 in model 4), suggesting that social capital had a potential crime-protective indirect effect as it relates to police victimization. Yet, the direct effect of social capital on police victimization is positive and significant, indicating that assaults against police are more likely to occur in counties that have higher levels of church adherence. As in the prior model, police victimization is less likely to occur in metropolitan counties. Model 4 explains 37.3% of the variation in police victimization.

Table 4. OLS Regression estimates of police victimization in KY: Examining the Effect of Social Disorganization, Social Capital, and Urbanization

	MODEL 3			**MODEL 4**		
	B(SE)	**Beta**	**VIF**	**B(SE)**	**Beta**	**VIF**
Poverty	-37.59(6.78)***	-.62	2.31	-30.92(7.23)***	-.51	2.73
Ethnic Heterogeneity	-4.57(75.24)	-.01	2.48	-66.82(78.44)	-.10	2.47
Residential Instability	6.50(6.00)	.11	1.81	11.08(6.20)	.18	2.01
Family Disruption	16.92(3.62)***	.47	1.81	15.94(3.58)***	.44	1.83
Social Capital				.07(.03)*	.21	1.56
Metro County	-50.66(12.05)***	-.38	1.52	-42.89(12.28)***	-.32	1.64
Constant	-72.07(40.32)			-89.18(40.21)*		
Adj. R Square	**.376**			**.373**		

*p<.05; **p<.01; ***p<.001

Figure 3 presents a graphic representation of the findings presented in model 3.

Figure 3: The Effect of Social Disorganization Predictors and Urbanization on Police Victimization
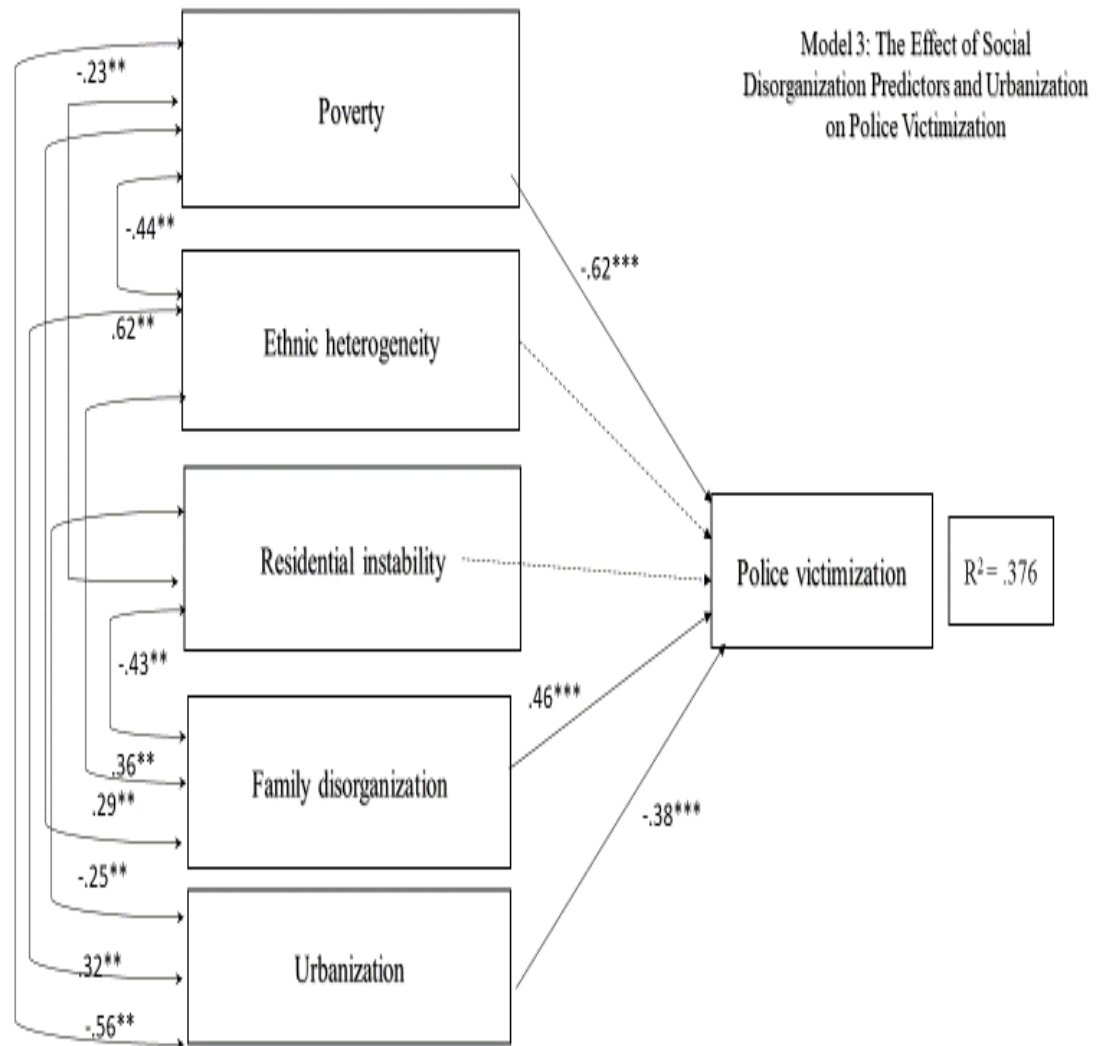
Figure 4 presents a graphic representation of the findings presented in model 4.

Figure 4: The Effect of Social Disorganization, Controlling for Urbanization and Social Capital on Police Victimization
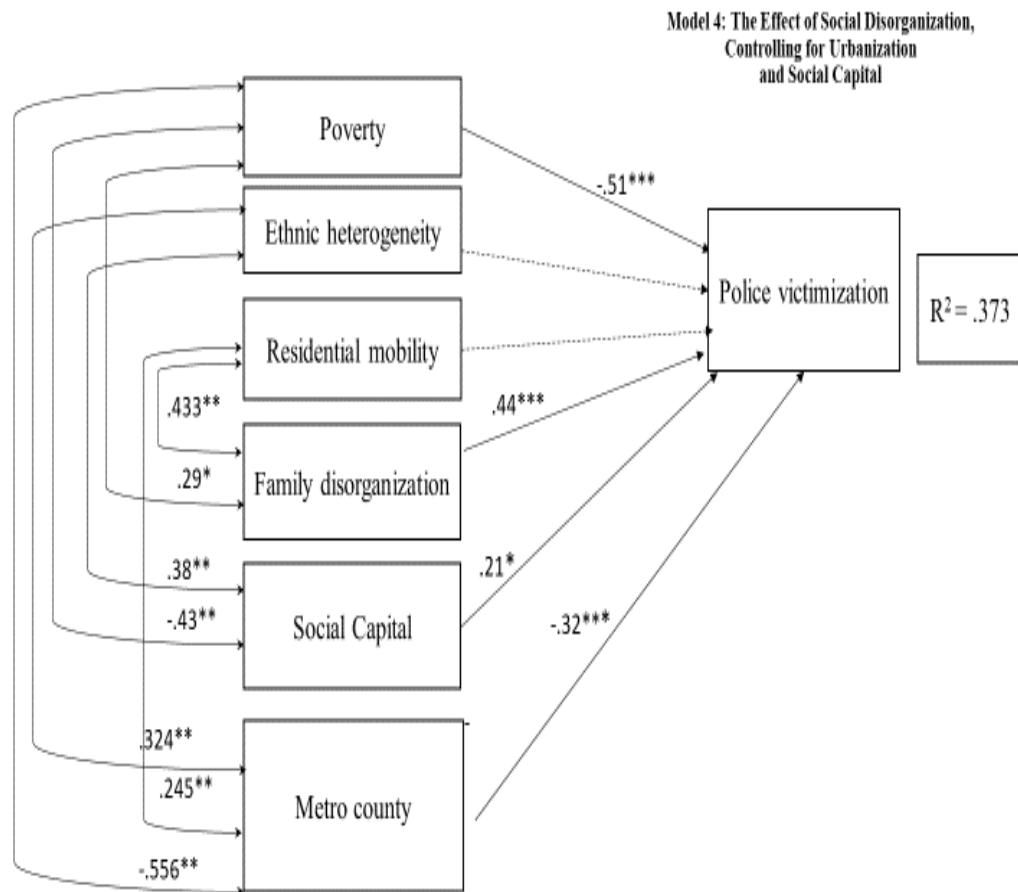

Table 5 presents alternative analyses that examine the relationship between four measures of crimes and police victimization. Compared to the previous models, it can be observed that the selected measures of criminal activity at the county level have a lower explanatory power (15.5%) of variations in police victimization (when controlling for

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urbanization) than social disorganization predictors have (see model 1 R sq. = 28%). As hypothesized, results in each model show that police victimization is more likely to occur in areas that register higher rates of violent crime. Specifically, for every one-unit increase in violent crime rate, the five-year police victimization rate is expected to increase by .23 points (model 5). Except for homicide, the selected indicators of criminal activity are positively related to the dependent variable. Yet, the measure of violent crime (other than homicide) is the only crime indicator that significantly influences the rate of police being assaulted. It should be noted that when introduced into the equation, social capital, (while significantly and positively associated with police victimization) appears to lower the effect of violent crime on police victimization (i.e., the unstandardized regression coefficient decreases from .23 (p<.001) in Model 5 to .21 (p<.001) in Model 6).

Table 5. OLS Regression Estimates of Police victimization in KY: Examining the Effect of Crime on Assaults against the Police

	MODEL 5			MODEL 6		
	B(SE)	Beta	VIF	B(SE)	Beta	VIF
Homicide Rate	-5.63(1.87)**	-.12	1.18	-3.5(1.92)	-.16	1.19
Violent Crime	.23(.06)***	.27	1.11	.21(.06)***	.29	1.14
DUI Rate	3.46(2.32)	.15	1.54	3.15(2.24)	.14	1.54
Drug Offense Rate	.83(1.05)	.08	1.44	.61(1.02)	.06	1.45
Metro County	-15.53(12.13)	-.12	1.188	-14.24(11.67)	-.11	1.19
Social Capital				.09(.03)**	.28	1 .60
Constant	68.86(18.29)***			24.19(22.43)		
Adj. R Square	**.155**			**.218**		

*p<.05; **p<.01; ***p<.001

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Figure 5 presents a graphic representation of the findings presented in model 5.

Figure 5: The effect of Crime Levels on Police Victimization, Controlling for Urbanization
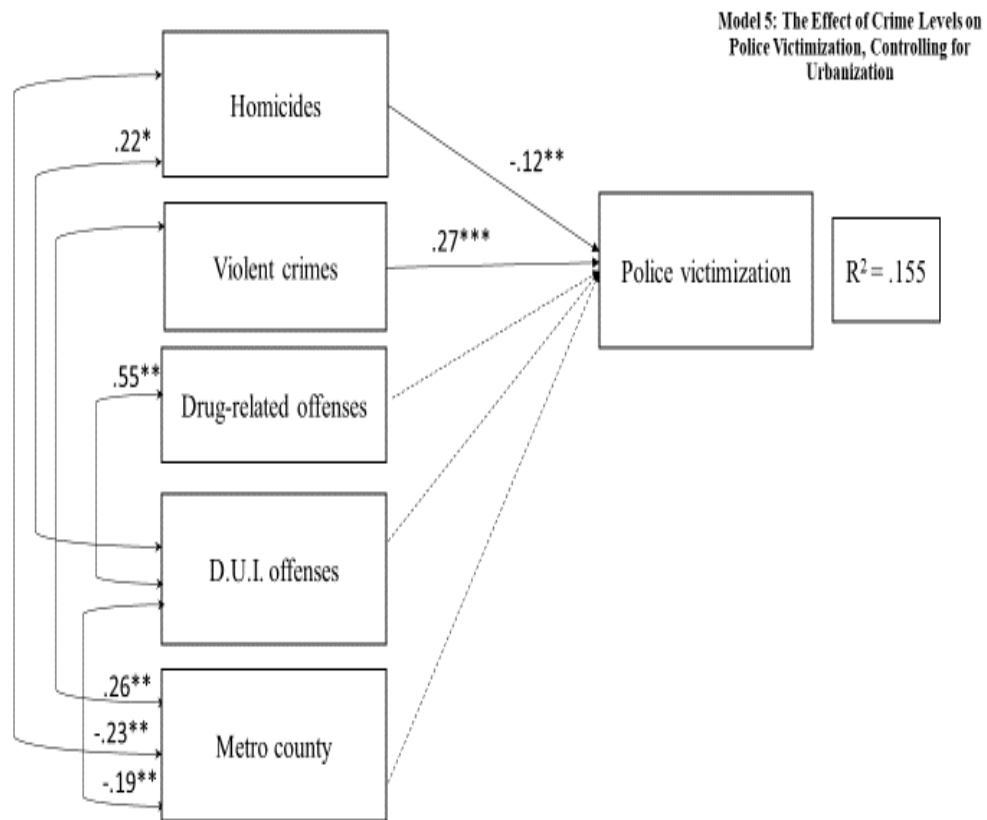
Figure 6 presents a graphic representation of the findings presented in model 6.

Figure 6: The Effect of Crime Levels on Police Victimization, Controlling for Urbanization and Social Capital

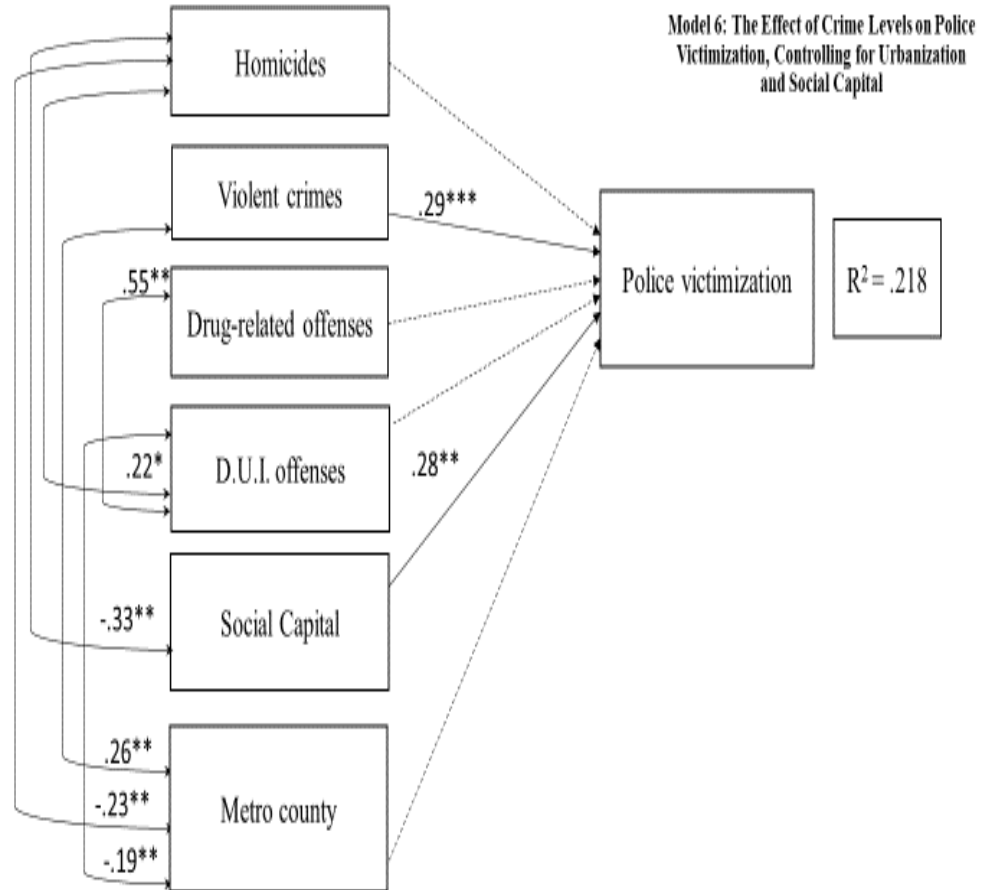Table 6 examines the combined effects of structural variables and measures of crime on police victimization, with and without social capital. Model 7 includes all the selected predictors, except social capital. It explains 34% of the variation in police

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victimization. When social capital is introduced in the equation (Model 8), the explanatory power of the model increases by almost two percent (R square = .357). As in previous models that accounted for it, family disruption is positively and significantly related to assaults against police.

Table 6. OLS Regression Estimates of Police Victimization in KY: Examining the Effect of Social Disorganization, Social Capital, and Crime

	MODEL 7			MODEL 8		
	B(SE)	Beta	VIF	B(SE)	Beta	VIF
Poverty	-34(7.50)**	-.57	2.80	-29.65(7.77)***	-.49	3.07
Ethnic Heterogeneity	-20.87(84.49)	-.03	2.72	-56.58(92.39)	-.08	3.33
Res. Instability	4.96(6.32)	.08	1.99	9.20(6.61)	.15	2.23
Family Disruption	16.08(3.78)***	.44	1.95	15.20(3.76)***	.42	1.98
Homicide Rate	-.42(.37)	-.08	1.46	-.22(.38)	.05	1.52
Violent Crime Rate	.01(.08)	.02	2.21	.01(.08)	.02	2.28
DUI Rate	1.71(2.12)	.08	1.64	1.40(2.09)	.06	1.65
Drug Offense Rate	.38(.94)	.04	1.46	..26(.93)	.02	1.45
Social Capital				.06(.03)*	.19	1.78
Metro County	-47(12.38)***	-.36	1.58	-41(12.62)***	-.31	1.69
Constant	-74.02(41.50)			-90.60(41.85)*		
Adj. R Square	**.340**			**.357**		

*p<.05; **p<.01; ***p<.001

Figure 7 presents a graphic representation of the findings presented in model 7.

Figure 7: The Combined Effects of Structural Variables & Measures of Crime Levels on Police Victimization (excluding social capital)
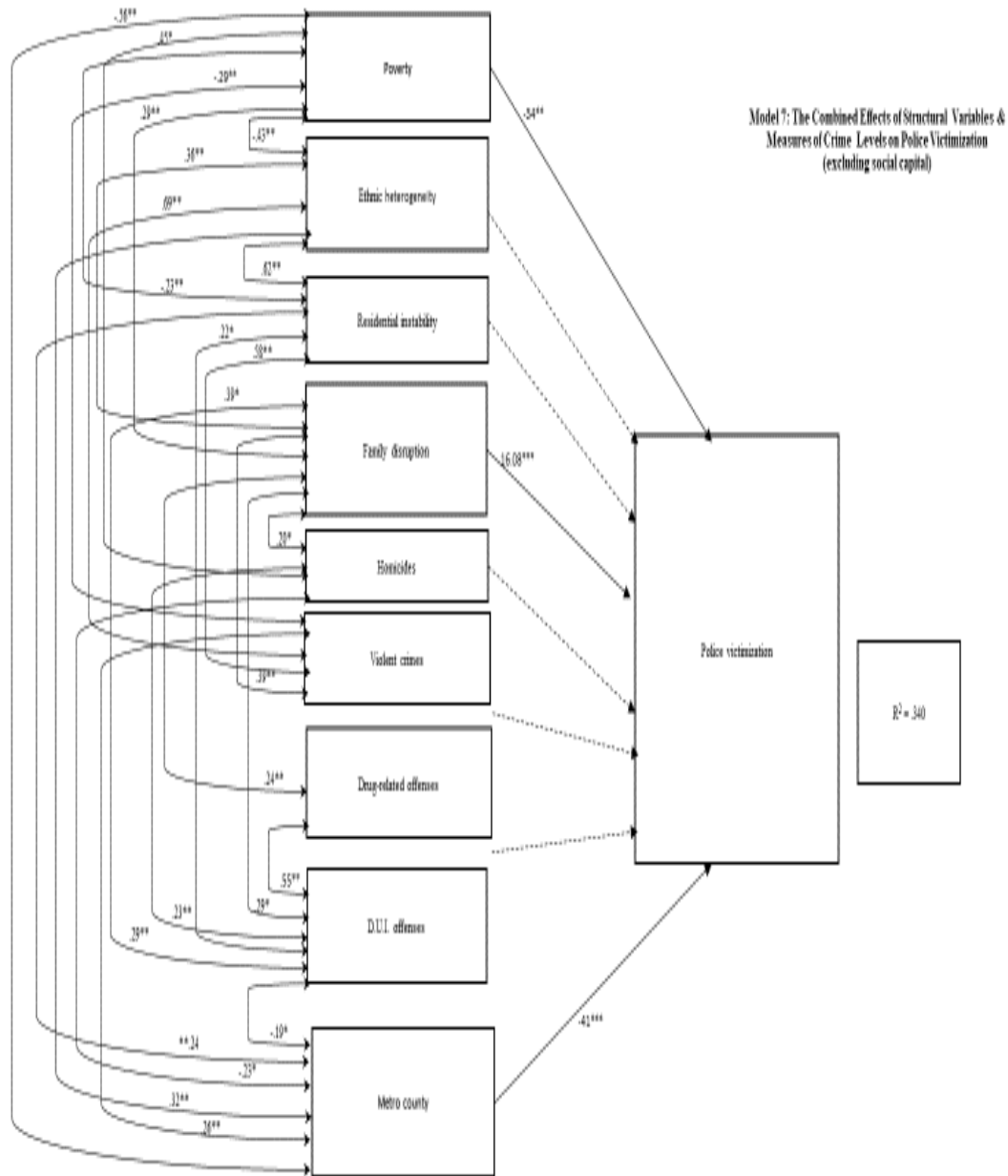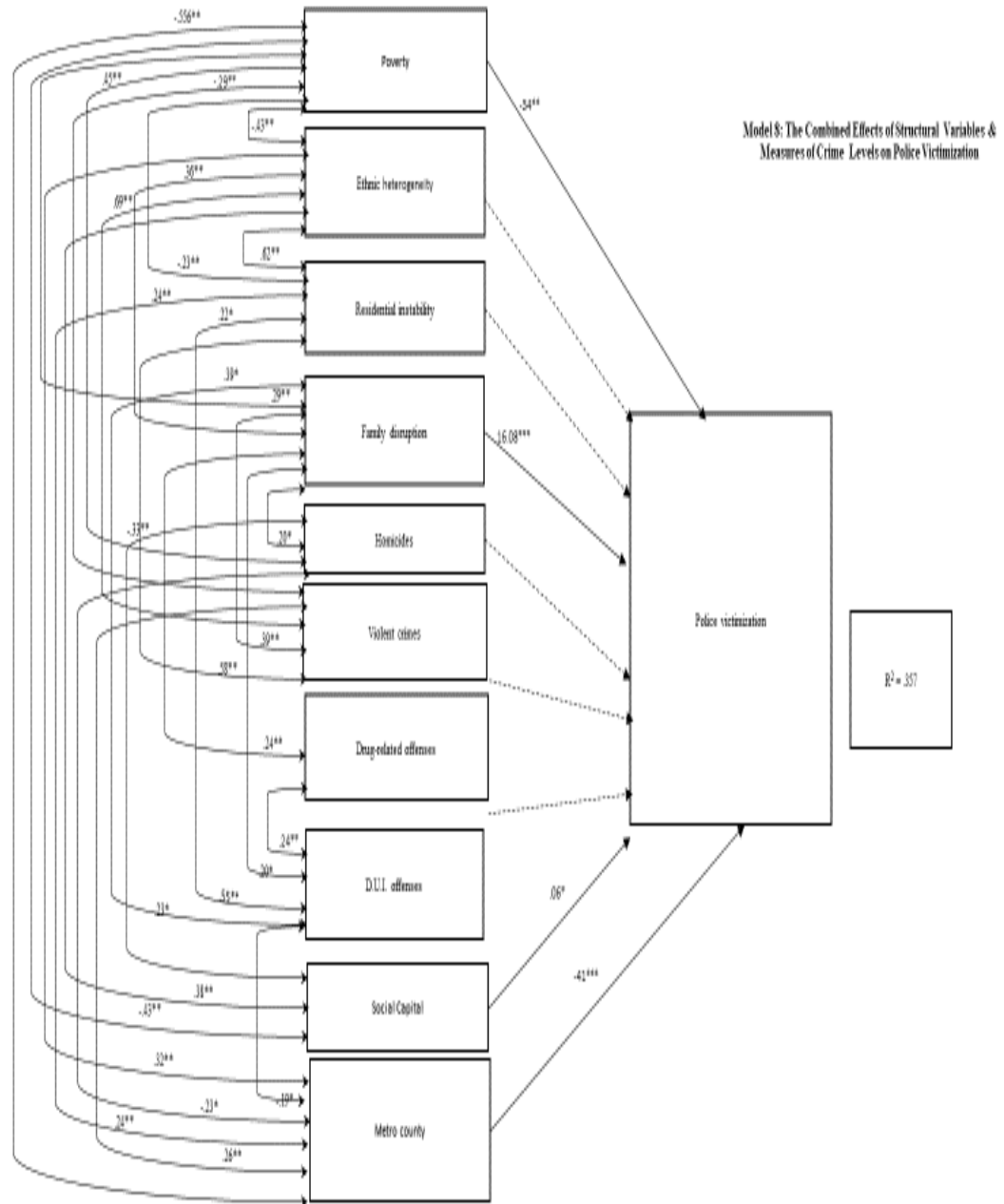
Figure 8 presents a graphic representation of the findings presented in model 8.

Model 8: The Combined Effects of Structural Variables & Measures of Crime Levels on Police Victimization

Model 8: The Combined Effects of Structural Variables & Measures of Crime Levels on Police Victimization

Poverty and urbanization continue to be negatively and significantly associated with assaults on police, as they have been in previous models (excluding models 5 & 6, which did not include social disorganization variables). When controlling for the social disorganization predictors, the effect of violent crime on police victimization is no longer significant. Counties with more church adherents registered a significantly higher incidence of assaults against the police. Yet, the effect of the family disorganization, the variable that appears to have the second strongest impact on police victimization, decreased when social capital entered the equation. Specifically, the standardized coefficient Beta decreased from .45 (Model 7) to .43 (Model 8), suggesting that social capital mediated the effect of family disruption on public assaults against the police.

In sum, the full model (Model 8) shows that in Kentucky, assaults against the police are more likely to increase with an increase in the proportion of disorganized families. Additionally, police victimization is less likely to occur in metropolitan counties and in counties with a higher proportion of economically disadvantaged residents. An increase in residential instability and ethnic heterogeneity did not explain variations in police victimization rates. While criminal activity (except homicides) is positively related to assaults against the police, when social disorganization variables entered the equation, the effect of crime rates was no longer significant. While social capital does appear to directly affect variations in the dependent variable, apparently, social capital also has an indirect effect on police victimization via family disorganization. The effect of family disruption on police victimization slightly diminishes with an increase in the county-level church adherence rates.

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CHAPTER SIX

DISCUSSION AND CONCLUSIONS

Informed by the social disorganization theory (Shaw & McKay, 1942), the current study attempted to identify macro-level factors more likely to predict variations in police victimization in Kentucky. The study also tried to determine if the theory, which was usually used to explain juvenile delinquency and violent crime (particularly homicide rates) in urban settings could be applied to less common types of crime, such as assaults against police. According to social disorganization theory, crime and violence are more likely to occur when characteristics of the social structure like economic deprivation, racial heterogeneity, residential mobility, and family disruption are present (Bursik, 1988; Kornhauser, 1978; Kubrin & Wo, 2016; Sampson, 1987; Sampson & Groves, 1989; Shaw & McKay, 1942).

This study hypothesized that socially disorganized counties would experience higher crime levels, which in turn would contribute to higher levels of police victimization. Additionally, this research tried to determine if participation in social networks, such as religious organizations would diminish the negative impact of social disorganization predictors on assaults against the police. Despite significant correlations between the dependent variable and most independent variables, such as ethnic heterogeneity, residential instability, church adherence, and violent crime rate,

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multivariate analyses showed that only poverty, female-headed households, and social capital were consistently significant in predicting assaults against police.

Different from prior research (Bailey, 1982; Kaminski, 2008; Kaminski et al., 2013) that examined the correlates of lethal police victimization and different from the theory's tenets, a higher incidence of police assaults was registered in better-off counties and not in those with higher poverty levels. It should be noted that even if homicides and drug related offenses occurred more frequently in poor counties, the overall violent crime rate (i.e., crimes other than homicides) was lower in poor counties (r = -.29; p<.05). Additionally, the results show that Kentucky communities that have higher poverty levels are less likely to be urban (r = -.56; p<.05) and ethnically heterogeneous (r = -.44; p<.05). In poor counties the population turnover is lower as well (r = -.23; p<.05). Prior research (Osgood & Chambers, 2000, p.63) also found that rural communities in America have higher levels of residential stability and ethnic homogeneity, suggesting that they are more cohesive than urban communities (Elder & Conger, 2014; Wilkinson, 1991). Findings suggest that this characterization is valid for Kentucky as well and it might explain why police victimization is less likely to occur in poor areas of the state. As Bouffard and Muftic (2006) noted, prior research also acknowledged that poverty and crime were not always positively related, indicating that the effect of poverty on crime in rural areas differs from what has been observed in urban settings. Moreover, prior studies only examined the effects of poverty on lethal victimization of police, while this study considered all types of assaults. This suggests not only that the poverty-crime relationship differs among areas with various degrees of urbanization, but also that the anticipated positive effect of poverty on crime might apply only to certain types of crime.

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Despite initial positive and significant correlations between police victimization and ethnic heterogeneity ($r = .37$; $p<.05$) / residential instability ($r = .36$; $p<.05$), the findings of the multivariate analyses showed that when controlling for other predictors, these two social disorganization predictors of assaults against police became insignificant. It should be noted, however, that prior research on police victimization (Wilson, 2005) also found that ethnic heterogeneity was not a significant predictor of police victimization. In Kentucky, ethnic heterogeneity is highly correlated with violent crime rate ($r = .69$; $p<.05$), residential instability ($r = .62$; $p<.05$), and family instability ($r = .36$; $p<.05$), which are all expected to increase the risk of police victimization. Yet, ethnic heterogeneity is positively related to church adherence ($r = .39$), which is expected to lower the risk of police being assaulted. In short, results indicate that ethnic heterogeneity appears to have only an indirect effect on police victimization.

Consistent with prior research that examined the effect of social disorganization predictors on police victimization (Kaminski, 2008; Kaminski et al., 2003; Meyers, 1974) residential instability, while positively related to the dependent variable in all the estimated models, did not significantly affect variations in assaults against police in Kentucky. An examination of the bivariate relationships shows that residential mobility is negatively and significantly related to family disruption ($r = -.43$; $p<.05$) and violent crime rates ($r = -.58$; $p<.05$), which apparently neutralized the positive relationship between residential instability and police victimization, rendering the total effect not significant.

Nonetheless, consistent with the social disorganization theory predictions, family disruption and police victimization rates were positively and significantly related. Police

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officers are more likely to be assaulted in counties with higher rates of female-headed-households. An examination of the standardized regression coefficients shows that in all multivariate statistical models that included family disruption, this predictor had the second largest value, suggesting that family disorganization had an important contribution to the explanatory power of the models. Although prior research on the correlates of police victimization did not examine the effects of family disorganization on assaults against police, several studies (Andreescu et al., 2011; Pratt & Cullen, 2005; Sampson & Groves, 1989) documented the family disorganization-crime link. Even if the data does not include information detailing the circumstances of particular assaults against police, it is possible that counties with a higher proportion of female-headed households may have experienced a higher frequency of domestic disputes and intimate partner violence cases that required police intervention, increasing the risk of police victimization. When examining the circumstances of assaults against police, Johnson (2008, 2011), for instance, found that on average, 9% of domestic disputes resulted in an officer being physically assaulted.

In accordance with the new developments of the social disorganization theory (see Kubrin & Wo, 2016), the present analysis also examined the relationship between social capital and police victimization. Additionally, the ability of social capital (participation in religious organizations) to diminish the effect of social disorganization predictors on police victimization was explored. Contrary to the theoretical expectations, social capital appears to significantly predict higher, not lower rates of police victimization. While further research is needed to verify the stability of the findings and alternative measures of social capital should be used, a possible explanation of the

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unexpected finding does exist. Ellison, Burr, and McCall (2003), who also examined the relationship between religious participation and violent crime, found that while church membership predicted lower homicide rate, in the South, membership in Conservative Protestant churches predicted higher murder rates. Lee (2006) reached similar conclusions when examining the impact of religion on homicide rates in rural areas. While church adherence rate was not a significant predictor of variations in homicide rates, Andreescu et al., (2011) also found that Southern Appalachian counties with high rates of adherence to Conservative Protestant churches had higher murder rates, while counties in Northern Appalachia that were predominantly Catholic, had significantly lower murder rates. In sum, particularly in the South, church adherence that does not acknowledge differences that exist among communities in terms of the dominant religious denomination might cover inter-group cultural differences, which in turn could affect variations in criminal behavior, as was possibly the case here. Nonetheless, as hypothesized, social capital did have the anticipated indirect effect on police victimization. When social capital was introduced in the equation, the effect of family disruption on assaults against police decreased, suggesting that church membership appears to promote pro-social interaction that could lower the police officers' risk of victimization

As Kubrin and Wo (2016, p.130) point out, even if a limited number of studies that examined the effects of social capital concluded that social participation is negatively associated with crime. "it would be premature to conclude that social capital is a robust predictor of lower crime rates, mainly because current studies differ so drastically with respect to units of analysis, research settings, time-periods, and estimated outcomes."

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Initial bivariate analysis showed that all crime rates (that were included in this analysis) predicted assaults against police. In the multivariate analysis, violent crimes were significant in models (5 & 6). However, violent and drug-related crime ceased to be significant when social disorganization theory predictors were introduced in the equation. Kaminski (2008) obtained a similar result in his analysis, which used various measures of violent crime (violent crime residuals, violent crime count, violent crime rate, violent crime rate residuals, and general homicide rate). The author found no evidence of an effect of violent crime on police homicides at the county level. Kaminski (2008, p.371) suggests that this might be the result of the fact that the *propensity for violence* measure he used operates only at a local level of spatial aggregation and/or that his findings may be the effect of measurement errors associated with county-level UCR data. Kaminski (2008) suggests that assessing the impact of violent crime at the county level should wait until corrections to the data are made. Kaminski's (2008) study on the structural covariates of police homicides at the county level showed that the risk of a police officer being feloniously killed was lower in counties with larger urban populations. Consistent with Kaminski's (2008) findings, in Kentucky, assaults against the police were less likely to be recorded in metropolitan counties.

Theoretical Implications

Most studies that attempted to empirically test the tenets of the social disorganization theory have concentrated their efforts on understanding the relationship between social disorganization and crime/ offending in urban settings, such as property offenses and violent crimes against civilians (Kaylan & Pridemore, 2013). The current study focuses solely on county-level assaults against police officers, which is an issue

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addressed in a limited number of studies. Additionally, this research examined the effect of predictors, such as family disruption and social capital, which, to the author's knowledge, are not included in any prior macro-level study on police victimization.

While social disorganization theory (SDT) is strong in its predictive ability and generalizability to many types of crime in many locations, partial support for the theory was found when SDT was used to explain variations in police victimization. The findings suggest that certain social disorganization predictors (e.g., ethnic heterogeneity and residential mobility) appear to have a limited ability to explain variation in less common types of crime, such as police victimization, while others, such as family disorganization, consistently predict assaults against police. While most empirical tests of SDT found that poverty and crime are positively related, poverty was negatively related to assaults against the police and to violent crimes, other than homicides. These findings suggest that further examination of the social disorganization theory tenets is needed.

Although further research conducted with larger and different samples, as well as improved measures should verify the stability of this study's findings, results show that social capital, at least indirectly, does have a crime protective ability when it relates to police victimization.

Policy implications/ Preventive Measures

There are several observations that have policy implications that law enforcement can address to potentially reduce the risk of police victimization. First, police academy training for new recruits, annual in-service training which is mandatory for all police officers in Kentucky, and individual agency training needs to incorporate risks of victimization. In Kentucky, police officers are required to attend 40 hours of in-service

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training annually to maintain their state certification. Police departments are also required to have their officers qualify in shooting, taser, and chemical spray, as part of their certification retainment. While current mandatory in-service training includes such topics as Breathalyzer recertification, gangs, terrorism and clandestine labs, there is little to no mandatory annual training on reviewing risk factors that increase the likelihood of being assaulted and how to reduce those risks, especially those associated with certain geographical areas. This topic could be introduced as a block of lecture formatted training in every in-service class, with each class tailored to addressing the respective jurisdictions of the officers in attendance, as well as addressing any new research findings relevant to officer safety. By educating officers of the macro-level risk factors that can be associated to locations that they provide law enforcement response/coverage to, they can be more cognizant of risks to their personal safety that they may not have otherwise been aware of. Also, in conjunction with the dissemination of new information and review of existing information on officer safety, consideration should be given to the addition of technical skills and scenarios. At both the agency and academy level, continually training officers and improving their ability to negotiate and handle calls involving inter-personal disputes could also help. Requiring designated time in officer safety training/scenarios (like is required in shooting their duty weapon) could potentially save officer's lives.

Police agencies are not in a position to affect the ethnic structure of a community, the residents' location preferences, or the structure of the family in a community. However, they can try to improve community-police relationships, increase the citizens' trust and confidence, which occur if the police are perceived by the public as legitimate

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enforcers of the law.   When citizens believe they are treated fairly and ethically, or with procedural justice, they are more likely to show, "voluntary compliance with the law, acceptance of police authority and deference to police decisions, as well as a general willingness to cooperate with the police to fight crime (Tyler, 2011, p. 254). In part, this could be accomplished through community-oriented policing, which has the potential of strengthening community-police relationships.

Community oriented policing is a partnership between communities and police departments with a shared goal of using problem solving tactics and strategies to address the causes of crime and social disorder as well as the fear within the community that accompanies crime (Gill,2014). There are three components to community oriented policing: community partnerships, organizational transformation, and problem solving (Gill, 2014).

Gill et al., (2014), did a systematic review of community oriented policing. They found that community oriented policing did not necessarily reduce crime or the fear of crime. Their review and meta-analysis did however find strong evidence that community oriented policing increased citizens' satisfaction with the police. Their findings also suggest that there is an improved perception of police legitimacy, which increases citizen compliance as well as lower crime rates (Mazerolle et al., 2013; Sherman & Eck, 2002; Sunshine & Tyler, 2003).

Community oriented policing strategies are primarily based on the geographic location of responsibility (Cordner, 2014). In order to deal with this limitation, Cordner (2014) points out that agencies can address this in one or a combination of three ways. For example, police officers could be specifically assigned to the task assign police of

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community oriented policing, without the responsibility of handling most calls, which would go to a patrol unit. Second, each patrol officer should be responsible for the long-term problem solving in their assigned beat. A third option would be the formation of small teams of officers who would share the responsibility of handling calls in their assigned location as well as the community oriented aspect. This would require that police officers have a permanent "beat" assignment instead of the nightly, weekly, or monthly district reassignment that occurs in many departments.

Finally, engaging with and educating communities (and officers) through community meetings and dialogue is another strategy that can help. This would be along the same line as a component of community policing. Initial meetings could consist of telling county residents of the concern of police victimization and explain how citizens can help in developing a plan to reduce this risk of assaults on police which might include researching and developing a successful venue in spreading the message that it is wrong to assault any police officer (Kennedy, 2011; Wilson & Zhao, 2008). This could be an overlooked strategy that has not been introduced because of its simplicity. Subsequent meetings and forums should continue in order to build a relationship with the citizens, police officers serve. The results of Wilson and Zhao's (2008) study on structural covariates of police homicides at the county-level suggest that agencies that met with a large number of community groups among the sampled departments had smaller rates of injurious assaults than did agencies that met with fewer community groups.

Limitations of Study

While the current study contributes to our knowledge of assaults against police in Kentucky at the macro-level, this research is not without limitations. One of the limitations of this study is its reliance on official data on assaults against the police. Because reporting is not mandatory, unless an officer is intentionally killed or dies in the line of duty, there are no details about the specifics of the assault. For instance, police agencies or police officers may not always choose to report minor incidents as assault. Also, you do not know if it was a verbal, a physical assault, or both. Moreover, there may be differences between officers that report victimization and those who do not (Felson et al., 2002; Thompson, Saltzman, & Bibel, 1999). The same may hold true concerning departments' reporting of any or all assaults against police. As previously mentioned, reporting is not mandatory, therefore, some departments may have policies in place that require officers and supervisors to make sure the assault is properly documented and the information is forwarded to KSP, while other agencies choose not to report the incident to KSP. In addition to inaccurate reporting, understanding of assaults on police is artificially limited by the way the data is organized. Specifically, official data only shows assaults and deadly assaults, thus artificially reducing variation in the severity of assaults.

When using geographic areas as units of analysis there is the possibility that the level of police assaults in one county or bordering state may have a kind of spill-over effect, contributing to police assaults in the adjacent counties. A spatial analysis of the data might be able to show if this is the case and if there is any indication of spatial autocorrelation. However, taking into account the fact that assaults against the police are

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rare events that most likely remain unknown to the general public, unless lethal attacks occur, the risk of spatial autocorrelation that might have influenced the results is minimal.

Another limitation is the measures used to test the theory and the inability to construct or have access to variables that would measure the community's collective efficacy or social capital. The analysis did not control for variation in the types of law enforcement agencies across counties (percentage of sheriff's agencies or Kentucky State Police). Therefore, because the risk of officer victimization may be related in unknown ways to differences among law enforcement agencies (e.g., function, geographical coverage), results could have been affected.   Finally, causal inferences could not be made and the effect of certain predictors of police victimization was possibly obscured due to the relatively small size of the sample.

Directions of Future Research

Results suggest that further analyses need to be conducted to examine the stability of the findings and the potential significant indirect effects that residential stability, ethnic heterogeneity, and social capital have on police victimization, not only in Kentucky, but also at the national level. Future research would benefit if alternative measures of social capital that would include participation in social networks other than religious organizations would be created. By using larger and more inclusive samples, future research may be able to identify relationships between police victimization and social disorganization theory predictors of competing macro-level theories of crime that were not captured in this study.

Concluding Remarks

This research is one of the few studies that examined macro-level predictors of

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assaults against police officers in the United States. It is the first known study to focus on Kentucky counties, as well the only known study (to date) that examines the impact of family disruption and social capital on police victimization. This exploratory analysis tried to determine if social disorganization theory can be used to explain variations in a relatively rare type of crime – citizens' violence against law enforcement officers. Although the findings show limited empirical support for the social disorganization theory's ability to explain variations in police officers' victimization rates, results do show that family disorganization is a significant predictor of assaults against police. Although social capital had a direct impact on police victimization by increasing the risk of police victimization, it also had an indirect impact by decreasing the undesirable effect of family disruption on police victimization. This suggests that church membership could potentially strengthen community ties and improve the residents' relationship with local police. Different from prior research that found a positive association between community poverty and police officer's risk of fatal assaults (Kyriacou et al., 2006), this study found that a Kentucky police officer is less likely to be assaulted if working in areas characterized by concentrated socio-economic disadvantage.

Law enforcement is one of the most dangerous occupations in America, with officers facing scenarios that present a heightened risk of being assaulted, incurring injuries and even being killed (Crifasi, Pollack, & Webster, 2016; Fridell, Faggiani, Taylor, Brito, & Kubo, 2009). This research has demonstrated the need for law enforcement agencies and officers to recognize that there are macro-level indicators, such as family structure (i.e., a higher incidence of disorganized families), which may directly and indirectly affect their safety. Even if police officers cannot change the structural

characteristics of the communities they serve, law enforcement officers should find ways to strengthen the police-community ties and improve the public perception of police as well as citizens' trust and confidence in police. As research demonstrated, when police actions are characterized by procedural justice, citizens tend to see police officers as legitimate enforcers of the law and they are more likely to cooperate with the police, respect police authority, and comply with the law. Consequently, through the communities' capacity to informally control crime, the residents' illegal actions would decrease and the risk of police victimization would be reduced as well.

This study has also demonstrated the need to continue to conduct theory-informed research relevant to police victimization and acquire as much knowledge as possible so that law enforcement agencies and police can be educated about all known risk factors for police victimization. When a police officer is a victim of a citizen assault, the consequences have all too many times been irreversible, leaving a family without a husband/wife or father/mother, a police department mourning the loss of one of their own, and a community with one less guardian/hero. As a result of studies such as this, hopefully academies, agencies, and other venues that disseminate information relevant to officer safety will have a positive impact on police officers in Kentucky and other U.S. states.

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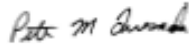
APPENDIX

UNIVERSITY OF LOUISVILLE

Human Subjects Protection Program Office
MedCenter One – Suite 200
501 E. Broadway
Louisville, KY 40202-1798
Office: 502.852.5188 Fax: 502.852.2164

DATE:	March 05, 2018
TO:	Virginia P Redman
FROM:	The University of Louisville Institutional Review Board
IRB NUMBER:	18.0235
STUDY TITLE:	Macro-level predictors of assaults against police in Kentucky
REFERENCE #:	657077
DATE OF REVIEW:	03/05/2018
IRB STAFF CONTACT:	Jackie Powell, CIP
	852-4101

The IRB Chair has reviewed your submission and the project described does not meet the "Common Rule" definition of human subjects' research. Therefore, this project does not require IRB review.

If you have any questions, please contact the IRB analyst listed above or the Human Subjects Protection Program office at hsppofc@louisville.edu.

We value your feedback. Please let us know how you think we are doing: https://www.surveymonkey.com/r/CCLHXRP

Peter M. Quesada, Ph.D., Chair

Social/Behavioral/Educational Institutional Review Board

PMQ/jsp

CURRICULUM VITAE

Virginia Paulette Redman

EDUCATION

2018 Ph.D. (exp.)	Criminal Justice, University of Louisville Dissertation title: Macro-level Predictors of Assaults against Police in Kentucky. Defense date: July 20, 2018.
2013 M.A.	Criminal Justice, University of Cincinnati
2012, B.A.	Organizational Leadership, Northern Kentucky University
1988-2018	Annual 40-hour KLEC in-service training (various topics)
1988	Department of Criminal Justice Police Academy
1980	Northern Kentucky E.M.S. Paramedic certification (e)

PROFESSIONAL DEVELOPMENT

2015	University of Louisville – Grant Writing Academy
2016	University of Louisville – Online Class Development
2016	University of Louisville – Soft Chalk
2016	University of Louisville – Generation Z Learners: What Do I Need to Know About Teaching Them?

AWARDS & HONORS

2015 – 2017	Graduate Assistantship (PhD). Department of Criminal Justice, University of Louisville
2012	Graduated Cum Laude Northern Kentucky University
2011 & 2012	"Who's Who among College Students" recipient
2008 -2012	Part time Student Scholarship Award (Northern Kentucky University)

EMPLOYMENT

1978 – 1981	Lieutenant Florence Volunteer Rescue Squad
1980 – 1986	Paramedic/Shift Supervisor Northern Kentucky Emergency Medical Services
1982-1983	In-service Coordinator/Instructor at Booth Hospital for E.M.T. In-service
1986 – 1988	Dispatcher Public Safety Communications Center

| 1988 – 2001 | Police officer/Detective Boone County Police Department |
| 2001 – Present | Deputy Sheriff, Boone county Police Department |

AREAS OF INTEREST - Courts, Policing, & Police training

TECHNICAL REPORTS

Redman, Paula, Rausch, C., Higgins, E., Nelson, N., Navarro, J., Cornett, S.,& Nicholson, J. (2015). *Jefferson County Circuit Criminal Mediation in Jefferson County Circuit Court.* Prepared for Jefferson County Circuit Court Judges.

PRESENTATIONS AT PROFESSIONAL MEETINGS

2018	Explaining regional variations in police victimization rates in Kentucky. Virginia Redman & Viviana Andreescu. SCJA Annual Meeting, Pensacola, FL, September 11-15.
2017	Police Victimization in Kentucky. Paula Redman &Viviana Andreescu. MCJA Annual Meeting, Chicago, IL, September 28-29.
2016	Family, Schools, and Peer Influences on Alcohol Abuse among American Indian and White Female Adolescents. Paula Redman & Viviana Andreescu. ASC November 16-19, New Orleans, LA.
2016	Are Southern Girls More Prone to Violence than Female Teens from Other U.S. Regions? Viviana Andreescu & Paula Redman. SCJA, September 7 – 9, Savannah, Georgia.
2015	Poster presentation on Criminal Mediation in Boone County Kentucky. Virginia Redman & Nadia Nelson. ASA annual meeting.
2015	Round table Discussion on Criminal Mediation. SCJA meeting.

TEACHING EXPERIENCE

1981-1985	In-service Coordinator/ Instructor at Booth Hospital for Emergency Medical Technician In-service continuing education classes. CPR Instructor
2016-2017	Crime & Justice in the United States (web enhanced) University of Louisville
	Crime & Justice in the United States (Honors section, web enhanced; online), University of Louisville (Teaching Assistant)