
Electronic Theses and Dissertations, 2004-2019

2009

Predictors Of Firearm Use And Effects Of Weaponry On Victim Injury In Violent Crime: A Criminal Events Approach

Nicholas Libby
University of Central Florida



Part of the [Sociology Commons](#)

Find similar works at: <https://stars.library.ucf.edu/etd>

University of Central Florida Libraries <http://library.ucf.edu>

This Doctoral Dissertation (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations, 2004-2019 by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

STARS Citation

Libby, Nicholas, "Predictors Of Firearm Use And Effects Of Weaponry On Victim Injury In Violent Crime: A Criminal Events Approach" (2009). *Electronic Theses and Dissertations, 2004-2019*. 3962.

<https://stars.library.ucf.edu/etd/3962>

PREDICTORS OF FIREARM USE AND EFFECTS OF WEAPONRY ON VICTIM INJURY
IN VIOLENT CRIME: A CRIMINAL EVENTS APPROACH

by

NICHOLAS E. LIBBY
B.S. University of Central Florida, 2004
M.A. University of Central Florida, 2006

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Sociology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Summer Term
2009

© 2009 Nicholas E. Libby

ABSTRACT

This study, framed in the criminal events perspective, investigates situational and contextual factors of violent interpersonal encounters that impact the likelihood of offender weapon usage and, when a weapon is used, the likelihood that it will be a firearm. Furthermore, this study examines the effects that weapons have on levels of victim injury along with other factors that may impact injury independent of weapon use. Three specific topics of interest are addressed: whether or not black offenders were more likely to make use of a firearm, what factors impact firearm use amongst female offenders, and if the findings of Kleck and McElrath (1991), which stated that firearm use largely prevents injury, but when victim injury does occur, it is more likely to be lethal, could be replicated using a more recent and comprehensive source of information. Data were collected from the National Incident-Based Reporting System (NIBRS) of the Federal Bureau of Investigation (FBI). Findings were that black offenders were more likely to use firearms, but this pattern is essentially limited to black male offenders. Female offenders were more likely to use a firearm against a stranger and during the course of a robbery. Finally, firearm use was associated with a decrease in the likelihood of a victim suffering nonlethal injury, but when injury did occur, firearms significantly increased the chances of victim death. Theoretical and policy implications and suggestions for future research are also discussed.

At the risk of being reminiscent of a long-winded Academy Awards recipient, I dedicate this to my entire family: Doreen, Mickey, Ed, Winnie, Shay, Cheryl, Denise, Jeff, and Taylor. It is safe to say that, without their love and support throughout my life, I would not have come this far. Additionally, I must acknowledge their forgiveness regarding my forgetfulness of the little things such as birthdays and holidays, especially around the times when I had papers and projects due. Finally, I also dedicate this to Jennifer Elaine Estes, whose love and unconditional friendship over the years also played a large role in making all of this possible.

ACKNOWLEDGMENTS

I acknowledge my dissertation committee: Jay Corzine, Lin Huff-Corzine, James D. Wright, John P. Jarvis, and Olli Olligschlaeger. It would be an understatement to say that I have learned a lot from them. Without their continued support and tutelage throughout my tenure as a graduate student, this work would not have been possible.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION.....	1
Criminological Perspectives	2
Public Health Perspectives.....	6
The Present Study	7
CHAPTER TWO: LITERATURE REVIEW.....	9
Weapons and Violence	9
Criminal Violence and Injury	9
Traditional Approaches to Predicting Outcomes of Violence	11
The Criminal Events Perspective.....	16
Weapon Use in Crime.....	20
Injury and Lethality of Criminal Firearm Use	25
The Present Study	29
CHAPTER THREE: DATA, MEASURES, AND METHOD	32
Data.....	32
Measures	34
Dependent Variables.....	34
Independent Variables	35
Statistical Analyses	41
CHAPTER FOUR: DESCRIPTIVE STATISTICS.....	43
Series 1 Analyses	47

Series 2 Analyses	51
Series 3 Analyses	57
CHAPTER FIVE: MULTIVARIATE RESULTS.....	61
Series 1 Analyses	62
Series 2 Analyses	66
Series 3 Analyses	75
CHAPTER SIX: DISCUSSION AND CONCLUSION.....	83
APPENDIX: TABLES.....	103
LIST OF REFERENCES.....	129

CHAPTER ONE: INTRODUCTION

Crime has been a topic of investigation for many fields within the social sciences, with particular attention often granted to weapon use, especially the effects of firearms on violence within society. Much of this research has been focused on the United States (US), which has similar rates of violent crime and non-lethal assaults when compared to other industrialized nations. However, what makes the US a peculiarity is its high homicide rate and its particularly high rate of firearm homicides (BJS, 2005; Hemenway, 2004). In the years 1999 and 2000, the US total homicide rate amounted to 6.1 homicides per 100,000 individuals in the population, with about two-thirds of these homicides involving a firearm. In comparison, Canada, Australia, and New Zealand each had a total homicide rate of roughly 1.8 per 100,000, most of which did not involve the use of a firearm (Hemenway, 2004). Another peculiarity of the United States is the firearm ownership rate, especially handgun ownership. Currently, roughly 40% of adult males and 10% of adult females within the US own a gun of some kind (Cook & Ludwig, 1996; Smith, 2001). Canada, Australia, and New Zealand have comparable numbers of long guns (i.e., rifles and shotguns), but considerably fewer handguns, which are disproportionately used in crime (Hemenway, 2000). Given these factors, a considerable body of research examining the link between firearms and violence has been developed.

The current research uses a relatively new data resource, the FBI's National Incident-Based Reporting System (NIBRS) data, to address two fundamental questions about firearms and violence: First, what offender, victim, and incident characteristics impact upon the offender's decision to use a gun in committing a criminal offense? And secondly, when guns (or other

weapons) are involved in criminal offenses, what are the consequences for the victim and how do they vary for different kinds of weapons? Although one might think that a half-century's worth of research on guns and violence would have satisfactorily resolved both questions, this proves not to be the case, as the following literature review reveals. A major reason for the continuing uncertainty about both issues inheres in the limitations of hitherto available data, limitations that NIBRS mostly overcomes.

Firearms research has spanned numerous sub-topics, including social costs associated with firearms violence (Cook & Ludwig, 2000), self-defensive use of firearms (Kleck & Gertz, 1995), strategies of firearm violence reduction (Ludwig & Cook, 2003), criminal and juvenile use of firearms (Brezina & Wright, 2000; Wright & Rossi, 1986), and constitutional issues related to firearm ownership (Cottrol, 1994). Generally speaking, although a large amount of this research is multidisciplinary, the bulk of the literature comes from two perspectives: criminology and public health.

Criminological Perspectives

Criminological approaches that focus on violence often examine the relationship between social forces, such as poverty and inequality, and violent crime. Exemplary of this line of inquiry is the body of literature pertaining to social disorganization and collective efficacy, which is "defined as social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (Sampson, Raudenbush, & Earls, 1997:918). Essentially, these perspectives argue that high levels of poverty, population heterogeneity, population mobility, and other socioeconomic conditions (e.g., population density, female-headed households) disrupt social cohesion within neighborhoods, which in turn contributes to a lack of self-regulation of citizens within the neighborhood and a reduction in the ability of

neighborhood residents to keep unwanted elements, such as drug dealers, out of their area of residence (Bursik & Grasmick, 1993; Park & Burgess, 1925; Shaw & McKay, 1942). On the other hand, neighborhoods with higher levels of collective efficacy have less violence.

Furthermore, although some socioeconomic conditions indicative of social disorganization may be present in a given community, their effects can be mediated with high levels of collective efficacy (Sampson, Raudenbush, & Earls, 1997). Although these perspectives encompass many forms of crime and disorder, such as loitering and burglary, they also provide useful information when investigating the dynamics between social forces and increased rates of interpersonal violence, such as robbery, assault, and homicide.

In examining violent crime rates, such as the high homicide rate of the United States compared to other similar nations, and even high rates of violence in cities or neighborhoods, the widespread availability and use of firearms have been identified as an additional social force worthy of investigation. Results have been mixed, however. Kleck and Patterson (1993), in an examination of US cities, found no significant relationship between gun availability and homicides. This examination included a number of sociodemographic controls, including poverty, related to the aforementioned approaches to explaining crime. On the other hand, an examination of counties in West Virginia found that both legal and illegal gun availability were related to violent crime, including firearm-related violence and crimes involving the use of knives (Haas, Jefferis, Jarvis, & Turley, 2007). Many other researchers from both criminological and public health perspectives have examined the relationship between gun availability and violence, though no definitive answers have been found. Few argue that there is no relationship, although there is general agreement that a causal link between gun availability and violent crime cannot yet be established. This is for several reasons, including a lack of quality data measuring

gun ownership and availability and meaningful controls at various levels of aggregation, such as incidents, cities, states, regions, and nations (Hepburn & Hemenway, 2004). Other limitations include difficulties in measuring cultural factors that may be conducive to violence (Hepburn & Hemenway, 2004; see also Corzine, Huff-Corzine, & Whitt, 1997), and the possibility of reverse causation, which is the argument that increases in violent crime may lead to more people buying guns for protection, meaning that the relationship between violence and gun availability is a two-way relationship, and the former may not be a direct result of the latter (Kleck, 1997).

In addition to research examining the relationship between social forces, gun availability, and violent crime, other criminological areas are more policy-driven in that they attempt to conduct research in order to reduce gun violence or evaluate programs geared towards this goal. This research usually focuses on “gun enforcement” programs launched in the US in the past several years, including Operation Ceasefire in Boston and Los Angeles, Project Exile in Richmond, New York’s Compstat, the St. Louis Consent-to-Search Program, the Indianapolis Police Department’s Directed Patrol Project, and Atlanta’s Project PACT (Pulling America’s Communities Together). While each program has its nuances, they share common thematic elements. For example, each program focuses on identifying “hot spots” of criminal gun activity and directing intervention efforts to those specific areas. Most of these programs also have community outreach and partnership components in their logic models in addition to interagency cooperation efforts spanning local, state, and federal levels. A common element is what is called the “pulling levers” strategy, which is comprised essentially of “throwing the book” at perpetrators of violence through increased focus and cooperation from law enforcement officials, prosecutors, and the courts. The general theory of “pulling levers” is that you can deter violent behavior by chronic gang offenders by “reaching out directly to gangs, setting clear standards for

their behavior, and backing up that message by ‘pulling every lever’ legally available when those standards are violated” (Kennedy, 1998:3). Oftentimes researchers have been involved in the design and implementation of these programs in order to generate the most plausible possible evaluations of their effects.

Although theoretically promising, the evidence is mixed on whether any of these programs were effective in curbing gun violence. Braga et al. (2001) and Braga and Pierce (2005) found significant reductions in firearm violence for Boston’s Operation Ceasefire, but a re-analysis by Rosenfeld and his colleagues (2005) did not confirm the positive findings. Fagin et al. (1998) found that Compstat had a salutary effect on violent crime but again, Rosenfeld and colleagues (2005) disputed the result. Ironically, Rosenfeld et al. (2005) found strong support for the violence-reductive effects of Project Exile in Richmond but the analysis by Raphael and Ludwig (2003) did not. Despite some claims of success, the efficacy of Operation Ceasefire in Los Angeles and Atlanta’s Project PACT is questionable (Tita et al., 2005; Kellermann et al., 2006). The Indianapolis “Directed Patrol Project” was found to be a fairly cost-effective deterrent to firearm crime (McGarrell, Chermak, & Weiss, 2002), and the St. Louis Consent-to-Search program started out achieving a fairly high level of success, although the effect dwindled after policy changes altered the nature of the program (Decker & Rosenfeld, 2004). The National Institute of Justice published annual reviews of the state of the evidence on these gun enforcement strategies from 2001 to 2006, and the best that can be said is that some programs seem to have been at least marginally effective in some years under some conditions, whereas others were not. It is hard to come to an omnibus conclusion in the face of these contradictory results. One obvious problem is that it is difficult in these kinds of evaluation studies to control all pertinent exogenous factors—generally declining crime and violent crime rates in most cities

from the mid-1990s forward to about 2004, local employment trends, demographic changes, uncontrolled differences in policing strategies, the local economic and political environment (Raphael & Ludwig, 2003; Rosenfeld et al., 2005).

Although it is not uncommon to find similar research in the public health arena, that perspective has a broader focus compared to criminological perspectives. Specifically, public health is often geared towards injury prevention in general, including suicide and attempted suicide and accidental injury or death as well as crime-related injury. Criminological perspectives, on the other hand, typically focus on the latter category of crime-related violence, which is characterized by the intentional harming or killing of another human being.

Public Health Perspectives

The public health approach is centered on epidemiology, which is the identification of risk factors, trends, and causes of health problems (Hemenway, 2004). In terms of seeking to alleviate traumatic injury in society, weaponry can be identified as a vector through which injury is transferred. As a whole, the public health approach does not specifically focus on a singular cause of injury, and interpersonal, self-inflicted, and accidental sources of injury are all given consideration. This has led to many injury prevention programs being developed by the United States government, most notably those in the Centers for Disease Control (CDC) that focus on a variety of forms of violence (e.g., gang, youth, sexual, and self-inflicted violence). Furthermore, public health activists have pushed for a number of other injury prevention strategies focused on firearm-related prevention, including prohibiting types of ammunition available to consumers, mandating safe storage policies, requiring firearm registration, confiscating firearms from domestic violence offenders, and limiting the number of guns one can purchase in a given month (Hemenway, 2004; Kellermann et al., 1991). It should be noted that the present study is

primarily from the standpoint of the criminology perspective, although contributions from the public health arena concerning injury prevention of interpersonal violence are incorporated.

Both perspectives argue for continued and improved research to be conducted on the issue of gun violence, especially regarding firearm violence. Research from both standpoints has levied criticisms against current research dealing with the effects of firearms on violence within society. Specifically, one criticism is that data are often inadequate as they are confined to aggregated measures of firearm use and violence and missing details of incident-level characteristics (Hemenway, 2004; Kleck, 1997). From a public health standpoint, injuries from violence, including firearm-related offenses, result from a combination of many factors, thus providing many opportunities for intervention strategies to reduce injuries (Hemenway, 2004). Given individual and social costs of injuries sustained due to violence, it is important to continue investigations in this area in order to improve understanding of its dynamics.

The Present Study

This research seeks to advance the knowledge of firearm use in violence and the effects of firearms on victim injury by taking advantage of the wealth of information available in NIBRS. Previous research has explored incident-level detail (e.g., Felson & Messner, 1996; Kleck & McElrath, 1991), although this has been difficult in the past due to a general lack of data. These analyses have relied upon piecemeal data gathered from the National Crime Survey (NCS) and the FBI's Supplementary Homicide Reports (SHR). However, with the development of the FBI's NIBRS, information for this kind of research has been made more readily available, and some researchers have capitalized upon it to produce more contextualized, incident-level research products (e.g., Addington, 2007; Chilton & Jarvis, 1999); Libby & Corzine, 2007; Weaver et al., 2004).

In addition to a previous lack of comprehensive data, incident-level research also suffered from a lack of a solid theoretical or explanatory approach. This work is grounded in the Criminal Events Perspective, a position that draws from routine activities theory and the idea of crime as a situated social transaction (Sacco & Kennedy, 1996). Utilizing NIBRS, a fairly comprehensive source of incident-level information, and approaching situational violence from the Criminal Events Perspective, the goal of this research is to provide more knowledge relating to violence using disaggregated measures. Specifically, this research focuses on the likelihood of gun use within in a criminal event as well as the effects weaponry have on the level of injury suffered by victims of crime. The present study examines subtypes of violence within the general context of violence in order to determine the roles that incident circumstances, victim-offender relationships, location, victim and offender demographics, and other incident characteristics, such as the presence of multiple offenders, have in predicting firearm involvement within a crime. Additionally, the impact that weaponry has on the level of injury sustained by a victim of violence is analyzed while controlling for the aforementioned situational and contextual factors. This approach is conducive to examining independent effects of these factors on both weapon involvement and, when a weapon is involved, weapon effects. The ultimate goal is to obtain more insight into the roles that weapons play within violence and to identify the relative importance of risk factors conducive to weapon use and injury within the context of criminal violence in general, not specific subtypes of violence. This will potentially allow for a broader understanding of criminal violence and injury that may be useful in guiding injury prevention endeavors.

CHAPTER TWO: LITERATURE REVIEW

Weapons and Violence

Criminal Violence and Injury

Within the United States, annual social and individual monetary costs of injury sustained due to criminal violence are great. In 2000 alone, there were over 2.2 million victims of interpersonal violence who received medical treatment. Lifetime costs for these injuries, including medical treatment costs and lost productivity costs, were high, estimated to total around \$37 billion. In terms of homicides resulting from interpersonal violence, in the same year, approximately 17,000 cases accrued total social costs of \$22.1 billion (Corso et al., 2007). It should be noted that these estimates have come under some scrutiny and may actually overestimate costs as the calculations do not take into account the possible savings in terms of welfare, unemployment, and Social Security expenditures (Wright, 2009). Nevertheless, when factoring other costs such as the amount of money spent by police in investigating these acts of violence, it is reasonably safe to conclude that there are monetary as well as social costs relating to these events, even if they are not of the magnitude suggested by Corso and colleagues (2007).

Regarding weapon use, according to this same research, the vast majority (77%) of medically treated injuries due to violence involved being struck by or against an object (e.g., hit with a club, smashed into a table). However, most lethal injuries are inflicted with firearms, and firearm-related injury proved most costly, with over \$17 billion lost in total lifetime costs. In comparison, total costs of being struck by or against an object amounted to just over \$9 billion

(Corso et al., 2007). In 1994, the average medical treatment cost of a single gunshot injury was about \$17,000 (Cook et al., 1999).

In addition to these economic costs, other social and individual costs are also accrued. One social cost in particular is the fear of victimization, which may inhibit participation in the social world. Furthermore, violent trauma can also have a psychological impact on the victim, friends and families of victims, and witnesses or bystanders (Rader, May, & Goodrum, 2007). Due to all of the above costs, it is worthwhile to engage in research to understand violence and thereby prevent it.

In response to the costs of violence, many injury prevention initiatives have been developed over the years. Although numerous programs have undoubtedly been developed at local, state, and national levels, some of the most recognizable are violence prevention programs initiated by the Centers for Disease Control and Prevention (CDC), which include child maltreatment, intimate partner violence, sexual violence, youth violence, and school violence prevention efforts (CDC, 2008). Additionally, although crime control has long been a priority for government agencies, the US Department of Justice has set up organizations such as the Office of Juvenile Justice and Delinquency Prevention (OJJDP) to prevent juvenile violence, juvenile involvement in gangs and gang violence, and crimes against juveniles (OJJDP, 2008). Firearm violence has also been targeted by national efforts such as Project Safe Neighborhoods (PSN) and local initiatives such as Boston's Operation Ceasefire and Richmond's Project Exile. Although these latter examples are arguably law-enforcement-centric, the intended end result is the same: a reduction in violence and, by extension, violent injury and fatality, especially those injuries caused by firearm usage.

These programs share a common goal, but also have another aspect in common: they target specific forms of violence (e.g., gang violence, intimate partner violence, firearm violence). While it is impossible to solve all problems at once, these narrow foci may in essence “lose” useful information that would be helpful in the efforts to reduce violence and injury by specifically examining sub-forms of violence in a vacuum rather than examining these sub-forms of violence within the context of violence in general. Granted, it is important to understand the role of gangs in violent behavior, just as it is important to intervene in and prevent intimate partner violence and to reduce the availability of firearms to those who may be prone to engage in violence. However, these individual factors only play a part in violent phenomena. Theoretical and explanatory progress that would be useful from the standpoint of injury prevention is arguably limited if particular types of violence are studied in isolation (Felson & Cares, 2005). Analyses of other situational and contextual factors that may contribute to violence or injuries sustained from violence beyond weapon effects, and these factors must be taken into account in violence research not only to determine independent effects of firearms and other weapons on injury, but also to provide other avenues for potential intervention and prevention efforts to exploit.

Traditional Approaches to Predicting Outcomes of Violence

In earlier research examining weapon differences in case fatality rates, two major perspectives can be found that attempt to explain these differences: weapon instrumentality and offender intent. The former perspective, originally developed by Zimring (1968, 1972), argues that weapons are an inherent causal mechanism that determines whether or not a violent incident will result in the death of the victim, based on the lethality of the weapon used by the offender. The core of this argument is that firearms are more lethal than other types of weapons; therefore,

involvement of firearms in violence independently impacts the chances of violent confrontations resulting in homicide.

On the other hand, prior research conducted by Wolfgang (1958) contended that weapon selection was a result of offender intent. Therefore, the offender that has the highest level of intent to kill their target will opt to use a firearm if one is available. Wolfgang (1958) also argued that in the event that a firearm were not available, then the offender would simply select some other weapon to achieve the same goal. Furthermore, he argued that firearm homicide rates were a reflection of the prevalence of would-be killers amongst gun users.

Zimring's (1968) research found that assaults involving firearms were much more likely to result in death when compared to knife assaults. This led to his conclusion that homicide rates would drop significantly should knives be substituted for guns. Zimring (1968) also concluded that a large proportion of homicide offenders, including gun users, did not have a clear intention to kill their victims and were thus similar to offenders who assaulted victims that survived. These cases typically involved acquaintances or family members involved in an altercation where at least one of the participants had been consuming alcohol, incident characteristics which were considered to be indicative of "ambiguous intent" (Zimring, 1968:722). This research also demonstrated that homicide cases in general were similar to serious assault cases in terms of victim and offender demographics (i.e., higher proportions of males and blacks). Zimring's (1968) conclusion is that victim death is not due to offender intent, but weapon usage. He argued that due to the large proportion of offenders with ambiguous intent and similarities between offender characteristics in both lethal and non-lethal violence, offenders using guns were more likely to kill because of the instrumental lethality of the firearm. Conversely, the use

of a knife to kill requires sustained lethal intent as well as increased expenditure of strength and effort, which are characteristics not found in offenders with ambiguous intent.

Zimring's (1968) contention of the relationship between instrumentality and ambiguous intent has been challenged. The most prominent of these challenges has come from Wright, Rossi, and Daly (1983), who do not accept evidence presented by Zimring that such a large percentage of homicides involve offenders with ambiguous intent. Thus, there is no clear evidence that instrumentality effects are independently more potent than intent in determining differences in weapon-specific incident fatality rates. The authors do, however, acknowledge that instrumentality does play some role in these differences, especially when considering Zimring's (1972) later findings that higher caliber firearms are more lethal than lower caliber firearms, which provided further evidence that weapon choice has an independent causal effect on the chances of victim death. To some degree, instrumentality effects have subsequently been found by other researchers (e.g., Felson & Messner, 1996; Kleck & McElrath, 1991; Libby & Corzine, 2007; Weaver et al., 2004), although interpretations of these findings have varied somewhat, as will be discussed in later sections.

Another perspective worthy of mention stems from the research of Felson and Messner (1996), who contend that chances of victim death within violent incidents may vary depending on tactical considerations by the offender, a perspective that essentially further investigates intent to kill on the part of the offender. This research argues that offenders kill for a number of reasons, including offenders acting to resolve personal injustices committed against them, demonstrating personal power or dominance over another, killing for practical reasons (e.g., money, to get out of a relationship), preventing future retaliation from the victim themselves, or preventing their victim from involving third parties such as law enforcement (Felson & Messner,

1996). The authors argue that, within homicides, the intent to kill centers around avoiding costs (or, conversely, producing benefits), and the intent may be premeditated or may arise during the course of an incident. In this latter case, the authors argue that in cases where intent does not seem apparent, it is still there, although it is produced as a result of irrational or hastily made decision-making processes (Felson & Messner, 1996). The authors also find increased lethality of incidents involving firearms, although they attribute the finding to firearms acting as a facilitator to an offender's lethal intent.

Wells and Horney (2002) also investigated effects of instrumentality and self-reported offender intent to do harm. They found that instrumentality effects continued to exist even when controlling for offender intent. Specifically, firearms were more likely to produce a serious injury independent of the effects of intent to inflict harm on the part of the offender. However, this research used offender self-report data, so the measure of victim injury is essentially a measure of the offender's perception of how much injury they managed to inflict.

Research findings produced in examining weapon instrumentality, offender intent, and tactical considerations have provided a great deal of understanding of the dynamics of potentially lethal violence, as will be discussed in detail throughout the next two subsequent sections. However, in the view of this researcher, the instrumentality vs. intent debate is inherently limited by the lack of detailed information within data sources even remotely resembling a degree of representativeness. As stated by Felson and Messner (1996), intent may be either premeditated or arise out of the heat of the moment, a difference that cannot be determined in any existing datasets containing homicide offenses, which mostly consist of law enforcement data on murders and non-negligent manslaughters. In legal terms, intent, or malice aforethought, is what differentiates murder from manslaughter, at least in regard to most criminal homicides. Aside

from detailed qualitative endeavors, it would be impossible to determine the level of intent from official records, as that would only reflect results of adjudication based on what prosecutors were able to prove in court, or the type of offense an offender was sentenced for as a result of plea-bargaining. To settle this debate, developing a clear conceptualization and quantification of level of intent would be an important factor, as would obtaining information on the types of weapons readily available or on-hand and how long it took for the offender to obtain the weapon used. Additionally, to fully understand the phenomenon, these detailed data would have to be available for both lethal and non-lethal incidents. Furthermore, simply looking at assaults obscures even more information related to intent. For example, a disagreement between two friends may indeed become heated and result in one individual attempting to harm the other, but these circumstances may still be less likely to involve lethal intent compared to two drug dealers or gang members vying over territory. Finally, incident and medical data pertaining to the extent of injury suffered by the victim, such as number of wounds inflicted, wound location(s), or whether or not the offender even hit their mark would be useful to determine relationships between intent and incident outcome. These are but a few of the problems that could be influential in examining the relationship between intent, instrumentality, and the outcome of violent interactions.

Research from the perspectives discussed above has produced evidence that both weapon instrumentality and offender intent may be influential in predicting the outcome of potentially lethal violence, although research in both areas is not without limitations. Furthermore, the researchers typically present their perspectives as being at odds with each other. However, perhaps both instrumentality and intent influence the outcome of violent interactions, as suggested by Phillips and Maume (2007), who found a significant relationship between guns and violence, although the strength of the relationship decreased after excluding cases with

intentional serious violence and controlling for the offender's level of anger. Regarding intent and outcome, Felson and Messner (1996) acknowledge that some offenders intend to kill their victims but do not succeed, while some offenders have no intent to kill but inadvertently do so. Thus, in addition to instrumentality and intent, there may be other situational and contextual variables that influence the outcome of potentially lethal violence, such as offense circumstances, victim-offender relationship, availability of medical resources, etc. It is this conceptualization that is the next topic of discussion.

The Criminal Events Perspective

Prior to the work of Cohen and Felson (1979) and Luckenbill (1977), few studies focused on the multiple dimensions of criminal encounters. Wolfgang (1958) was among the first to conduct research on a number of variables involved in violent interpersonal encounters beyond victim and offender characteristics. He included additional analyses on victim-offender relationships, alcohol use, incident location, types of weapons used, and circumstances of the encounter (Wolfgang, 1958). His analysis, however, focused solely on homicides and, while it was informative on situational characteristics of this crime, no comparisons could be made regarding the similarities and differences between homicide and other crimes.

It is widely recognized that Cohen and Felson's (1979) routine activities theory is the first theoretical approach that considers a criminal incident as an event, with offenders and victims as participants. Essentially, this theory proposes that, in order for a crime to occur, a combination of a potential offender, a suitable target, and the lack of a capable guardian must occur at the same place and same time. While this approach emphasizes the role of these three components and their interactions with each other within criminal activities, it also downplays the role of criminal motivation that often appeared in prior criminological theories, as even the most motivated

offender will not commit a crime if there is no suitable target present or there is an abundance of capable guardianship.

Research using routine activities theory has primarily been focused on analyses of occurrences of distinct crime types that were actually completed and not events that transpired between victims, suspects, and potential guardians during the criminal encounter that could possibly alter the outcome (Meier, Kennedy, & Sacco, 2001). For example, the approach assumes that, retrospectively, a suitable target, a potential offender, and the lack of a guardian coincide to produce a robbery event. It does not, however, go into the level of contextual detail to explain why some would-be robberies are not successful due to factors such as an offender not being able to overcome victim resistance or not noticing the presence of a capable guardian, such as a bystander who intervenes in the incident or calls for help. Granted, in this instance, there is not a juxtaposition of the three elements required for a crime to occur, because the target may not turn out to be suitable or capable guardians are indeed present. Thus, routine activities is primarily concerned with the end result of a criminal event and the essential prerequisites needed to achieve that end — not with the situational elements of the event that unfold over the time of interaction between victim, offender, and possibly guardian which produce the end result.

Two years prior to the publication of Cohen and Felson's (1979) seminal article on routine activities, Luckenbill (1977) investigated situational factors pertaining to homicides by drawing from Erving Goffman's theories of social settings and social interactions. In this work, Luckenbill (1977) posited that the outcomes of violent encounters are dependent on situated interpersonal interactions occurring within a social transaction. He found that violent encounters consisted of multiple participants — the offender, the victim, and sometimes bystanders. These participants are instrumental in setting the stage for the encounter. Thus, he argued, criminal

homicide is not a one-sided event with the victim assuming a passive role, which is an easy assumption to make if one is only involved in research solely focusing on the outcomes of lethal violence. Additionally, he found that violence is often used as a tool to resolve questions of character and sometimes that violence escalates to the point where one of the participants in the encounter is killed. In these situations, it is possible that the declaration of who is the victim and who is the offender is only made because one participant in the violent interaction died at the hands of the other participant. Finally, Luckenbill (1977) found that bystanders can be somewhat of a “wild card,” who may either act to prevent the escalation of violence or encourage the use of violence to settle disputes. Third parties may also act as incapable guardians, unable to prevent an escalation of violence even if they would like to do so (Decker, 1995). Although both Cohen and Felson (1979) and Luckenbill (1977) incorporated several situational variables unexplored in previous investigations, neither presented their research in a way to suggest a new theoretical approach to studying crime.

The criminal event perspective draws from previous research that investigates situational and contextual elements of criminal activity, such as the work of the aforementioned authors. Essentially, this approach treats crime as having an episodic quality that unfolds over time, and during the criminal episode, multiple factors influence both the occurrence and outcome of a criminal encounter (Meier, Kennedy, & Sacco, 2001). Analyses of criminal events incorporate the elements of offender, victim, and situation, factoring in the social and interpersonal circumstances of the criminal event before, during, and after its occurrence, as well as the social context of the crime. As mentioned previously, focusing solely on the outcome of an event obscures the underlying social interaction — an armed criminal attempting to persuade what appears to be a suitable target to give them their valuables may be met with forceful resistance

which the robber trumps with lethal violence. Within the limitations imposed by data availability, this perspective encompasses all factors relevant to the occurrence of the crime that impact how the event plays out, including the role weapon usage plays in the social transaction, rather than considering a criminal incident as one involving an aggressive offender acting toward a passive victim (Meier, Kennedy, & Sacco, 2001).

Previous research using this perspective has incorporated a variety of situational and contextual variables. An analysis of drug-related homicides found that “homicide events involving friends were nearly 23 times more likely to be drug-motivated events compared to those involving strangers” (Varano et al., 2004, p. 386), demonstrating the impact of victim-offender relationships and drug involvement on some forms of serious violence. Additionally, lifestyle choices related to involvement in drug use and drug markets increase the risk of victimization (Varano et al., 2004). In an examination of criminality across the life course, Kazemian and LeBlanc (2004) found that patterns of perpetration are more dependent on situational and contextual variables rather than individual predispositions. In other words, crime is often situational and unplanned, and criminal motivation is formed when an opportunity is presented (Wright, Logie, & Decker, 1995). Finally, characteristics of different locations, such as schools, neighborhoods, and families, may interact, increasing the likelihood of a criminal event and having differential effects on crime and delinquency (Anderson & Meier, 2004). While several of these components and findings are obviously compatible with a routine activities approach, the criminal events perspective maintains that the intended and actual outcomes of crimes are dependent on the stability of the situation and the factors initially present and/or additional factors that may be introduced as the criminal episode unfolds.

Although not technically researched as part of the criminal events perspective, the lethality approach to understanding homicide is worth mention in this section. This approach expands upon the findings of Zimring (1968) showing that there is considerable overlap of most variables between homicides and aggravated assaults (e.g., disputes between family and/or acquaintances, involvement of alcohol, disproportionate involvement of males and blacks). Obviously, the biggest difference between the two crimes is that, within a homicide, the victim is killed. The lethality approach contends that improvements in medical technology and the speedy deployment of medical intervention are crucial in determining whether or not a victim is killed. Taken together, the body of literature from this perspective has found that increases in the availability of medical intervention and improvements in medical technology have resulted in a reduction in homicide rates relative to rates of assault, as well as an artificial inflation of aggravated homicide rates due to the number of lives saved (Doerner, 1983, 1988; Harris et al., 2002). In other words, even while the absolute number of homicides may increase, the rate at which they increase is disproportionately lower than the rates of increase of other potentially lethal violence that did not result in the death of the victim. Researchers from this perspective also contend that to fully understand serious, potentially lethal violence, studying homicide alone is not enough (Harris et al., 2002). Given these factors, medical intervention can be seen as a situational variable affecting the outcome of a violent encounter, thus making the lethality approach compatible with the core tenets of the criminal events perspective.

Weapon Use in Crime

Since the research of Wolfgang (1958), which is arguably one of the first scientific inquiries into the contextual elements of serious violence, the use of weaponry has been an important focal point in violence research. In terms of contemporary studies, variables used to

identify offender use of weaponry typically fall in the following categories: hands, fists, or feet (i.e., unarmed); blunt objects, which essentially includes anything that can be used as a club; and knives or cutting instruments, which conceivably captures items ranging from actual knives to machetes, sickles, chainsaws, ice picks, and broken bottles. Finally, firearms have been a focus of violence researchers, especially the use of handguns in serious violence (e.g., Felson & Messner, 1996; Kleck & McElrath, 1991; Weaver et al., 2004; Wolfgang, 1958).

In the research conducted by Wolfgang (1958), which utilized data gathered in Philadelphia from 1948-1952, roughly 16% of homicide offenders committed their crimes while unarmed. Offenders used blunt objects almost 9% of the time. Knives and cutting instruments were most common, with about 36% of offenders using those types of weapons. Firearms were used in about 33% of the homicides, with about 27% of the total offenders using revolvers and nearly 6% of the total offenders using shotguns (Wolfgang, 1958). In examining current trends, the picture of weapon usage has changed quite considerably. According to 2007 SHR data compiled by the FBI, 68% of homicides involved the use of a firearm, while only 12% involved knives or cutting instruments, and about 6% involved unarmed offenders. Just over 14% of homicides involved other or unknown weapons, with blunt objects being a subset of this category (FBI, 2007).

Obviously, one would expect differences in data between a major city and national statistics, but these differences are beyond what would have been expected. It should be noted that Philadelphia is located in the Northeast, a region of the US that has traditionally had lower levels of gun ownership (Hemenway, 2004; Kleck, 1997). However, ownership of handguns, which are the most common type of firearm found in homicides, even in Wolfgang's (1959) research, has been increasing over the years (Hemenway, 2004). Additionally, although long-

term trend data are not available at the national level, relatively recent research using emergency room data has indicated that bullet caliber has been increasing, at least between the years of 1998-2003 (Adibe, Caruso, & Swan, 2004), a finding mirrored in Chicago starting in the late 1980s (Block & Christakos, 1996). An additional explanation for the trend of increased firearm involvement in lethal violence is the proliferation of semi-automatic handguns in recent decades, the vast majority of which have a higher capacity, higher rate of fire, and in many cases, use ammunition of higher caliber than traditional six-shooters. Unfortunately, other than the aforementioned research on increasing size of bullet caliber, no research has scientifically tested this hypothesis. Nevertheless, examining the role of firearms in serious violence within contemporary society has become a necessity.

While it is safe to assume that the introduction of a firearm into a volatile interpersonal situation can have dramatic effects on the outcome, little is known about the incident-level characteristics involving the use of a firearm. Furthermore, while the topic is discussed at greater length later, it is important to note that firearms can be used in different roles within a criminal incident. For example, one obvious use of a firearm is to attack and likely kill an opponent. However, a firearm may also be used for intimidation purposes, for example, an armed robber threatening a victim with a gun in order to reduce the possibility of victim resistance and a violent interaction (Kleck & McElrath, 1991; Wright & Rossi, 1986). Furthermore, firearms may be used to facilitate an attack by a physically weaker offender against a physically stronger target (Cook, 1982). Finally, they can be used to defend against or ward off a criminal attack (Kleck & Gertz, 1995).

One aspect directly pertaining to whether or not one uses a gun is the availability of firearms. Recent estimates suggest that roughly 35% of American households own a firearm. In

terms of gender, about 40% of adult males and 10% of adult females own a firearm (Smith, 2001). Whites have been found to be more likely to own guns than blacks, although this racial difference decreases when handguns only are concerned. This is likely due to blacks living in urban areas where gun ownership in general is lower (Kleck, 1997). Gun ownership, including handguns, is more prevalent in rural areas compared to urban areas, and racial differences in ownership disappear in rural areas (Kleck, 1997). As far as geographic region is concerned, firearm ownership is higher in the South and the Rocky Mountain regions. Ownership is lowest in the Northeast (Smith, 2001). According to survey results, middle-aged persons, married individuals, middle- and upper-income people, and persons with working-class or manual jobs are also more likely to own handguns compared to other individuals with lower income (Kleck, 1997). However, as discussed by Hemenway (2004), surveys addressing gun ownership can hypothetically be problematic for several reasons, one of which is that respondents may be hesitant to admit they own a firearm, especially if that firearm is owned illegally.

Regarding gender patterns of gun ownership, Young (1986) investigated the issue within a situational and subcultural context. In an analysis of firearm ownership by region and urban/rural contexts, he found that male firearm ownership was common in all areas due to male socialization into firearm use. Women were less familiar with guns due to socialization. However, in rural areas and in the South, female socialization into gun use was more common, and higher levels of firearm ownership by women were found in those areas (Young, 1986). Thus, the greater degree of female socialization into firearm use in the South and rural areas seems to be at least partly responsible for why general gun ownership is higher in these geographic settings. In general terms of gun ownership by women, although the NRA and Smith & Wesson had previously claimed an ownership boom of firearms amongst women, subsequent

research found that female gun ownership had not significantly changed over time (Sheley et al., 1994; Smith & Smith, 1995). Other research has also found that predictors of gun ownership, including gender, have not significantly changed since the mid-1950s (Wright, Rossi, & Daly, 1983).

Although “anti-gun” activists often attribute the high rates of violence in the US, especially lethal violence, to high levels of firearm ownership, very few gun owners use firearms for criminal purposes. Furthermore, even though it often seems that the media image may indicate otherwise, not all violent crimes involve the use of firearms. According to the Bureau of Justice Statistics (BJS, 2005), roughly nine percent of nonfatal violent crimes in the United States were committed with a firearm. This figure, derived from NCS data, includes incidents of rape, sexual assault, robbery, aggravated assault, and simple assault. When referencing official data, in 2006, 68% of all criminal homicides, 42% of robberies, and 22% of aggravated assaults were committed with the use of a firearm (BJS, 2005).

Other than research cited above, little is known about incident-level likelihoods of violent crimes involving the use of a firearm. As will be discussed below, the introduction of a firearm into a criminal event has a large impact on how it unfolds. Thus, further investigation into use and nonuse of firearms in crime is warranted for both further understanding of criminal events, as well as for the development of public policy concerning the reduction of serious violence and injury. This is especially true given the evidence of a relationship between the high levels of firearm ownership and firearm-related crime, especially homicide, within the United States. However, this relationship does not imply causality, as other factors may impact firearm use in crime and weapon effects that impact the outcome of criminal violence (Hemenway, 2004; Hepburn & Hemenway, 2004; Kleck, 1997).

Injury and Lethality of Criminal Firearm Use

One aspect of violence that has received a fair amount of attention in the literature is the effects that firearms have on the outcome of a criminal incident, specifically relating to injury or death of the victim. From 1993-1997, the BJS (2000) reports that 28% of all serious nonfatal violent victimizations involved the use of a firearm. Only four percent of all victimizations resulted in an injury, with only one percent resulting in a gunshot wound. Relatedly, within incidents where the offender shot at their victim, only about 18% of the incidents involved the victim suffering a gunshot wound (Zawitz, 1996).

Although not explicitly framed in the criminal events perspective, Kleck and McElrath (1991) offered an investigation into firearm effects on criminal episodes. The authors found that within incidents where the offender was armed with a firearm, assaults were less likely to result in a physical attack. In cases where an attack occurred, the presence of a firearm reduced the probability of injury. However, in the event that an injury did occur, firearm use increased the probability that the victim would die. Kleck and McElrath's (1991) research controlled for the effects of offender age, how many years of school the victim completed, whether or not the victim was married, whether or not the victim held a gun-carrying occupation, and assault circumstances. Circumstances of violent attacks, including robbery, rape, and burglary, were also controlled.

In terms of robbery, the findings of Kleck and McElrath (1991) reinforced contentions of Cook (1979), who found that offenders tend to use firearms in order to more effectively and efficiently coerce targets of low vulnerability into surrendering their valuables. Other weapons, Cook (1979) found, such as knives or blunt objects, or offenders going unarmed, were effective against vulnerable targets such as the elderly or intoxicated individuals. However, in order to

prevent victim resistance from targets of low vulnerability (e.g., physically healthy adult males or groups of multiple people), and keep the interaction between victim and offender as brief as possible, robbers would rely on the high lethality of firearms to give them more initial power over victims so that violent confrontation and potential injury would be avoided. These findings are further reinforced by the research of Wright and Rossi (1986).

Felson and Messner (1996) also investigated the effects of firearm use on criminal event outcomes by examining tactical reasons why an offender would be more likely to kill a victim. The authors found that compared to other incidents, crimes in which a firearm were used were more likely to lead to the death of the victim, even when other event characteristics such as crime circumstances, presence of multiple offenders, victim-offender relationship, and victim and offender demographics were controlled. The authors also found that victims were more likely to be killed in assault circumstances when compared to robbery and rape. Victims were also more likely to be killed if male, black, or alone, if the victim and offender had strong relational ties, and if the victim could identify the offender. Felson and Messner (1996) concluded that the reasons for killing were due to tactical considerations within the incident, such as eliminating the possibility of violent victim retaliation or the victim reporting the offender to the police. The authors also suggest that firearms facilitate the lethal intent of assault offenders, assuming that they are more likely than other types of offenders to intend to kill their victims. Regarding comparisons of serious and minor injuries, effects of independent variables were weaker compared to their effects in comparing lethal to nonlethal offenses. Offender use of any type of weapon increased the likelihood of a more serious injury. Serious injury was also more likely when the offender is black, the incident is a pure assault, and when the victim and offender are strangers (Felson & Messner, 1996).

Little research has been conducted with a specific focus on how firearms impact the outcome of rape and sexual assault. Using National Violence Against Women data, Brecklin and Ullman (2002) examined the effects of a number of variables on rape incidents, but primarily focused on alcohol. In this examination, weapon use by the offender significantly increased the chances of the victim suffering an injury that required medical care. Weapon use had no significant effect on whether or not the rape was completed or on the likelihood that the victim would suffer a minor injury. Offender alcohol consumption was also significantly and positively related to rape completion. Alcohol consumption by the offender also increased the chances of a rape resulting in victim injury and slightly decreased the chances of the victim suffering an injury requiring medical care, but these differences were not significant. Previous research by the same authors using National Crime Victimization Survey (NCVS) data found no significance of weapon usage on the likelihood of a rape being completed, resulting in injury, or producing an injury serious enough for the victim to seek medical care (Brecklin & Ullman, 2001). These studies only used a broadly defined variable of any weapon usage, however, and did not look at possible variations between different weapon types.

The first incident-level examination of violent interpersonal transactions specifically applying the criminal events perspective was conducted by Weaver and colleagues (2004) in an analysis of aggravated assault and criminal homicide from NIBRS data. The authors also used a lethality approach, examining situational and contextual factors that increase the likelihood of a violent incident resulting in the death of the victim. A number of variables were examined, including victim and offender age, sex, and race; victim-offender relationships; incident circumstances; offense locations; and weapons used in the incident. It was found that violence occurring during another felony-related activity or drug deal greatly increased the chances of

victim death. Males were also found more likely to kill and be killed, although no effect of race was observed. Familial relationships between victim and offender also significantly increased the probability that the victim would die.

As an extension of the work of Weaver et al. (2004), Libby and Corzine (2007) provided another application of the criminal events perspective to NIBRS aggravated assault and homicide data. In this research, firearm types were broken into the categories of handguns, rifles, and shotguns, and other situational and contextual control variables were reconfigured. Shotguns were found to be the most lethal of firearm types, closely followed by handguns. Regarding incident circumstances, criminal events arising out of other crime-related activity or intimate partner altercations were more likely to result in the death of the victim compared to arguments. Incidents occurring in locations where anyone can gain access, such as retail stores, were more likely to be lethal compared to incidents occurring in a residence. Once again, males were both more likely to kill and to die, but no racial effect was found. Juveniles were the least likely to be killed compared to age groups of older victims, but the age of the offender did not impact incident lethality. This work also examined the comparative lethality of automatic firearms and their semi-automatic counterparts, but no significant difference in lethality was found. As a further extension of this aspect of the work, it was found that automatic firearms are more likely to produce more than one victim of lethal and serious but nonlethal violence, even though they are not significantly more likely to be related to the death of the victim when compared to semi-automatic firearms (Libby & Wright, 2009).

Although the above works provided insight into the contextual elements of criminal events, they are not without limitations. Weaver and colleagues (2004) and Libby and Corzine (2007) specifically focused on factors predicting lethal versus nonlethal outcomes of criminal

violence. Libby and Wright (2009) examined variables that impact the likelihood of multiple victims being present within violent incidents, including homicide and aggravated assault. None of these incorporated levels of injury into their research design.

The work of Kleck and McElrath (1991) and Felson and Messner (1996) did, however, examine variables relating to levels of injury. This research also had limitations due to the sources of data available at the time. In these studies, the authors utilized a selection algorithm to determine what assault cases from the NCS would be included in the analytic sample. This is presumably due to the multitude of assault offenses of varying degrees of intensity present within the NCS. With the availability of NIBRS, it is possible to differentiate between the offenses of intimidation, simple assault, aggravated assault, and homicide. Thus, one can select only the most severe cases — aggravated assault and homicide. Furthermore, with the comprehensive information found in NIBRS, it is possible to include more incident-level situational and contextual variables in an analysis than are available for nonlethal offenses in a combined NCS and SHR dataset, as these details are found for all offenses contained in NIBRS. Thus, the availability of NIBRS is useful in pursuing the line of inquiry relating to how weapons impact the development and outcome of criminal events while controlling for a number of other situational and contextual influences. In sum, compared to data used in previous research, NIBRS is a more robust source of information.

The Present Study

This research seeks to explore further the role of situational and contextual variables on the outcome of criminal encounters, as per the criminal events perspective, although a primary focus will be on the role of firearms in violence. One area of investigation will be on situational and contextual variables that may impact firearm use by an offender. Another area of interest is

the impact that firearms have on the level of injury sustained by the victim within the offenses of aggravated assault, robbery, and forcible rape.

While the primary focus of this research is on weapon usage, especially how firearm usage impacts violence, a number of control variables will be included in the analysis. These variables include incident characteristics, location type, victim-offender relationship, victim and offender demographics, and whether or not the offender was suspected of being under the influence of drugs and/or alcohol. Geographic factors that may impact the dependent variable will also be controlled, specifically whether the incident occurred in a rural or urban area and the region where the incident took place.

Although this research seeks to explore situational and contextual effects relating to weapon use and injurious outcomes, a number of research questions are raised:

- Are incidents involving black offenders likely to increase the chances of a firearm being involved in a criminal incident? Blacks have long been disproportionately represented in the population of homicide offenders. However, previous research has indicated that offender race is not a significant predictor of whether or not a violent incident will result in a homicide (Weaver et al., 2004; Libby & Corzine, 2007). It may be that black offenders are more likely to use firearms, which do significantly increase the lethality of violence (Felson & Messner, 1996; Weaver et al., 2004; Libby & Corzine, 2007).
- In cases where females are offenders, are incidents involving strangers significantly more likely to involve the use of a firearm? Generally speaking, little is known about firearm use by females within the context of criminal violence. In terms of violence in general, it has been shown that about 15% of female offenders use a firearm, knife, or blunt object. Within murders, however, firearms are used 53% of the time. Females also tend to

commit violence against people known to them (BJS, 2000), although weapon choice dependent on other situational variables is largely unknown within the context of violence in general. To date, no known analysis of the likelihood that an incident with a female offender will involve the use of a firearm has been conducted, although it has been found that, in an examination focusing specifically on robberies, females tend to make use of firearms when targeting male victims (Miller, 1998). It is hoped that addressing these questions about firearm use by females will add to the limited amount of scholarly work examining female aggression (Kruttschnitt & Carbone-Lopez, 2006).

- What are the effects of weapons, specifically firearms, on the level of injury a victim sustains in a violent confrontation? As mentioned previously, Kleck and McElrath (1991) essentially found that firearms acted to prevent injury, but when injury did occur, it was more likely to be lethal. However, this research used a combination of the SHR and NCS. As discussed below, more information is available in NIBRS that may reduce potential left-out variable error present in previous research using these combined datasets. Basically, this research seeks to determine if the findings of Kleck and McElrath (1991) are replicated when using a more comprehensive dataset.

CHAPTER THREE: DATA, MEASURES, AND METHOD

Data

This research utilizes data from NIBRS collected by the FBI from the years 2003 to 2005. Incident reports are assembled voluntarily by law enforcement agencies across the country and compiled by the FBI. This data set is a useful resource that provides a substantial amount of information compared to the Uniform Crime Reports and Supplementary Homicide Reports (Dunn & Zelenock, 1999). Due to the incident reporting format of NIBRS, entries can be linked to corresponding offense, property, victim, offender, and arrestee details, providing comprehensive information about crimes that allow for the examination of the effects of demographic and contextual variables in criminal incidents.

Perhaps the most serious limitation of using NIBRS data is that it has limited representativeness. As mentioned above, reporting to NIBRS is a voluntary activity undertaken by law enforcement agencies, and is thus not nationally representative (Weaver et al., 2004). Specifically, currently reporting jurisdictions are under representative of cities and urban areas, likely due to the fact that these jurisdictions must already handle a large volume of cases and reporting to NIBRS would require even more paperwork and time devoted to developing data reporting procedures that meet NIBRS criteria. As of 2005, 13 cities of a size over 250,000 reported incident data to NIBRS, compared to 68 cities with a population of more than 250,000 that report to the UCR (Faggiani, 2007). Therefore, NIBRS data are not usable to obtain rates of offenses or the distribution of victim, offender, or incident characteristics that can be generalized to the national level (National Research Council, 2005).

This limitation of NIBRS data should not be as important for the current analysis of criminal incidents, however. One of the primary concerns of this research is what factors impact weapon usage, specifically whether or not a firearm was used in an incident. Our other concern is the level of injury sustained by the victim in a violent interaction, a factor that should be relatively constant across rural and urban areas when other variables are controlled. That is, if handguns are more lethal in violent encounters in rural areas, the same expectation would occur for similar events in urban ones.

On the other hand, there are multiple advantages of NIBRS data. Uniform Crime Reports and Supplementary Homicide Reports do not provide comprehensive information regarding offenders, victims, and incident details, with the exception of murder offenses (Riedel & Welsh, 2002). The National Crime Victimization Survey (NCVS) also does not have the type of detail that NIBRS does in terms of situational and contextual variables or offense severity; for example, one cannot distinguish between intimidation, simple assault, and aggravated assault using NCVS data or determine if the violence occurred out of an argument or crime-related circumstances such as a drug deal gone bad. Furthermore, as the NCVS is a survey, it is obviously impossible to capture homicide offenses. Although previous research has combined NCVS and SHR data (e.g., Felson & Messner, 1996; Kleck & McElrath, 1991), due to the inability to determine severity or how potentially lethal a violent encounter is, this approach might risk having validity or reliability issues in addition to lacking situational and contextual variables. Since NIBRS allows researchers to link offender and victim characteristics with incident details, such as victim-offender relationship, incident circumstance, location, and weapon usage for the offenses of murder/non-negligent manslaughter, aggravated assault, robbery, and rape/sexual assault, NIBRS data are an invaluable tool in incident-level research.

For the present study, NIBRS data were obtained from the Interuniversity Consortium for Political and Social Research, compiled to include only incidents of homicides and aggravated assaults involving a single victim and offender. The incident is the unit of analysis.

Measures

Dependent Variables

Firearm use. For the first series of analyses, three models were constructed for determining weapon use. Within these models, the dependent variable is a dichotomous indicator of weapon use. The first model examines no weapon use (coded as “0”) vs. any weapon use (coded as “1”), while the second model investigates non-firearm weapon use (coded as “0”) vs. firearm use (coded as “1”). These models contain all variables of interest as well as the situational and contextual variables discussed below. The second series of analyses include the same two models with the same dependent variables, but are separated by gender of offender, yielding different models for male and female offenders. This is to determine gender differences in firearm use; as of now, it is commonly known that firearm use is more often found in male offenders, but little is known as to why this is the case or under what circumstances females are likely to use firearms. For the third and final series of analyses that investigate injury severity, firearm use is a dummy-coded category located within the weapon use subset of variables.

As will be discussed below, weapon coding in NIBRS consists of several classifications that also include other weapons and unknown weapons as distinct categories. In the first and second series of analyses, an entry of “other weapon” in NIBRS will be included in the above categories of “any weapon” and “non-firearm weapon.” Unknown weapons, however, will be excluded from the analyses since the nature of the variable prevents a determination of whether

the offender was unarmed or used either a firearm or any other type of weapon. Similarly, incidents with missing data for the weapon type category will also be excluded.

Injury Severity. In the second series of analyses, the dependent variable was created to represent the level of injury that the victim suffered. Categories for this variable include no injury, nonlethal injury, and lethal injury (i.e., the incident resulted in a homicide). NIBRS data include an injury variable for victims of violence with discrete injury types (e.g., severe laceration, bruising, broken bones). Some of these categories can obviously fall into either minor or serious injury, but others can be difficult to classify and recode. The NIBRS category for injury does not originally include an indicator of lethality, so the lethal injury category for the composite injury severity variable consists of an indicator that the incident in question is reported as a homicide. It should be noted that nonlethal incidents with missing injury data will be excluded from analysis.

Independent Variables

Race. In the first series of analyses, the first primary independent variable used to predict the use of a firearm by the offender is race. As discussed above, previous research has produced conflicting findings as to whether or not race is a predictor of victim death in violent situations, with Felson & Messner (1996) finding a significant effect while later research (e.g., Libby & Corzine, 2007; Weaver et al., 2004) did not. Nevertheless, blacks have consistently been disproportionately represented within the population of homicide offenders, which may indicate an increased likelihood that black offenders use more lethal weapons, such as firearms, in violent conflicts. Part of the focus of the first series of analysis is to determine if this is the case. In the present study, race was constructed as a dummy variable with the categories of white, black, and other, the latter representing Native Americans and Pacific Islanders. Whites are used as the

contrast category, with most of the analytical discussion focused on differences between blacks and whites.

Gender. In the first and second series of analyses, the second primary independent variable examined to predict offender firearm use is gender. As mentioned previously, it has been established that males tend to own more firearms in general and also constitute the vast majority of criminal offenders who arm themselves with a gun. Little is known, however, about the situational and circumstantial effects within an incident that may make firearm use by offenders more likely. Less is known about female gunslingers. This part of the analysis will focus on these issues to bring more information about firearm involvement in crime to light. Note that in the first series of analyses pertaining to firearm use, three models will be estimated for multivariate analyses. The first series will include gender constructed as a series of dummy variables with the categories of male, female, and unknown. Males will serve as the contrast category. The second series estimate the same multivariate models as the first series, but these models will be disaggregated to analyze weapon use amongst males only and females only, producing a total of six models. For the third series of analyses pertaining to injury level, gender of victims and offenders will follow the same dummy-coded classification scheme as the first series of analyses.

*Weapon*¹. Within the second series of analyses, the primary focus will be on the effect that weapons have on the level of injury a victim sustains. Of particular concern is the effect of

¹ It should be noted that the variable indicating weapon use technically reflects weapon involvement within an incident and not necessarily actual weapon use by the offender. For example, an offender may have a weapon readily accessible on their person but not feel the need to wield it in order to accomplish their goal within an incident. Furthermore, it should be noted that the terms “armed” and “unarmed” do not reflect premeditated arming of a weapon; offenders may utilize objects found at the scene of an incident without putting thought into arming themselves before engaging in a particular conflict. For the sake of simplicity, language such as “unarmed offenders” or “offenders armed with firearms” will be used to avoid convoluted sentences, though the reader should be cautioned that the weapon involvement variable does not directly measure actual offender weapon use.

offender firearm use on victim injury. In addition to firearms, effects of knives/cutting instruments, blunt objects, other weapons, and unknown weapons will be examined. Other weapons consist of weapons originally coded as “other” in NIBRS, as well as weapons such as motor vehicles, explosives, poison gas, etc. All weapon type variables will be compared to a contrast category of unarmed offenders. Note that this variable is essentially used as the dependent variable in the first and second series of analyses that serve to predict weapon usage, so the above information is only pertinent to the third series of analyses concerning injury severity.

Incident location. The location of the incident will be controlled. The categories for this variable are as follows: outdoors, residence, open access, restricted access, and other/unknown locations. Open access locations are simply indoor locations that anyone can visit — supermarkets, retail stores, restaurants, etc. Restricted access locations are also indoor locations, but have some sort of restricted clientele that they cater to, or have a gatekeeper of some sort that monitors access. Examples include office buildings, college campuses, bars, and nightclubs. Outdoor locations cover natural areas such as parks, fields, and streams, but also locations such as parking lots and roads. Other/unknown locations as reported in NIBRS do not lend themselves to very detailed interpretation as it is essentially a catch-all category for “everything else,” but the variable was included in order to preserve data in multivariate analyses. The contrast category for incident location is residences.

Victim-offender relationship. The interpersonal relationship between victim and offender was recoded into the following categories: stranger, acquaintance, family, current or former intimate partner, and other/unknown. Stranger relationships were designated as the contrast category.

Incident circumstance. Designation of incident circumstance variables was a somewhat complex task ultimately achieved through creating a composite variable with categories consisting of whether the incident was a robbery or sexual assault. For aggravated assaults, circumstances were split into further subcategories of circumstances. Within NIBRS, aggravated assaults and homicides have their own circumstance variable. This variable was collapsed to form the following circumstance types: argument, romantic conflict (originally termed “lovers quarrel”), and other crime/deviance-related circumstance (i.e., drug deals, gangland disputes). As a result, the composite recoded circumstance variable consists of the following circumstance types: robbery, sexual assault, argument, romantic conflict, and other crime/deviance-related (e.g., drug deals, gang disputes). A category reflecting other/unknown circumstances will also be included to preserve incident inclusion in the regression models.

For the third series of analyses, which predicts injury severity, incidents with a lethal outcome (i.e., homicides) will have a recoded circumstance variable as well. For assault-homicides, the variable will use a recoded version of the incident circumstance described above (argument, romantic conflict, crime/deviance-related). Indicators of whether the homicide was robbery-related or sexual assault-related will be determined by examining the other offenses concurrent to the homicide (NIBRS allows for up to 10 offenses to be recorded within an individual incident). Thus, if the incident is coded as a homicide but the additional offense variables show that a robbery occurred as well, the composite circumstance variable would indicate robbery as the circumstance of the homicide.

Offender use of drugs and/or alcohol. A dummy variable was constructed to indicate whether or not the offender was under the influence of an intoxicating substance at the time of the incident. This variable was simply recoded as a “1” if the incident report indicates the

offender was under the influence of drugs and/or alcohol and recoded as “0” if they were not reported as being under the influence.

Urban vs. rural. Some indicator of whether or not an incident occurred in a rural location or an urban location will be incorporated into the research design. The environmental context at this level may impact both whether or not a firearm is used in an incident and the level of injury severity that occurs. Individuals in rural areas may be more likely to have access to a firearm due to more socialization with firearms, a legitimate need for firearms to be available to protect oneself and one’s property from animals, and a lack of firearm control policies that many urban cities have (Cook & Ludwig, 1996; Kleck, 1997). Long guns are also traditionally more prevalent in rural areas, while handgun ownership is higher in urban areas (Hemenway, 2004; Kleck, 1997). Furthermore, it may be that because of the increased socialization with firearms and increased likelihood to use a firearm against animals, rural shooters may actually have a higher level of accuracy than urban shooters, although this is an area understudied in the firearms literature. On the other hand, urban areas are more likely to have emergency medical resources available to tend to victims of traumatic injury, and this may play a substantial role in preventing a serious injury from resulting in a homicide (Mueller et al., 1988; Ricci, 2003).

Indicators of whether the incident occurred in a rural or urban area will be constructed using the variable in NIBRS that reports the population covered in the jurisdiction of the reporting agency. Because of this, reported county population is the population that the county law enforcement agency covers, not incorporated cities with their own police departments. Originally, in NIBRS, population groups are broken down into cities/towns, MSA counties, and non-MSA counties, each with various population groups (e.g., over 1,000,000, 500,000-999,999, etc.). For the purposes of the current research, the incident will be coded as occurring in an

urban area if it occurred in a city or town with a population over 100,000. Rural areas are classified as cities or towns with less than 100,000 people, all non-MSA counties, and MSA counties with populations under 100,000.

Census region. An indicator of region based on the state where the incident occurred will be included in the model. Based on previous research, region may play a role in whether or not a firearm is used in a crime and the level of injury sustained by a victim of violence. This could be due to a number of reasons. For example, if one were to adhere to the Southern subculture of violence thesis, more violence tends to occur in the South because of a tradition of upholding one's reputation and a higher degree of willingness to use violence (e.g., Hackney, 1969; Gastil, 1971; Huff-Corzine, Corzine, & Moore, 1986; Corzine, Huff-Corzine, & Whitt, 1998). Alternatively, more extreme levels of violence, especially the use of firearms, may be pre-empted by Southern offenders when they target victims they perceive likely to put up a fight or to be armed with a gun themselves. In the latter case it is considered an adversary effect, and offenders use more violence and brandish lethal weapons such as firearms for tactical concerns (Felson & Pare, unpublished manuscript). Regardless of the nature of the effect, regional considerations may still play a role in firearm use and level of injury, so they will be controlled in the regression models of the present study. The Census South will be used as the contrast category.

Age. Age of both victim and offender will be controlled. Age categories will be dummy coded and broken down into the following groups: juvenile (under 18), 19-24, 25-34, 35-44, 45 and up, and age unknown. Juveniles will be used as the reference category.

Incident Hour. The actual or estimated hour of incident occurrence will also be controlled. Incident hours will be broken into the following four-hour intervals: midnight to 3:59

am, 4 am to 7:59 am, 8 am to 11:59 am, noon to 3:59 pm, 4 pm to 7:59 pm, and 8 pm to 11:59 pm. The timeframe of 4 am to 7:59 am will serve as the contrast category.

Holiday. An indicator of if an incident occurred on or around a major federal holiday will be examined. These holidays include Christmas, New Year's Day, Independence Day, Martin Luther King's birthday, Columbus Day, George Washington's birthday, Memorial Day, Labor Day, and Thanksgiving. Additionally, New Years Eve and Christmas Eve were classified as holidays and social or family gatherings are common during these times. This variable is dummy coded so that "0" is entered if an incident did not meet these criteria and "1" if it did. Previous research by Cohn and Rotton (2003) has shown that holidays are significantly related to increases in a variety of violent crimes largely due to changes in routine activities (e.g., time off from work to engage in more recreational activities, increased time with family, availability of alcohol, etc.), but it is unknown if holidays have any effect on how criminal events unfold.

Statistical Analyses

For each series of analyses, logistic regression analysis is used to estimate each model. Unless otherwise noted, missing data is handled by using the method of dummy variable adjustment when appropriate. For each variable category, a dichotomous measure is constructed with "0" entered for no missing data and "1" for missing data. This allows for the preservation of data so that all cases may be used in analyses, but will avoid overfitting issues associated with methods such as multiple imputation techniques. Essentially, effects of missing data are controlled in the analyses. In general, the following categories of variables contain missing data in NIBRS: weapon, incident circumstance, incident location, victim-offender relationship, incident hour, and each type of victim and offender demographic (race, sex, and age). The remaining variables have no missing data.

CHAPTER FOUR: DESCRIPTIVE STATISTICS

The purpose of this section is to provide an overview of the final overall dataset as well as the composition of variables to be used within each analysis. These vary depending on missing data and variable categories excluded from certain analyses (e.g., excluding unknown and missing weapon information from the first two analytical series and excluding missing injury data from the third series). After removing 156,563 incidents involving multiple victims and/or multiple offenders from the 2003-2005 NIBRS data, 456,436 incident cases were retained. This number was further reduced by excluding the circumstances of mercy killings and other negligent homicides. Mercy killings were removed from the analytical dataset because the dynamics between victim and offender are much different from traditional forms of criminal homicides in that mercy killings are likely to involve “willing” victims. Similarly, negligent homicides do not involve the violent intent present within other acts of criminal violence. Additionally, incidents with the victim-offender relationship coding of “victim was offender” in NIBRS were excluded. It appears that this variable may have originally been intended to reflect cases of mutual violence within a domestic violence conflict, but may also include cases of other types of mutual violence involving escalation. Furthermore, it may also be an indicator of crime-precipitated events, although there is not enough information in NIBRS to accurately make these determinations (U.S. Department of Justice, 2003). Incidents with this type of victim-offender relationship were therefore excluded from the present study. Taken together, these exclusions from the circumstance and victim-offender relationship variable categories still totaled less than

1% of the total cases. Once excluded, a total of 454,497 incidents remained in the analytical dataset.

Descriptive statistics for the base analytical dataset, before any exclusions are made for multivariate analysis, can be found in Tables 1 and 2. The first table consists of situational and contextual characteristics of the incidents under study, including weapon use, injury, incident circumstances, offender use of drugs and/or alcohol, incident location, victim-offender relationship, the population group covered by the reporting agency, and the census region that the incident occurred in. The second table includes information on the victim and offender demographics of race, sex, and age.

In terms of weapon use, shown in Table 1, just over 37% of the offenders were unarmed, which is similar to the distribution of unarmed offenders found by Wright & Rossi (1986). When a weapon was used, 17% of the offenders used a firearm, making it the most common weapon used. This is followed by knives or other cutting instruments, which were involved in almost 14% of the incidents. Regarding injury, 47% of the offenses resulted in no injury to the victim, while 46% of the victims suffered a nonlethal injury. Although 17% of the offenders used a firearm to commit their offense, only 1.1% of the total offenses resulted in a homicide. The remaining incidents contained missing data on victim injury.

Of the incidents included in the base analytical dataset, 31% arose out of an argument, making this the most common incident circumstance. The second most common circumstance is that of other or unknown, which unfortunately does not lend itself to very informative interpretations. Robberies accounted for just over 21% of the incidents, while 16% of the incidents involved sexual assaults. Romantic conflicts and other crime/deviance related

activities accounted for 3% and 2%, respectively. Within these events, offenders were under the influence of drugs and/or alcohol nearly 12% of the time.²

Nearly half of the incidents in the analytical sample occurred within a residence, making it the most common type of incident location. Outdoor locations were the second most common at just over 28%. Restricted access locations accounted for 9.4% of the incident locations, while open access areas accounted for 6.6%.

Regarding victim-offender relationship, the most common relationship type was that of acquaintance, which made up over 29% of all relationships. Current and former intimate partners accounted for 17.7% while nearly 10% of the incidents involved other family members. Just over 13% of the offenses were committed by strangers.

Almost 60% of the incidents within the analytical sample occurred in rural areas, which highlights the overrepresentation of small and medium-sized jurisdictions that report to NIBRS. Regarding incident location in terms of census region, almost 49% of the incidents occurred in the South and 34% were located in the Midwest. The Northeast and the West each accounted for 8.5% of the total incidents. As a frame of reference, 37% of the agencies reporting to NIBRS in this analytical dataset were located in the South, 39% in the Midwest, 13% in the Northeast, and 10% in the West.

Concerning the times that incidents took place, 23% of the offenses occurred between 8:00 p.m. and midnight, while another 20% occurred between midnight and 4 a.m. The least amount of criminal activity occurred between 4 a.m. and 8 a.m. Roughly 3% of the total

² It should be noted that in most cases the reporting of an offender as under the influence of drugs or alcohol is dependent on the arresting officer's perceptions of physical and behavioral conduct. Although most officers can likely correctly identify someone under the influence of alcohol, effects of other types of drugs may go undetected, so some caution is required in interpreting this variable.

offenses occurred on a federal holiday or on Christmas or New Year's Eve. Likewise, these days reflect only about 3% of the total days of any given year.

Regarding victim demographics shown in Table 2, most victims were white (60%), while black victims accounted for 32% of the incident victims. Only about 1% of the victims were Native Americans or Pacific Islanders. In terms of victim gender, there was almost an even split amongst victims, with male victims accounting for 49% and female victims accounting for about 47% of the total. Regarding age, 22% of the victims were 18-24 years old, 21% were 25-34 years old, and 18% were juveniles. Adults aged 35-44 made up about 17% of the victims, while those over 45 years of age accounted for just over 15%.

As for offenders, most (about 44%) of the offenders were white, while almost 37% were black. Unsurprisingly, most of the offenders were males, who accounted for almost 70% of the total number of offenders. Females were identified as offenders in only about 14% of the incidents, while the remaining incidents had missing information for offender sex or the sex was classified as unknown. Roughly 21% of the offenders were aged 18-24, about 20% were 25-34, and 15% were 35-44 years of age. Only about 11% of the offenders were identified as juveniles, and 10% of the offenders were 45 years old or older. It should also be noted that the amount of unknown and missing data found in offender demographic variables is relatively high, as indicated on Table 2. Missing and unknown data account for nearly 20% of offender race, just over 16% for offender sex, and about 23% of offender age data. This is likely due to the presence of unsolved cases or cases in which the victim could not identify much information about the offender. Additionally, this could also be due to a lack of proper data collection efforts by officers in the field.

Series 1 Analyses

The first series of analyses focuses on predicting weapon use. Two models were constructed for this: one model predicting any weapon usage vs. no weapon usage and one model predicting firearm use when a weapon was present. Information pertaining to this series can be found in Tables 3 through 6. Table 3 examines distributions of circumstance, offender use of drugs and/or alcohol, incident location, and victim-offender relationship within the different categories of dependent variables. In the first model, the dependent variable is an indicator of no weapon use (unarmed) vs. any weapon use. The dependent variable categories for the second model is any non-firearm weapon use vs. firearm use. Table 4 does the same as the previous table, but with the independent variables of population group covered by the reporting jurisdiction, census region, hour of incident occurrence, and an indicator of whether or not the offense occurred on a holiday. Tables 5 and 6 examine victim and offender demographics, respectively.

Regarding incident circumstance, excluding other/unknown and missing circumstances, the highest proportions of any weapon usage occurred in arguments and romantic conflicts, closely followed by robberies and other crime/deviance-related incidents (Table 3). The highest proportion of unarmed incidents occurred within sexual assaults. When a weapon was used, the highest proportion of firearm use was found within incidents of robbery, although there was nearly an even split between unarmed robberies and armed robberies within distributions of the first model. Incidents with offenders under the influence of drugs and/or alcohol had slightly higher proportions of weapon users, but in the majority of these cases, a firearm was not used.

In terms of incident location, the highest proportions of weapon usage were found in open access and outdoor areas. In absolute numbers, incidents that took place outdoors or inside

a residence accounted for the most firearm use when a weapon was involved. Still, firearms were used in less than half of the total number of incidents involving a weapon in all locations with the exception of open access areas, in which about 53% of the cases involved an offender that used a firearm.

With victim-offender relationship, about 55% of the incidents involving acquaintances, family, and intimate partners involved the use of a weapon while the rest of the incidents consisted of unarmed offenders within their respective categories. Relationships categorized as strangers, unknown, and missing each had proportions of about 60% that involved weapon use. When examining firearm use compared to non-firearm weapon use, the majority of incidents involving acquaintances, family members, or intimate partners did not involve the use of a firearm. However, nearly half of the cases involving strangers involved firearm use, as did incidents where the victim-offender relationship was unknown or missing. These similarities in proportions of weapon use and firearm use between strangers, unknown relationships, and missing relationships may be an indicator that many of the latter two categories actually involved strangers, as previously hypothesized by Wright (1990). Similarly, Fox and Swatt (2009) reported higher percentages of stranger relationships after applying multiple imputation techniques to SHR data.

Regarding population groups covered by reporting agencies, as shown in Table 4, about 62% of incidents within urban areas involved the use of a weapon, compared to 54% of offenses in rural areas. In incidents where a weapon was used, 40% of urban and 28% of rural offenses involved a firearm. The distributions of the presence of firearms in violent crime found in the analytical dataset are actually the opposite of what is currently known about gun ownership, which is that there is higher gun ownership rates in rural areas as opposed to urban areas (Kleck,

1997). The finding that more guns were used in violent crimes within urban areas may indicate that gun ownership is higher in urban areas than is thought due to the presence of potentially illegally owned guns likely to be used in crimes by individuals who do not report that they own one or more guns. Alternatively, it could also indicate an influence of gun socialization in rural areas and a learning process of when it is appropriate to use a gun and when it is not. Of course, this finding may also reflect a combination of the two, but this cannot be determined from analyzing these data. Another possibility is that criminal gun use is more or less independent of the general availability of firearms for civilian sporting and self-defense purposes (Wright, 2009). In terms of census region, the highest proportions of any weapon use were found in the South and the Northeast. Firearm use, however, was proportionally most common in the South and Midwest regions. This is generally consistent with previous estimates of regional gun ownership (Kleck, 1997).

Roughly 55-60% of incidents where the time of the incident was determined (i.e., not reported as missing) involved the use of a weapon, while about 63% of the offenses with incident hours missing involved unarmed offenders. Proportionally, non-firearm weapon use was most common in all hourly categories, although firearm use was slightly more common during the evening, nighttime, and early morning hours, as found in a combined timeframe spanning from 8 p.m. to 8 a.m. Regarding offenses occurring during holidays and non-holidays, proportions of any weapon use and firearm use when a weapon was involved were virtually identical across the two categories.

In terms of victim demographics found in Table 5, the highest proportion of incidents with offenders armed with a weapon involved black victims. Similarly, when weapons were used, incidents with black victims had the highest proportion of firearm use, excluding incidents

where victim race was missing. Incidents involving male victims also had the highest proportion of weapon involvement, and in these cases, 35% of the incidents involving male victims involved an offender armed with a firearm, while only 27% of incidents with female victims involved firearm use. Over half of the incidents with all victim age groups, other than juveniles, involved the use of a weapon; only 37% of incidents with juvenile victims involved an offender wielding a weapon. Incidents with victim age ranges of 18-24 and 25-34 had the highest proportions of firearm wielding offenders, each at about 37%.

As shown in Table 6, which presents offender demographics, the highest proportion of weapon usage was found with black offenders, though incidents with unknown or missing data for offenders had similar proportions. Incidents where race was unknown or missing had the highest proportions of firearm use when there was weapon involvement. Where information on offender race was known, however, black offenders had the highest proportion of firearm users, even though according to survey data, whites tend to have higher rates of gun ownership (Kleck, 1997). Regarding gender, nearly 80% of female offenders used some type of weapon, while only about 53% of males did. Firearm use was more common in males, however, with 35% of armed male offenders wielding guns, compared to 11% of armed female offenders. The highest proportions of weapon use and firearm use were found within incidents where information on the sex of the offender was either unknown or missing. Given general offending patterns within society, however, it is likely that the majority of the offenders in these categories were male. For offender age categories, all age groups had a higher proportion of offenders armed with any type of weapon compared to unarmed offenders. Juveniles, however, had the smallest proportion of offenders wielding a weapon, with only 51% of juvenile offenders doing so. When the offender

was armed, the highest proportion of firearm use was found in the 18-24 age range, excluding incidents where information on age was classified as either unknown or missing.

Series 2 Analyses

The second series of analyses is essentially the same as the analysis conducted in Series 1 with the exception that one set of models was estimated for each offender sex. Tables 7 through 10 present descriptive statistics for male offenders only for the same variables outlined in the first series of analysis. Unless otherwise noted, these findings generally mirror those found in the previous series of analyses due to the majority of offenders being male, but the patterns will still be discussed in some detail here for the sake of completeness. Regarding male offenders, incidents arising out of an argument contained the highest proportion of any weapon usage, excluding other/unknown and missing circumstances, with roughly 66% of these incidents involving some form of weapon. Sexual assaults committed by men, however, were largely unarmed, with only 9% involving the use of a weapon. When a weapon was used, robberies had the highest proportion of firearm usage, with just over 70% of male robbers wielding a gun. Offender use of drugs and/or alcohol was almost evenly split between unarmed offenders and offenders armed with any weapon, and when weapon use was involved, only about 20% of the offenders used a gun.

Regarding location, male offenders were armed with some sort of weapon in about 64% of offenses occurring within open access or outdoor locations, while less than half of the offenses taking place in other location types involved weapon use. Similarly, when weapon use was a factor, firearm use was most common in open access (55%) and outdoor (43%) locales.

All categories of victim-offender relationship were almost evenly split between incidents involving unarmed and armed male offenders. When victim-offender relationship information

was known and available, however, male offenders used a firearm in 50% of incidents involving strangers, giving this type of relationship the highest proportion of gun-wielding offenders.

As can be seen in Table 8, almost 60% of male offenders in urban areas used some sort of weapon, compared to just under 50% of rural offenders. When a male offender did use a weapon, the weapon was a firearm in over 40% of urban cases, compared to about 30% of rural cases. In terms of region and proportions of any weapon usage, higher concentrations of male offenders used weapons more often in the Northeast and in the South. Firearm use, however, was most common in the South and Midwest.

Regarding the time that the incident took place, about 57% of male offenders used a weapon in the timeframes spanning 4 pm to midnight. Proportions of unarmed offenders and armed offenders were nearly equal in the remaining timeframes. Firearm use amongst armed male offenders spanned 34 to 38% in all timeframes. When incidents occurred during a holiday, just over half of the male offenders used some sort of weapon, with just over 30% of weapon-users wielding a firearm. This pattern was nearly identical for non-holiday incidents.

In terms of victim characteristics of male offenders, the majority of the victims were white, as indicated in Table 9. Within these cases, incidents where offenders were armed and unarmed were about even, in contrast to the distribution of the general population of offenders, where about 30% of the offenders were armed with some sort of weapon. For victims of other races, and cases where victim race was unknown, incidents with armed male offenders were roughly equal to the number of incidents with unarmed male offenders, which is also generally true of the distributions found when examining the general population of offenders. In cases with black victims and where victim race was missing, however, offenders used weapons in about 60% of the incidents. These patterns of male offender weapon use diverge slightly from

the patterns found in the distributions for Series 1 analyses, where nearly 70% of the incidents involved an offender attacking a black victim with some sort of weapon. Other than incidents with missing data on victim race, firearm use by male offenders was proportionally highest in cases involving a black offender. Regarding victim gender, weapons were used in 40% of the cases with female victims, compared to nearly 70% of those with male victims. When a weapon was used, it was a firearm in 40% of the cases with male victims and 30% of the incidents with female victims. Incidents where the victim was a juvenile involved weapons in just over 30% of the cases, while every other age category had weapon involvement in 50 to 60% of the incidents. When weapons were involved, the weapon was a firearm in 27% of the incidents with juvenile victims. Proportionally, most of the incidents with firearms were located within cases where the victim was 18-24 or 25-34 years of age, but firearms were involved in 30 to 40% of the cases of all age categories, with the exceptions of juveniles and when victim age data were missing.

Regarding the offender demographics other than gender presented in Table 10, weapons were used 60% of the time when the offender was black, compared to 50% when the offender was white. When weapons were used, black male offenders used firearms almost half of the time, while white males used guns only about 25% of the time. Male offenders aged 45 and up used weapons in about 60% of the incidents, while offenders in other age categories used weapons about 50% of the time, except in cases where offender age was unknown. Within incidents where weapons were used with the exception of offenders of unknown age, the heaviest concentration in firearm use was with 18-24 year old males (44%), followed by 25-34 year olds (36%). Offenders in other age categories used firearms in less than 30% of the incidents where some sort of weapon was involved. It should be noted that when selecting only

incidents where the offender is known to be male, there are no missing data for offender race or age categories.

Tables 11 through 14 contain descriptive statistics for incidents involving female offenders only. In general terms, proportions of using any sort of weapon were much greater among female offenders compared to male offenders. As such, with female offenders, there were higher proportions of weapon use amongst almost every category of independent variables used in the present study. There is one notable exception to this pattern, however: female offenders in sexual assaults used weapons in 18% of the incidents, whereas male offenders used weapons in only about 9% of sexual assaults. This pattern may reflect a female use of weaponry to establish physical dominance, but so little is known about female sexual offending to assume this with a high degree of certainty. Given these patterns of female weapon use, the remaining part of this section focuses on the use of firearms compared to use of other types of weapons by female offenders.

As mentioned previously, most literature indicates that firearm use is more common to males than females. This pattern is also demonstrated here. In terms of incident circumstances, while most females use a weapon of some sort, lower proportions of the weapons used were guns. For most circumstances, about 80% to over 90% of females used a weapon other than a firearm. The most notable difference in this pattern is found within incidents arising out of a robbery, in which nearly half of the female offenders who used a weapon were gun-wielding. Females under the influence of drugs and/or alcohol used a firearm in less than 10% of the cases, compared to 20% of males using a firearm when a weapon of some sort was involved.

Regarding incident location, nearly 20% of female offenders used a firearm when the incident occurred in a place of open access. Incidents taking place outdoors involved firearm use

about 13% of the time. Less than 10% of the remaining location types, with the exception of other/unknown locations, involved female offenders wielding guns. Similar patterns were found in male offender use of firearms, although proportions of firearm use amongst males were still much higher.

In examining known victim-offender relationships, higher proportions of female offenders used firearms against strangers (18%). This was followed by acquaintances (12%), then intimate partners (8%), and finally family (6%). Firearms were involved in 16% of the cases where the relationship between victim and offender was unknown and 30% of cases where the relationship data were missing. Although the proportions differ, these patterns are similar to patterns of firearm use by male offenders in that it is less common to find firearm involvement as the relationship between victim and offender becomes closer.

Table 12 shows descriptive statistics for the variables relating to population groups covered by reporting agencies, region, the hour that the incident occurred, and an indicator of whether or not the incident took place on a holiday. There are no striking differences in proportions of firearm using female offenders when comparing incidents occurring within urban and rural areas, although for male offenders, the proportion of incidents involving firearm use by offenders was nearly double in urban areas compared to rural areas. In terms of region, however, the most incidents involving female offenders occurred in the South (39% of the total sample), which also has the highest proportion of female offenders that used firearms (13%). About 10% of female offenders that used some sort of weapon used a firearm in both the West and Midwest. The smallest proportion was nearly 4% of female offenders that used guns in the Northeast. This may reflect both reduced firearm availability in the Northeast as well as a general lack of gun socialization amongst females.

Regarding the hour that incidents took place there were no real differences in proportions of firearm use with female offenders; about 9 to 11% of female offenders used firearms within each time period under study. This pattern is similar to that of temporal patterns of male offender firearm use, although the proportions were much higher. This pattern is the same for whether or not the incident occurred during a holiday.

Information for victim demographics within incidents committed by females can be found in Table 13. Interestingly, neither victim race nor victim sex contained marked proportional differences of female offender firearm use compared to other weapon use, the only exceptions being missing data for victim race and unknown or missing data for victim sex. In cases where victim race was known, about 10% of the female offenders used a firearm. The same is true for victim sex. For male offenders, higher proportions of offender firearm use were reported when the victim was black or male. With regards to victim age, proportions of firearm use were slightly lower when the victim of a female offender was a juvenile, but the proportionate difference for this is less pronounced than is found for incidents involving male offenders where incidents with juvenile victims of gun violence were considerably less common compared to older victims of male, gun-wielding offenders.

Descriptive statistics for the remaining offender demographic variables are shown in Table 14. In terms of offender race, when a weapon was used, white females used a firearm in about 10% of the offenses while black females used one in about 12%. Only about 6% of offenders of other races used a firearm. These patterns are different from racial patterns of male offender firearm use; nearly 50% of black offenders used a firearm instead of another weapon, and only about 25% of white male offenders did the same. Only about 8% of juvenile female offenders used a firearm, while about 10% of female offenders aged 18-44 did as well. The

highest proportion of female firearm use in terms of age was contained in the age block of 45+, where 15% of the incidents involving these offenders used a firearm compared to another type of weapon. With males, the highest proportion of firearm-wielding offenders was in the 18-24 age group.

Series 3 Analyses

The third series of analyses in the present study investigates the effects of relevant independent variables on the outcome of victim injury. Tables 15 through 18 indicate the distribution of independent variables on the likelihood of victim injury (no injury, nonlethal injury, and lethal injury).

Table 15 shows the distributions of weaponry, incident circumstance, offender use of drugs and/or alcohol during the incident, incident location, and victim-offender relationship among the three categories of the dependent variable. Regarding weaponry, nearly 50% of unarmed offenders caused no injury to their victims, while slightly over 50% caused a nonlethal injury. Only 0.3% of unarmed offenders killed their victim. A similar pattern is found for offenders wielding a knife or other cutting instrument, although the proportions are slightly higher for both nonlethal and lethal victim injuries. This is the same for offenders using weapons classified as “other.” The two categories of weapon use with the most striking proportional differences in injury were that of blunt objects and firearms. Roughly 73% of offenders wielding a blunt object caused a nonlethal victim injury, while only 0.5% caused a lethal injury. Firearms, on the other hand, have the smallest proportion of nonlethal injury, but have the highest proportions of incidents with no victim injury or lethal victim injury.

Regarding incident circumstance, the highest proportions of lethal injury within incidents where circumstance was clearly defined were found in those relating to other crime/deviance

activities (2%) and romantic conflicts (1.6%). Romantic conflicts also had the highest proportion of nonlethal injury. The smallest proportions of both nonlethal and lethal injury were found within the circumstances of sexual assault and robbery. For incidents involving offender use of drugs and/or alcohol, nearly 1% resulted in a lethal injury, while just over 61% resulted in a nonlethal injury.

Most categories of incident location had almost equal proportions of incidents resulting in no injury or a nonlethal injury to the victim, with about 1% of the cases resulting in a lethal injury. This observed pattern is different for incidents taking place in a location defined as open access, however, where just over 61% resulted in no injury and about 38% resulted in a nonlethal injury.

Varying patterns emerge upon examining victim-offender relationship. The highest proportion of no victim injury was found in conflicts between strangers, while the highest proportion of nonlethal injuries was found in incidents that involved intimate partner violence. For lowest proportions, the reverse is true. For lethal victim injury, excluding incidents with unknown or missing relationship information, the highest proportion is found within incidents involving family members (1.1%), while 0.9% of the incidents involving acquaintances and intimate partners resulted in the death of the victim. Incidents involving strangers only resulted in victim death 0.5% of the time.

Table 16 examines the distribution of independent variables representing the population group covered by the reporting agency of the incident, the census region in which the incident took place, the hour when the incident occurred, and an indicator of whether or not the incident occurred on a holiday. For population groups, there is little in the way of proportional variations of victim injury between incidents occurring in rural and urban areas. Both areas involve

incidents where nearly half either resulted in no or nonlethal victim injury, with a remaining 1% resulting in the death of the victim. The same is true for census region.

Regarding incident hour, slightly smaller proportions of incidents occurring between midnight and 3:59 a.m. involved no injury while the same time period involved slightly higher proportions of nonlethal injury compared to the other time blocks. The highest proportion of incidents resulting in victim death were found in incidents occurring between 4 a.m. and 7:59 a.m. (1.6%), followed by incidents occurring between midnight and 3:59 a.m. and 8 a.m. to 11:59 a.m. (1.3% each). About 1% of the incidents within other time blocks involved lethal injury to the victim and about 1.2% of the incidents where there were missing data on incident hour involved victim death. About 1% of incidents occurring on a holiday and 1.2% of non-holiday incidents involved victim death with remaining proportions almost evenly split between no injury and nonlethal injury to the victim.

Table 17 indicates the distribution of victim demographics within categories of victim injury. When victim race was known, black victims suffered a lethal injury in 1.5% of the incidents and a nonlethal injury in 51%. White victims suffered a lethal injury in only 0.9% of the incidents and 48.5% suffered a nonlethal injury. In terms of victim sex, incidents involving male victims had twice the proportion of lethal victim injury compared to incidents with female victims (1.5% and 0.7%, respectively). Additionally, about 53% of males suffered a nonlethal injury compared to only 45% of female victims. Regarding victim age, the general trend is that proportions of both nonlethal injury and lethal injury increase as the victims get older.

Distributions of offender demographics can be found in Table 18. Within incidents involving black offenders, about 1% result in the death of the victim, with the remaining incidents nearly evenly split between incidents resulting in no injury or a nonlethal injury. This

pattern is also observed for incidents where the offender is white. About 51% of the incidents involving male offenders resulted in no injury to the victim, compared to 42% of the incidents where the offender was female. Similarly, about 48% of the male offenders inflicted a nonlethal injury to their victim while 58% of female offenders did the same. In terms of lethal injury, 1% of male offenders killed their victim, compared to 0.8% of female offenders. Similar to the trend for victim age, the proportion of lethal injury inflicted by older offenders increases slightly as offender age increases. There is little variation in the proportional changes of no or nonlethal victim injury amongst the different age categories, although nonlethal injury is slightly more common amongst 25-44 year olds.

Within this chapter, descriptive information has been presented for the analytical dataset constructed for the analyses for the present study. Furthermore, descriptive statistics were presented for each of the three series of analyses to be conducted. The next chapter will present the multivariate results for logistic regression analyses pertaining to the analytical framework defined above.

CHAPTER FIVE: MULTIVARIATE RESULTS

This chapter presents results of the multivariate models estimated in analytical series one through three. The results can be found in Tables 19 through 27. Tables 19 and 20 present the results of Series 1 analyses, which relates to factors predicting the likelihood of weapon involvement and, when a weapon is used, the likelihood that it will be a firearm. The dependent variable of Model 1 is a dichotomous measure of weapon use vs. no weapon use, while in Model 2, the dependent variable compares firearm use to the use of any other weapon. Tables 21 through 24 indicate results for Series 2 analyses. The analytical strategy for Series 2 is the same as Series 1, but separate sets of analyses were conducted based on the sex of the offender. Finally, Tables 25 through 27 present multivariate results for Series 3 analyses, which investigate the impact of the independent variables on victim injury. Model 1 for this series of analysis includes a dependent variable that is an indicator of whether the victim suffered no injury compared to a nonlethal injury. Model 2 for Series 3 analyses includes only incidents in which the victim suffered some sort of injury. The dependent variable for Model 2 is an indicator of whether the injury was nonlethal or lethal.

In addition to the logistic regression analyses presented, collinearity diagnostics were also conducted, although not shown. These diagnostics indicated that multicollinearity was not an issue for the vast majority of independent variables. With the exception of variables representing missing data on victim and offender sex, all variance inflation factor (VIF) scores were less than four unless otherwise noted (Fisher & Mason, 1981). The reason for this is likely the significant

overlap of missing data between sex and race for both victim and offender.³ In the multivariate models for Series 1 and 2 analyses, the variables for missing offender and victim sex were excluded. It should also be noted that, due to the large number of cases, statistical significance is only be reported at the .001 level for all models.

Series 1 Analyses

Results for Series 1 analyses are shown in Tables 19 and 20. These tables indicate results of examining the influence of the independent variables on any weapon use vs. no weapon use (model 1) and, when a weapon was used, the likelihood that the weapon would be a firearm compared to another type of weapon (model 2). Both models are significant at the .001 level (model 1 chi-square = 111,093; model 2 chi-square = 54,434). Model 1 explains 33% of the variance in the likelihood of weapon use, while model 2 explains 29% of the variance in the use of a firearm (given some weapons involvement within the incident).

As indicated in Table 19, when compared to arguments, nearly all incident circumstance types were significantly less likely to involve the use of a weapon. Sexual assaults were 93% less likely to involve weapon use ($p < .001$). Robberies and other crime/deviance related incidents were approximately 70% and 50% less likely to involve weapon use, respectively ($p < .001$). Incidents in which the circumstance was classified as other or unknown were 18% more likely to involve weapon use ($p < .001$). There was no significant difference predicting weapon usage when comparing arguments to romantic conflicts. When a weapon was used within a violent incident, those involving robberies and other crime/deviance-related activities were significantly more likely to involve firearms compared to robberies. This finding was most

³ A separate run of analyses were conducted that replaced the indicator of missing data on sex with missing data on race. No significant model changes were observed for other variables. Results presented here retain the indicator of missing data on victim and offender sex.

obvious for robberies, which increased the odds of firearm use by a factor of four ($p < .001$). Offender use of drugs and/or alcohol at the time of the incident was significant in both models; incidents with intoxicated offenders were 12% less likely to involve a weapon compared to sober offenders, and when a weapon was used, offenders under the influence were about 40% less likely to use a gun ($p < .001$).

Regarding location, incidents occurring in an open access area were 27% more likely to involve weapon use compared to incidents occurring within a residence ($p < .001$). Incidents occurring outdoors were 18% more likely to do the same ($p < .001$). Restricted access locations and other/unknown locations were about 35% and 25% less likely to involve weapon use, respectively ($p < .001$). When a weapon was used in a violent incident, all location types were significantly less likely to involve the use of a firearm than residences ($p < .001$). The difference in likelihood was greatest for restricted access locales, which were 45% less likely to involve gun use than residences.

Compared to stranger relationships, all other victim-offender relationship types were significantly less likely to involve the use of a weapon ($p < .001$). Incidents involving intimate partners were 44% less likely to involve weapon usage while those with acquaintances and family members were 20% and 24% less likely. Similarly, when a weapon was used, all relationship types were significantly less likely than incidents amongst strangers to involve a firearm, with the exception of when the relationship was unknown to the reporting agency or missing, which further implies that these two categories indicate stranger relationships. Violence amongst acquaintances was 25% less likely to involve firearm use, while incidents between intimate partners and family members were about 50% less likely ($p < .001$).

Incidents occurring in urban areas were 36% more likely to involve a weapon when compared to incidents in rural areas ($p < .001$). When a weapon was involved, incidents in urban areas were 17% more likely to involve a firearm ($p < .001$). Regarding the census region of the reporting agency when compared to the South, incidents within the Northeast were 30% more likely to involve a weapon, while incidents occurring in the Midwest and West were about 20% and 10%, respectively, less likely to involve weapons ($p < .001$). However, when compared to the South, incidents in the other census regions were significantly less likely to involve a firearm when a weapon was used. Incidents in the Northeast were 65% less likely to involve gun use, while those in the Midwest and West were about 20% and 25% less likely to do so ($p < .001$). These findings on firearm use were expected given regional patterns of firearm ownership and use in crime in which the South often dominates (Hemenway, 2004; Kleck, 1997). Furthermore, the increased likelihood of weapon use in the Northeast but decreased likelihood of firearm use when compared to the South may be indicative of a weapon substitution effect, as will be discussed later.

Regarding incident hour, offenses occurring between midnight and 3:59 am and between 8:00 and 11:59 am were slightly less likely than incidents occurring between 4:00 am and 7:59 am to involve the use of a weapon ($p < .001$). However, when a weapon was used, incidents in all time blocks from 8:00 am to 11:59 pm were more likely to involve firearm use, with magnitudes ranging from about 10-20%, which tend to increase as incidents occur later into the night ($p < .001$). There was no significant change in the likelihood of weapon involvement or firearm involvement when comparing holidays to non-holidays.

Table 20 indicates the effects of offender and victim demographics on weapon choice. In terms of race, black offenders were 6% more likely than whites to use a weapon ($p < .001$).

When a weapon was used, blacks were 25% more likely to use a firearm compared to whites, while other races were 25% less likely ($p < .001$).⁴ Female offenders were 45% more likely to use some sort of weapon, but about 70% less likely to use a firearm, when compared to males ($p < .001$). This may be reflective of a general tendency for females to make use of weapons to overcome physical differences between themselves and their victims, although firearm socialization generally tends to be lower among women. When considering offender age, compared to juveniles, offenders in age groups from 18 to 44 were about 5% to 10% less likely to use a weapon, while offenders over the age of 45 were 17% more likely to do the same ($p < .001$). When offenders did wield a weapon, those aged 18-24 were 50% more likely to use a firearm, 25-34 year olds were 25% more likely, and offenders aged 45 and over were 37% more likely to wield a gun, each compared to juvenile offenders ($p < .001$). No significant differences in the likelihood of gun use were found when comparing juveniles and 35-44 year olds. Overall, these findings contradict the popular stereotype that gun-wielding juveniles are a serious criminal threat. While nearly every incident where a minor commits an act of mass violence through the use of a firearm will receive immense media attention and, in all likelihood, subsequent cries for stricter gun control legislation, these incidents are only a minor contributor to the volume of gun crimes in the United States.

Regarding victim demographics, incidents with black victims were just over 50% more likely to involve weapon use, while events with other races were 17% more likely to do the same, both compared to whites ($p < .001$). Incidents with female victims were over 40% less

⁴ Additional models not presented in this research were also constructed to focus on racial effects and determine if differences in firearm use could be found depending on whether or not a conflict was inter- or intra-racial. Against black victims, black offenders were 65% more likely to use a firearm than white offenders ($p < .001$). Furthermore, against white victims, black offenders were still 45% more likely to use a firearm than white offenders ($p < .001$). This further reinforces the notion that black offenders are more likely to use firearms to commit acts of violence.

likely to involve weapon use by the offender ($p < .001$). Compared to juveniles, incidents with victims of other age groups were significantly more likely to involve offender weapon use, with ranges of about 70-90% ($p < .001$). When weapons were used, incidents with black victims were 70% more likely to involve gun use when compared to incidents involving white victims ($p < .001$). Offenders were 5% less likely to use a gun against a female ($p < .001$). Finally, incidents with all victim age groups were significantly more likely to involve firearm use instead of another type of weapon with ranges between just over 10% to about 45% ($p < .001$).

Series 2 Analyses

Tables 21 through 24 indicate the results of analyses focusing on variables impacting weapon choice specific to offender sex. Due to the inclusion of only incidents where offender sex is known and the significant overlap of missing data on offender demographic variables, indicators of missing data on offender race and age are not included in the analyses.

Tables 21 and 22 indicate results of examining the influence of the independent variables on any weapon use vs. no weapon use (model 1) and, when a weapon was used, the likelihood that the weapon would be a firearm compared to another type of weapon (model 2). These tables reference male offenders only. Both models are significant at the .001 level (model 1 chi-square = 83,284; model 2 chi-square = 31,420). Model 1 explains 34% of the variance of what factors contribute to the likelihood of weapon use, while model 2 explains 26% of the variance of firearm use when there is a weapon involved within an incident.

As shown in Table 21, when compared to arguments, male offenders were significantly less likely to use a weapon for most known incident circumstances. For cases of sexual assault, males were 93% less likely to rely on the use of a weapon ($p < .001$) compared to offenders of aggravated assault. Male offenders were also about 70% less likely to use a weapon in a robbery

and about 50% less likely to be armed in incidents of other crime or deviance-related matters ($p < .001$). There was no significant difference on the effect of weapon usage when comparing romantic conflicts to arguments. When weapons were used, male offenders were 15% less likely to use a firearm during the course of a sexual assault ($p < .001$). Within robberies, however, males were over four times more likely to use a firearm ($p < .001$). The circumstances of romantic conflict and other crime/deviance-related incidents did not significantly impact the chances of a male offender using a firearm compared to another type of weapon. Regarding events where the offender was under the influence of drugs and/or alcohol, males were 11% less likely to use a weapon when intoxicated during an offense, and when a weapon was used, it was about 35% less likely to be a firearm ($p < .001$).

Regarding incident location, compared to residences, events taking place in open access areas and outdoors were both just over 20% more likely to involve a weapon, while incidents occurring within areas of restricted access were nearly 40% less likely to do the same ($p < .001$). When weapons were used, incidents occurring in open access or outdoor locations were about 10% less likely to involve firearm use, while males offending within restricted access areas were about 50% less likely to use a gun ($p < .001$).

Compared to violent incidents amongst strangers, all relationship types were significantly less likely to involve weapon use by male offenders, with the exception of incidents in which victim-offender relationship data were missing. Incidents amongst acquaintances were about 20% less likely to involve weapon use, intimate partners 50%, and family members 25% less likely ($p < .001$). Incidents where the relationship was unknown to the reporting agency were also about 20% less likely to involve a weapon ($p < .001$). Similarly, when weapons were used, acquaintance, intimate partner, and familial relationships were significantly less likely to involve

a male using a gun ($p < .001$). The largest difference was found within conflict between intimate partners, where males were almost 50% less likely to use a gun instead of another type of weapon ($p < .001$). When comparing results from the first series of analyses to the estimates produced when examining male offenders only, one difference in the likelihood of firearm usage appears. For the general population, offenders were nearly 60% less likely to use a firearm against a family member. However, male offenders were roughly 20% less likely to do the same.

Males offending in urban areas were 40% more likely to use some sort of weapon, and when a weapon was used, it was 13% more likely to be a firearm ($p < .001$). Regarding region, males in the Northeast were 32% more likely to use a weapon compared to males in the South ($p < .001$). Males in the Midwest were about 20% less likely to use a weapon while males in the West were 10% less likely to do the same ($p < .001$). When weapons were used, males offending within the Northeast were almost 70% less likely to use a firearm compared to males offending in the South ($p < .001$). Once again, this finding is reflective of lower levels of gun ownership and socialization in the Northeast, especially when compared to the South (Hemenway, 2004; Kleck, 1997). Offenses within the Midwest and West were each about 20% less likely to involve a gun-wielding male offender compared to incidents occurring in the South ($p < .001$).

Regarding incident hour, the only known time period with significant differences between going armed instead of unarmed was that of between midnight and 3:59 am, where male offenders were 8% less likely to use a weapon compared to males offending between 4:00 am and 7:59 am ($p < .001$). When a weapon was used, however, all time periods except that of between midnight and 3:59 am had an effect on the likelihood of a male offender wielding a gun

($p < .001$). Compared to the time block of 4:00 am to 7:59 am, incidents occurring in the time blocks between 8:00 am and midnight were associated with a significant increase in the likelihood that a male offender would utilize a firearm. Offenses occurring between 8:00 am and 11:59 am were 13% more likely to involve a gun-wielding male, incidents between noon and 7:59 pm were about 20% more likely to do the same, and males offending between 8:00 pm and 11:59 pm were about 23% more likely to be wielding a firearm ($p < .001$). No significant differences on the likelihood of weapon use or gun use were found when comparing holidays to non-holidays.

Table 22 indicates the effects of remaining offender demographics and victim demographics on the dependent variables. For predicting offender weapon use, race had no significant effect. However, when a weapon was used, black offenders in general are 25% more likely to use a gun (as indicated in the first series of analyses), while black males were 50% more likely to use a firearm ($p < .001$). This was the only significant racial effect. When considering offender age, males in the age blocks ranging from 18 to 44 were 5% to 10% less likely to use a weapon compared to juveniles, while male offenders aged 45 and up were 16% more likely to arm themselves somehow. In the event that the offender was armed, males aged 18-24 were 56% more likely to use a firearm, 25-34 year olds almost 25% more likely, and offenders from 35-44 years old 30% more likely to use a gun, each compared to juvenile male offenders ($p < .001$).

When considering victim demographics, when victim race was known, black victims were 44% more likely to face a male offender armed with some sort of weapon when compared to white victims ($p < .001$). Similarly, when the male offender was armed, incidents in which the victim is black were 55% more likely to involve firearm use although, in the general population

of offenders, black victims were just over 70% more likely to face a gun-wielding offender. In terms of victim sex, male offenders were about 40% less likely to use a weapon against female victims, and when a weapon was used, the offender was almost 10% less likely to use a firearm ($p < .001$). For victim age, compared against juvenile victims, incidents involving all victim age groups were significantly more likely to have an offender armed with some sort of weapon ($p < .001$). The most notable increase in probability involves victims aged 25-44, which increased the likelihood of an offender arming themselves by almost 90% ($p < .001$). When offenders were armed, incidents where the victims were aged 18-24 were over 45% more likely to include a male offender using a gun, while incidents with victims aged 25-34 were just over 35% more likely to do the same ($p < .001$). Events where the victim was 35-44 years of age and the offender was armed with some weapon were only 17% more likely to involve the use of a firearm, which is still significant at the .001 level. There are no significant differences in the likelihood of an armed male offender using a firearm when comparing victims of age 45 and up to victims that are juveniles.

Tables 23 and 24 contain multivariate results for the subset of female offenders only. The analyses were conducted in the same manner as the previous analyses: Model 1 estimates factors influencing the likelihood of an offender being armed with some sort of weapon rather than being unarmed, while Model 2 predicts the likelihood of firearm use against the use of another type of weapon. Both models are statistically significant (Model 1 chi-square = 10,278; Model 2 chi-square = 2,755). The first model explains 23% of the variance in determining whether a female will use some sort of weapon rather than offend unarmed, while the second model explains 13% of the variance in predicting whether or not a firearm is used when a female offender does make use of a weapon.

In a general sense, one difference in these estimations between the male and female offender subsets is that fewer independent variables are statistically significant when examining the subset of female offenders. One reason for this is possibly the smaller number of incidents involving female offenders. However, as each model for female offenders still contains a sample size of well over 40,000 incidents, statistical significance is still only reported at the .001 level. If this threshold were to be relaxed to a .01 or .05 level, the effects of a few more independent variables would be significant. Another explanation is that female offenders take fewer variables into consideration when it comes to the selection of weaponry.

It should be noted that there is a slight issue of multicollinearity regarding the victim-offender relationship category of intimate partner when the females offender subset is used. The VIF score for this variable is 4.23 within Model 1 and 4.97 with Model 2. A separate set of multivariate analyses were conducted with the intimate partner variable removed but there were no noteworthy changes in the odds ratios or significance levels for the remaining variables. Therefore, the results presented here include the relationship category for intimate partner.

As indicated in Table 23, when compared to arguments, female offenders are 90% less likely to use a weapon during the commission of a sexual assault, 80% less likely during a robbery, and about 75% less likely to use a weapon while engaging in other crime or deviance-related activities ($p < .001$). No significant effects were found when comparing romantic conflicts and other/unknown circumstances to arguments. When weapons were used, there was an 81% increase in the chances that the weapon would be a firearm when the circumstances were that of a sexual assault and 40% more likely for other or unknown circumstances ($p < .001$). When female offenders were armed during the commission of a robbery, it was six times more likely that they would be armed with a firearm compared to incidents in which a female commits

an act of criminal violence while using a weapon within the context of an argument ($p < .001$). The remaining incident circumstance types did not significantly affect the likelihood that a female offender would use a firearm rather than another type of weapon. The use of drugs and/or alcohol during an offense had no significant impact on the likelihood of a female offender using some sort of weapon, but when a weapon was used, intoxicated offenders were nearly 40% less likely to use a gun ($p < .001$).

Incidents occurring in restricted access areas and other/unknown locations were just over 30% less likely to involve the use of a weapon when compared to incidents occurring within a residence ($p < .001$). Females that offend outdoors, however, were about 35% more likely to use some sort of weapon ($p < .001$). When weapons were used, the only location type that had a significant effect on predicting firearm use was that of restricted access areas, where offenders were about 40% less likely to be armed with a firearm ($p < .001$).

In terms of victim-offender relationship, all known relationship types were significantly related to increased chances of a female offender using a weapon when compared to altercations involving strangers. Females were 30% more likely to use a weapon against an intimate partner, 25% more likely to use one against an acquaintance, and slightly more than 20% more likely to wield something against a family member ($p < .001$). When weapons were used, however, the probability of a female using a firearm tended to significantly decrease as the relationship between victim and offender increased in strength. Offenders were 20% less likely to use a gun when the incident involved an acquaintance, more than 50% less likely to use one against intimate partners, and over 55% less likely to wield a firearm against a family member ($p < .001$). Once again, each of these relationship types are compared against stranger relationships.

Females who committed an offense within an urban jurisdiction were about 50% more likely to use some sort of weapon compared to females offending in a rural area ($p < .001$). Jurisdiction population group type did not have a significant effect on the likelihood of firearm involvement when weapons were used, however. Compared to Southern females, those who offended in the Northeast were over 40% more likely to use some sort of weapon, while offenders in the Midwest were 10% less likely to do the same ($p < .001$). The likelihood of weapon use did not significantly differ when comparing females from the South and the West. When weapons were used, females in all other location types were significantly less likely to use a gun compared to Southern female offenders, likely due to increased ownership and firearm socialization amongst Southern women (Young, 1986). The difference of the highest magnitude occurred when comparing Southern females to Northeastern females, who were almost 80% less likely to use a gun ($p < .001$). Midwestern females were about 35% less likely to use a firearm, while western females were 25% less likely to do the same ($p < .001$).

Although temporal factors had some impact on weapon use by male offenders, especially when determining likelihood of firearm use, the same is not true of female offenders. None of the time blocks significantly altered the probability of a female using some sort of weapon when compared to the timeframe of 4:00 am to 7:59 am. Similarly, none of the time blocks significantly altered the likelihood that a female would use a firearm rather than another type of weapon. Finally, whether or not the incident occurred on a holiday had no effect on female offender weapon use or, in the event of weapon use, the likelihood that the offender would be wielding a firearm.

Table 24 presents the results of remaining offender demographics and victim demographics as independent variables influencing the use of weaponry and firearms by female

offenders. Compared to white females, black females are 17% more likely to use some sort of weapon when engaging in a violent confrontation ($p < .001$). However, when weapons are used, black females are nearly 30% less likely to use a firearm compared to white females ($p < .001$). No significant influence on the likelihood of weapon use or firearm use of other or unknown offender race categories were found. In terms of offender age, females aged 45 and older were just over 30% more likely to use some sort of weapon compared to female juveniles ($p < .001$). This was the only significant finding for age category comparisons in model 1. When weapons were used, females aged 25-34 were over 30% more likely to use a firearm, 35-44 year old females were nearly 40% more likely to do so, and females aged 45 and up were more than twice as likely to wield a gun when compared to juvenile female offenders ($p < .001$).

Regarding victim demographics, female offenders were 75% more likely to use a weapon when facing black victims compared to white victim ($p < .001$). Similarly, when a female offender used a weapon against black victims, it was 25% more likely that the weapon was a firearm ($p < .001$). These same analyses were conducted separately for white female offenders and black female offenders (results not shown). Compared to white victims, white female offenders were 52% more likely to use a weapon against black victims, and when a weapon was used, the likelihood of it being a firearm increased by 53% ($p < .001$). Black female offenders were 68% more likely to use a weapon against a black victim ($p < .001$). When a weapon was used, black females were not significantly more likely to use a firearm against black victims.

Against other females, offenders were about 40% less likely to use a weapon ($p < .001$). There was no significant effect of gender on determining the probability of whether or not the weapon would be a firearm, however. In terms of victim age, there was an increase in over 90% in the probability that a female offender would use a weapon when involved in an incident with a

victim in age groups spanning 18-44 years, compared to juvenile victims ($p < .001$). Female offenders were also more likely to use weapons against victims aged 45 and up, although the increase was only by about 65% ($p < .001$). When weapons were used, it was 45% more likely to be a firearm if the victim was 18-24 years old, 55% more likely if the victim was 25-34 years old, just over 40% more likely for 35-44 year old victims, and 30% more likely to be a gun if the victim was 45 years of age or older, each compared to juvenile victims ($p < .001$).

Series 3 Analyses

Tables 25 through 27 indicate the results of analyses focusing on variables impacting levels of victim injury. The dependent variable for Model 1 is an indicator of whether the victim suffered a nonlethal injury compared to no injury. Model 2 focuses on incidents where the victim received some sort of injury and the dependent variable indicates whether or not that injury was lethal. Due to the inclusion of only incidents where offender sex is known and the significant overlap of missing data on offender demographic variables, indicators of missing data on offender race and age are not included in the analyses.

Table 25 indicates the results of examining the influence of weapon, incident circumstance, offender use of drugs and/or alcohol, incident location, victim-offender relationship, urban jurisdiction, and the census region of the reporting agency on the chances of the victim receiving a nonlethal injury compared to no injury (model 1) and, within incidents where the victim was injured, the likelihood that the injury would be lethal rather than nonlethal (model 2). Table 26 does the same but presents results for the independent variables of incident hour, whether the incident took place on a holiday, and offender demographics. Table 27 presents results for victim demographics. Both models are significant at the .001 level (model 1 chi-square = 77,372; model 2 chi-square = 10,074). Model 1 explains 22% of the variance of

whether the victim suffers a nonlethal injury compared to no injury, while model 2 explains 23% of the variance of whether the victim suffers a lethal injury compared to a nonlethal injury.

As indicated in Table 25, all weapon types, when compared to unarmed offenders, significantly affect the chances of a victim to receive a nonlethal injury. When a firearm is used, the chances of nonlethal victim injury decrease by about 80% ($p < .001$). Incidents in which the offender used a knife were 45% less likely to result in a nonlethal injury, while offenders making use of blunt objects were 15% more likely to inflict an injury ($p < .001$). Weapons classified as “other,” which includes a myriad of uncommonly used weapons such as motor vehicles, explosives, poison gas, and so forth, were 40% less likely to inflict a nonlethal injury on the victim ($p < .001$). Incidents where the weapon used was classified as “unknown” were associated with a 32% decrease in the odds of victims suffering a nonlethal injury ($p < .001$).

When a victim was injured, offender firearm use had the most dramatic effect on the chances that the injury would be lethal to the victim. Incidents involving firearms were 15 times more likely to involve the death of the victim ($p < .001$). Incidents where the offender used a knife or other cutting instrument were about two and a half times more likely to result in victim death ($p < .001$). Weapons classified as “other” were 60% more likely to cause lethal injury, while incidents where the weapon was unknown were over six times more likely to be involved in a homicide ($p < .001$). The use of blunt objects had no significant effect on the chances of the victim suffering a lethal or nonlethal injury. Once again, each weapon type was compared against a contrast category consisting of unarmed offenders.

Regarding incident circumstance, romantic conflicts were 17% more likely to involve nonlethal injury to the victim when compared to arguments ($p < .001$). The remaining circumstance types were associated with a decreased chance of victims suffering nonlethal

injury. Sexual assaults were about 80% less likely to produce a nonlethal injury to the victim, while robberies were about 75% less likely to do the same ($p < .001$). Incidents which included other crime or deviance-related circumstances were slightly more than 60% less likely to involve nonlethal victim injury ($p < .001$). When victims were injured, incidents where the circumstance was a romantic conflict were over two times more likely to result in victim death compared to incidents resulting from an argument ($p < .001$). Also compared to arguments, sexual assaults were 35% less likely to result in victim death, while robberies were 65% less likely to do the same ($p < .001$). Incidents arising out of other crime or deviance-related activities were, however, two and a half times more likely to result in lethal victim injury ($p < .001$). Offender use of drugs and/or alcohol was associated with a 33% increase in the chances of their victims suffering a nonlethal injury, but when injuries were suffered, the chances of it being a lethal injury decreased by about 30% ($p < .001$).

Regarding location types, incidents occurring in open access areas were 20% less likely to result in nonlethal victim injury compared to incidents occurring within a residence ($p < .001$). According to Routine Activities Theory (Cohen & Felson, 1979), this is likely due to the presence of more capable guardians in open access areas compared to residences. Restricted access areas were 20% more likely to involve incidents where the victim suffered a nonlethal injury ($p < .001$). This finding may seem contradictory to the Routine Activities Theory, as restricted access areas, defined in part by the presence of some sort of security or gatekeeper, should have a higher number of capable guardians. However, given the types of locations defined as restricted access, especially office buildings, this finding may actually be indicative of workplace violence, where the roles between guardian, victim, and offender can become blurred in similar ways as these roles become blurred amongst individuals within a residence (i.e., the

motivated offender may in other situations be the capable guardian). Incidents occurring outdoors were only 4% more likely to result in nonlethal victim injury and other/unknown locations increased these chances by 6% ($p < .001$). When the victim suffered injuries, each location type with the exception of other/unknown locations were conducive to significantly decreased chances of lethal victim injury when compared to incidents occurring within a residence. Incidents occurring within open access areas, restricted access areas, and outdoor locations were associated with about a 30% decrease in the likelihood that the injuries suffered by the victim would be lethal ($p < .001$).

When compared to incidents between strangers, violence between acquaintances was 15% more likely to result in a nonlethal injury to the victim ($p < .001$). Violence between intimate partners was 60% more likely to result in victim injury, while familial conflict was associated with an increase in the chances of nonlethal victim injury of only about 10% ($p < .001$). When injuries were suffered by the victim, the injuries were 50% more likely to be lethal when the conflict was between acquaintances, twice as likely to be lethal when between family members, and about two and a half times more likely if the victim-offender relationship was unknown ($p < .001$). No significant differences in the chances of victims suffering a lethal injury rather than a nonlethal injury were found when comparing violent events involving intimate partners to those involving strangers.

Regarding effects of city size, incidents occurring within urban jurisdictions were only about 10% more likely to result in nonlethal victim injury when compared to incidents within rural jurisdictions, but this difference is still significant ($p < .001$). No significant differences between urban and rural jurisdictions were found when examining the effects on whether or not the victim would suffer a lethal or nonlethal injury once injured. Similarly, when compared to

the South, all other census regions were associated with a significant increase in the likelihood that a victim would suffer a nonlethal injury. The largest difference was found in the Northeast, where incidents were 18% more likely to produce injured victims. Once again, the Northeast, when compared to the South, was also associated with a significant 30% increase in the likelihood that an offender would use some sort of weapon, although it was 65% less likely that the weapon would be a firearm. This may be indicative of a weapon substitution effect, as will be discussed in the next chapter. Census region did not significantly impact the likelihood of lethal victim injury vs. nonlethal victim injury, however. This finding suggests that the regional effects on lethal violence may be indirect and that Southerners are not inherently more likely to kill their victims (Corzine, Huff-Corzine, & Whitt, 1998).

As shown in Table 26, incidents occurring between midnight and 3:59 am were 9% more likely to result in a nonlethal injury to the victim compared to incidents occurring between 4:00 am and 7:59 am ($p < .001$). Incidents that took place between 8:00 am and 3:59 pm were almost 30% less likely to result in nonlethal victim injury, while those that took place between 4:00 pm and 7:59 pm were about 25% less likely to do the same ($p < .001$). Events that happened between 8:00 pm and 11:59 pm were only about 8% less likely to result in nonlethal victim injury, but the difference is still significant ($p < .001$). When examining injurious attacks, injuries were most likely to be fatal during the early morning hours (between 4:00 a.m. and 7:59 a.m. With the exception of the time block of 8:00 am to 11:59 am, incidents occurring during all other time periods were 20-30% less likely to result in victim death ($p < .001$). There was no significant difference in this likelihood when comparing the time periods of 8:00 am to 11:59 am with those incidents occurring between 4:00 am and 7:59 am. Regarding the influence of

whether or not the incident occurred during a holiday on the likelihood of victims suffering nonlethal or lethal victim injury, no significant differences were found.

Black offenders were 13% more likely to inflict a nonlethal injury to their victims than white offenders ($p < .001$). Similarly, offenders of other races were 16% more likely to do the same ($p < .001$). When the victim suffered an injury, black offenders were nearly 30% less likely to inflict a lethal injury ($p < .001$). Offenders of other races were 16% more likely than whites to inflict a lethal injury to their victim, but this difference was not significant. Regarding sex of the offender, no significant differences in the likelihood of the victim suffering a nonlethal injury vs. no injury were observed when comparing females or incidents where offender sex was unknown to males. However, females were 30% less likely than males to cause the death of their victim ($p < .001$). 18-34 year olds were about 15% more likely to nonlethally injure their victims when compared to juvenile offenders ($p < .001$). Offenders aged 35-44 were almost 10% more likely to cause nonlethal injury ($p < .001$). No significant differences in this likelihood were observed when comparing offenders over the age of 45 to juvenile offenders. In examining events where victims did suffer an injury and investigating the likelihood of victim death vs. nonlethal injury, all offender age groups were about two times more likely to kill their victims compared to juvenile offenders ($p < .001$).

Regarding victim demographics, black victims were 6% more likely to suffer a nonlethal injury rather than no injury when compared to white victims ($p < .001$). Incidents where victim race was unknown were about 20% less likely to result in a nonlethal injury and incidents with missing data on race were 97% less likely to do the same ($p < .001$). Regarding the second model of analysis, there were no noteworthy differences in the likelihood of suffering a lethal injury compared to a nonlethal injury when examining victim race. The one exception to this,

however, was the indicator of missing data on victim race. Incidents where victim race data were missing were over 1000 times more likely to result in lethal injury compared to incidents where the victim was known to be white ($p < .001$).⁵ Incidents involving a female victim were about 30% less likely to result in a nonlethal injury rather than no injury ($p < .001$). No significant effects of victim sex were observed when predicting the likelihood of lethal injury vs. nonlethal injury, however. Finally, regarding victim age, incidents involving victims of all other known age categories were significantly more likely to result in a nonlethal injury when compared to juvenile victims. Victims aged 18-24 years old were 25% more likely to suffer a nonlethal injury, victims aged 25-44 were just under 20% more likely to do the same, and victims aged 45 and up were 10% more likely to suffer a nonlethal injury ($p < .001$). When the victim did suffer an injury, it was 50% more likely to be lethal for 25-34 year olds, 80% more likely for 35-44 year olds, and almost three times more likely for victims aged 45 and up ($p < .001$). No significant difference in the likelihood of suffering a lethal injury was observed when comparing victims aged 18-24 to juvenile victims.

This chapter has presented the results for logistic regression analyses conducted in the three series of analyses for this research project. The following and final chapter will provide more detailed interpretations of these findings within the context of weapon and firearm use, as well as the effects of weaponry and other variables on levels of injury suffered by victims of

⁵ Although indicators of missing data were included as a control primarily to preserve data, an odds ratio of over 1000 warrants some mention. This finding, while anomalous, is likely an artifact of the distribution of missing data within incidents resulting in nonlethal injury and lethal injury. A total of eight out of 209,705 incidents of nonlethal injury contained missing data on victim race, while 67 of the 4,855 incidents of homicide had missing data on the same variable. Thus, the abnormally high odds ratio for this variable makes sense given the distributions of missing data. It is unknown, however, why there is such a relatively larger number of cases with missing data on victim race for incidents that resulted in victim death. One probable explanation is that these represent cases where race was unknown or unable to be determined by the reporting agency and left blank on the incident report form instead of being designated as “unknown.” Nevertheless, by controlling for item-missing data, effects of reporting errors such as these are diminished when interpreting effects of other variables.

violence. The next chapter will also address the findings in relation to the primary research topics of the present study, specifically race and gender effects on weapon and firearm involvement within violent incidents, as well as the effort to replicate Kleck and McElrath's (1991) finding that firearms actually inhibit injury, but when an injury is suffered by a victim, that injury is more likely to be lethal.

CHAPTER SIX: DISCUSSION AND CONCLUSION

The purpose of this research was twofold. First, it examined various victim, offender, and incident characteristics on the likelihood that an offender would use a firearm or some sort of weapon during the course of a violent incident. Second, it investigated the effects of weapon use, as well as other situational and contextual variables, on the likelihood of a victim receiving nonlethal or lethal injury as a result of violence. These investigations were made through the application of criminal events perspective, which states that various situational and contextual factors interact to affect the outcome of a criminal encounter. In this case, situational and contextual variables were examined that impact the use of weaponry by violent offenders and the subsequent effect that weapons, particularly firearms, have on the outcome of a violent confrontation in terms of victim injury. This was done while controlling for the independent effects of other variables pertinent to the criminal events perspective. This research also sought to address three specific research questions: 1) are black offenders more likely to use a firearm? 2) Are female offenders more likely to use a firearm against strangers? 3) Does the use of a more comprehensive dataset (i.e., NIBRS) confirm the previous finding of Kleck and McElrath (1991) that incidents with firearms are less likely to produce victim injury, but when the victim is injured, it is more likely to cause lethal damage?

In general terms, black offenders were 25% more likely to use a firearm than white offenders. When the same analyses were conducted separately for male and female offender subsets within the second series of analyses, though, some differences were found. Black males were no more likely to use a weapon than white males. However, when a weapon was used to

commit a violent offense, black males were 50% more likely to use a firearm. Regarding females, black female offenders were 17% more likely to make use of a weapon compared to white females, a finding that was also significant at the .001 level. However, when a black female offender used a weapon, it was 27% less likely to be a firearm when compared to weapon use by white female offenders. Essentially, although black females were more prone to weapon use, in the event that offenders did arm themselves with something, black males were found to be more likely to use a firearm. These findings confirm the suspicion that overrepresentations of black males within the population of homicide offenders is at least partially due to a higher likelihood of black males to make use of a firearm.

Put in terms of the criminal events perspective, overrepresentation of black males as homicide offenders relates to higher likelihoods of firearm use, which in turn increases the chances of victims receiving a lethal injury (Felson & Messner, 1996; Kleck & McElrath, 1991; Libby & Corzine, 2007; Weaver et al., 2004). This will be discussed in further detail later. The reason blacks are more likely to use firearms more than likely stems from geographic concentrations of poverty and crime, especially within disadvantaged minority neighborhoods within urban areas (e.g., Bursik & Grasmick, 1993; Shaw & McKay, 1942). Within these areas, both victims and perpetrators of violence likely come from the same subsets within the general population, as indicated by findings that prior offending significantly increases the odds of victimization (Cook et al., 2005; Dobrin, 2001; Dobrin et al., 2005). Previous research also indicates that firearm use is not only to give an offender an edge over a potential victim, but also to prevent their own victimization by others similar to themselves (Wright & Rossi, 1986). In the terms of routine activities theory, ready access to firearms both potentially increases the

number of suitable targets should the opportunity to offend arise while at the same time reducing one's own level of target suitability (Cohen & Felson, 1979).

The second specific question addressed in this research related to determining if female offenders were more likely to use a firearm against strangers. Again, this suspicion was confirmed. Victim-offender relationships of acquaintance, intimate partner, and family members were all significantly less likely to involve female use of a firearm when compared to stranger relationships. There were no significant differences in the likelihood of firearm involvement when comparing incidents where the victim-offender relationship was unknown to the reporting agency to stranger relationships, although this may be an indicator that many of the "unknown" relationships involved strangers.

Due to the relative lack of scholarly information on female offending within the general context of violence, this area is worthy of further discussion. In general, female offenders were found to be significantly more likely to use some sort of weapon compared to male offenders, although they were over 70% less likely to use a firearm. For both males and females, weapons were more likely to be used against male victims, likely due to tactical considerations on the part of the offender (Felson & Messner, 1996). Males are likely to be seen as stronger opponents for both males and females, and thus weapon use by offenders who target males can achieve some amount of physical superiority during the conflict. Similarly, both male and female offenders were significantly more likely to use a weapon against a black victim, and when a weapon was used, it was more likely to be a firearm. This also supports the argument of Felson and Messner (1996) that blacks may be perceived as more of a threat, thus making weapon use and firearm use more tactically appropriate. When weapons were used, males were 7% less likely to use a firearm against a female while female offenders were 4% less likely to do the same. This

difference was significant for male offenders, but not for female offenders. Nevertheless, these differences in likelihood for using a firearm over another type of weapon are also supported by Felson & Messner's (1996) tactical consideration hypothesis stated above.

Offenders of both genders were significantly less likely to use a weapon during the course of a robbery compared to arguments. Although the typical conceptualization of a robbery is a hold-up in which an offender demands money or other goods from their victim, the more common form is the unarmed, or "strong-arm" variant, which often includes a blitz attack on a victim, the fast removal of what the offender can grab, and a quick escape. The classic example of this is an offender pushing an elderly lady over, grabbing her purse, and running off. Based on the results of this study, it appears that both male and female robbers employ this method. Hold-ups, however, are probably more likely to involve a weapon, where the purpose of the weapon is to serve as a tool for coercion so that actual physical violence does not occur (Cook, 1982; Wright & Decker, 1997; Wright & Rossi, 1986). Logically, firearms would be the most appropriate choice for a weapon due to the intimidation value. This reasoning is consistent with the findings of the present study, where males were almost four and a half times more likely to use a firearm when some weapon was used during the course of a robbery, while females were over six times more likely to do the same. The higher likelihood for females to use firearms is indicative of the need for female robbers to ensure that their victims understand that they are indeed being robbed by a female offender who is seriously interested in depriving them of their valuables, especially in cases in which the victim is male (Miller, 1998). To put these findings in a different framework, similar to the reasons why black offenders may be more likely to make use of firearms in relation to routine activities theory, females who set out with intentions of

capitalizing on committing a crime against a stranger arm themselves to increase the potential pool of suitable targets due to the tactical considerations detailed above.

Both males and females were also less likely to wield a weapon during the course of sexual assaults. When weapons are used, females were found to be significantly more likely to use a firearm compared to when females offend in arguments, while males were significantly less likely to do the same. For males committing sexual assaults, this is probably indicative of male confidence in overpowering their victim. For female offenders, it is unclear why this is the case, as the nature of female sex offenders is essentially unclear in general. For other crime/deviance related-circumstances, both males and females were less likely to use weapons when comparing these types of offenses to arguments. Additionally, for both sexes, there was no significant difference in the likelihood of firearm use when weapons were used. As this classification of offense is essentially a catch-all category including offenses such as drug deals and gang disputes, it is difficult to develop specific reasons as to what these findings may mean. Finally, for both males and females, a comparison of romantic conflicts to arguments yielded no significant changes in the likelihood that a weapon would be employed or that a firearm would be used in the event that the offender did arm themselves. Although romantic conflicts are often touted as being more emotionally intense than a standard argument, this apparently does not play much of a role in choices of weapon use by either gender.

When offenders were identified as under the influence of drugs and/or alcohol during the course of the offense, it was found that males were significantly less likely to use a weapon while intoxicated, and when a weapon was used, it was also significantly less likely that the weapon would be a firearm. For females, intoxication did not factor into weapon use, but when weapons were used, intoxicated female offenders were significantly less likely to use a firearm. Females

were found to be more likely than males to use some sort of weapon within the first series of analyses, and apparently intoxication has no impact here. The finding that intoxicated offenders are less likely to use a firearm when they do use a weapon of some sort likely indicates that they utilize objects within their immediate environment, or, at the very least, during times in which they indulge in drugs or alcohol, they do not keep firearms close by or are too inebriated to access them in a timely manner.

Regarding regional variations in weapon use, both male and female offenders in the Northeast were significantly more likely to use some sort of weapon when compared to their counterparts in the South. Both males and females in the Midwest were significantly less likely to use a weapon, however. Male offenders in the West were significantly less likely to use a weapon of some sort, while there were no significant differences between female offenders in the West compared to those in the South. When weapons were used, incidents within the South were significantly more likely to involve firearms compared to incidents within all other regions for both men and women. The likelihood of firearm use was by far the least within the Northeast. Patterns of firearm use were fairly consistent with expectations, as gun availability and socialization is typically higher in the South (Hemenway, 2004; Kleck, 1997). The finding that incidents within the Northeast are more likely to involve some sort of weapon, even though the weapon is less likely to be a firearm, is somewhat surprising, however. One explanation may be that, due to the relative lack of both firearm availability and socialization, Northeastern offenders more commonly engage in weapon substitution, using other instruments in order to commit acts of violence. Another possibility is that the fear of running across a victim armed with a firearm (see Cook, 1982; Wright & Rossi, 1986) is lower in the Northeast, so offenders are more comfortable engaging their victims with other types of weaponry. In other words,

offenders in the Northeast may feel less likely like they may be bringing a knife to what could become a gunfight. In the South, however, firearm ownership and socialization is higher (Hemenway, 2004; Kleck, 1997). The same is even true for Southern females (Young, 1986). Thus, potential offenders may not be as comfortable engaging in violence with someone they perceive as likely to be carrying a gun and may opt not to interact with that person in a potentially violent manner if they can only make use of another type of weapon and, in all likelihood, even if they themselves have access to a firearm (Wright & Rossi, 1986).

Although weapon use patterns of male and female offenders appear to be fairly similar when examining circumstance variables and regional variations, some differences do appear within other situational and contextual variables. For females, when committing an offense against an acquaintance, intimate partner, or other family member, offenders are significantly more likely to use some sort of weapon compared to offenses against strangers. For males, offenders are significantly less likely to do the same. When a weapon is employed, both male and female offenders are still more likely to use a firearm against a stranger. These findings may also relate to aforementioned tactical considerations (Felson & Messner, 1996). When males offend against those that they know at some level, they may be more confident that they can accomplish the goal of their offense without the need to use a weapon. Against strangers, they may prefer to use weapons in order to quickly establish dominance within the situation. For females, weapon use may be preferred against those that they know because they may feel that weapon use is a necessity to quickly achieve the upper hand within a conflict. Female engagement in stranger violence, however, is somewhat uncommon compared to violence against other types of victim-offender relationships, so these acts may be more spontaneous and less likely to involve weapon use. When weapons are used, however, for both sexes it was more

likely to use a firearm against a stranger, indicating that if an altercation with a stranger is serious enough to warrant weapon use, firearms are the best way to achieve tactical superiority.

Events that took place in urban areas were more likely to involve some sort of weapon use regardless of offender sex. When weapons were used, urban offenders were also generally more likely to use a firearm, although this finding was mostly attributed to urban male offenders. This may be indicative of higher concentrations of firearms illegally possessed by individuals who are criminally-inclined or involved in deviant subcultures, such as gangs. The general trends of increased weapon use by offenders in urban areas may be an indirect result of relatively higher degrees of social disorganization or a lack of collective efficacy (see Bursik & Grasmick, 1993; Sampson, Raudenbush, & Earls, 1997). At the individual level, this would manifest in social isolation, characterized by a lack of strong interpersonal bonds and a predominance of superficial or transitory interpersonal relationships as a result of population heterogeneity, segregation, high levels of population density and population mobility, and so forth (Bursik & Grasmick, 1993; Park & Burgess, 1925; Sampson, Raudenbush, & Earls, 1997; Shaw & McKay, 1942; Wirth, 1938). As Wells and Horney (2002) suggest, weapon use, especially firearm use, decreases the amount of physical and psychological effort that it takes to inflict damage on another person. An extension of this argument could be that weapon use also reflects the interpersonal and emotional distance found between individuals within an urban setting. Alternatively, weapon use may be used to maintain interpersonal distance. In contrast, individuals within a rural setting may be less emotionally distant or have an increased sense of

familiarity with the other people within their surroundings, which manifests in higher likelihoods of unarmed altercations.⁶

Few differences were found in weapon use when comparing the contrast category of 4:00 am to 7:59 am to the other time periods. The only exception was the time block from midnight to 3:59 am where males were slightly (8%) less likely to make use of some sort of weapon. Although this difference was found to be significant, it is not noteworthy. When weapons were used, however, males and females demonstrated divergent patterns in firearm use. For female offenders, no significant differences were found in the likelihood that they would use a firearm for any of the time periods. For males, however, the likelihood that an offender would use a firearm increased significantly for all time periods ranging from 8:00 a.m. until midnight. From a Routine Activities perspective (Cohen & Felson, 1979), time periods have been traditionally linked to increased chances that an individual would be outside the home for recreational or occupational purposes. Thus, criminal activity would be higher as more people are out and about, which increases the chances of motivated offenders meeting suitable targets, with the exception of intimate partner disputes, which are more likely to occur within a residence (Cohen & Felson, 1979). However, in this study, both location and victim-offender relationship were controlled. Furthermore, all else considered, male offenders were also more likely to use a firearm within a residence compared to other location types, although this pattern was not found for female offenders. When incident location type, victim-offender relationship, and even offense circumstance are controlled, one would expect no significant changes in the likelihood that a firearm would be used over another type of weapon. Although this expectation was

⁶ Although effects victim-offender relationship were controlled in this research, this variable is worth some mention here. Due to the nature of urban interpersonal relationships, offenders may not be fully aware of their target's capabilities to resist victimization, potentially with a weapon of their own. Thus, urban offenders may prefer to be armed for tactical reasons (Felson & Messner, 1991; Wright & Rossi, 1986).

confirmed for female offenders, it was not found for male offenders. One possibility may be that, for male offenders, the effects of incident time period within this study may actually be reflecting the effects of another unknown variable.

The final specific research goal was to determine if the results of Kleck and McElrath (1991), who found that firearm use actually prevented victim injury, but when the victim was injured, it was more likely to be lethal, could be replicated using NIBRS data. In the present study, offenders wielding firearms were 80% less likely to receive a nonlethal injury. However, when the victim did receive an injury, offender use of a firearm resulted in an increase in the likelihood of victim death by a factor of over 15. Thus, the finding of Kleck and McElrath (1991) is, indeed, replicated in the NIBRS data used in this study. However, Kleck and McElrath's (1991) findings regarding victim death were of a lower magnitude than was found here, and the researchers argued that the net effect of firearm use on lethal injury to a victim of violence was close to zero. The findings within the present study do not confirm this although they do support other research findings that show firearm involvement within violence significantly and dramatically increases the chances of victim death (Felson & Messner, 1996; Libby & Corzine, 2007; Weaver et al., 2004). One possible explanation of this is changes in firearm usage within violent incidents, such as increases in semi-automatic pistol use, larger caliber bullets, and so forth (Adibe, Caruso, & Swan, 2004; Block & Christakos, 1996).

In addition to firearms, other weapons displayed significant effects on the likelihood of victim injury when compared to unarmed attacks. Offender use of knives or other cutting instruments yielded results similar to that of firearms, although these weapons were only two and a half times more likely to inflict a lethal injury within incidents where an injury was sustained. Blunt objects were more likely to inflict a nonlethal injury, but the chances of inflicting a lethal

injury were not significantly altered. Also, weapons classified as unknown were less likely to inflict a nonlethal injury but six and a half times more likely to inflict a lethal injury. This is likely indicative of a higher number of cases where a dead body is found but the method of killing is not readily determined. This could be due to a variety of reasons, such as advanced stages of decomposition, the presence of multiple types of injury (e.g., a victim was both bludgeoned and there is evidence of strangulation), or post-mortem mutilation by either the offender, wild animals (if the body was left outside), or animals owned by the victim as pets, and so forth.

This research has shown that firearms serve a function in preventing injury in most cases. However when injury is inflicted, it is dramatically more likely to be lethal. The same pattern is generally found for other weapon types as well. Thus, weapon use seems to serve a role in convincing the victim to acquiesce to the offender. The only exception to this finding is offender use of blunt objects, which may simply not appear to be threatening enough to end a confrontation before injury is inflicted upon the victim. Regardless, these findings do contribute to the extant literature on firearms and the policy divides surrounding them. Even if firearms were somehow magically removed from American society, it is likely that increases in nonlethal injuries would be reported, even if offenders did not substitute firearms for another type of weapon and attacked their victims using only their hands, fists, or feet. Granted, the number of homicides may be reduced, but it would also be possible to see an increase in nonlethal injuries resulting in paralysis or other outcomes that decrease the quality of life. Also, in some types of offenses, notably robbery, offenders without the ability to intimidate their victims with a firearm may find more suitable targets to victimize, such as the elderly, who would be more likely to suffer detrimental effects from a blow to the head than a middle-aged male (Wright & Rossi,

1986). Indeed, the results of this research showed that as victims got older, the likelihood of both nonlethal and lethal injury increased.

Of course, the above-mentioned outcomes are merely “what if” scenarios, even if hypothetically logical, and impossible to study empirically, as the nature of violent crime would undoubtedly change should firearms be removed from American society. However, research has indicated that most mainstream gun owners are legitimate owners and do not use their firearms for criminal purposes (Kleck, 1997). Furthermore, especially in terms of gun homicides, both victims and offenders are typically from the same small subset of the population: repeat offenders (Cook et al., 2005; Faria, 2005; Wright & Rossi, 1986). Finally, one variable that has consistently been shown to increase one’s odds of homicide victimization is prior offending (Dobrin, 2001; Dobrin et al., 2005). It is not a huge leap to consider the possibility that, considering these factors, those who are willing to commit crimes while making use of a firearm may not necessarily have a high level of respect for the law. Given the makeup of gun homicide victims and offenders, it is entirely possible that harsh gun control legislation will not stop offenders from seeking, acquiring, and using firearms much in the way that harsh drug policy has not stopped drug addicts from seeking, acquiring, and using illegal substances within American society.

Although gun control legislation may not be the best solution to reduce lethal violence, it would be rather foolish to suggest that nothing should be done about firearms. Generally speaking, it was found in this research that firearms were most likely to be involved in criminal activity or in conjunction with other acts of deviance, such as gang-related disputes. Thus, one goal should be to specifically target crime-prone individuals and sources of illicit firearm acquisition. Further refinement of gun enforcement programs, such as the St. Louis Consent-to-

Search program, New York's Compstat, Boston's Operation Ceasefire, Richmond's Project Exile, and so forth, could have the potential to meet these goals. However, programs such as these would require a significant amount of resources to implement properly and should also be research-driven and flexible enough to change with dynamic offending patterns. Programs should also be developed specifically for any given jurisdiction, and a significant amount of research should also be implemented prior to the development of such a program within a specific locale. Every city has its own unique characteristics and idiosyncrasies that differentiate it from other locations with underlying dynamics that may relate to criminal activity in different ways. There is likely no catchall public policy that would work universally, as evidenced by the attempted replication of Boston's Operation Ceasefire in Los Angeles (Tita et al., 2005).

Furthermore, it is also recommended that programs be designed for long-term implementation. Unfortunately, however, many public policy decisions such as these are intertwined with politics, where there is a bias towards short-term solutions, potentially resulting in abandoned projects if decisive results are not immediately identified. Although empirical results of research regarding the effects of these types of programs on crime have been mixed, some level of success have been found (e.g., Braga & Pierce, 2005; Decker & Rosenfeld, 2004; Fagin et al., 1998; Kellerman et al., 2006; Rosenfeld et al., 2005), offering a glimmer of hope should research, development, and implementation of gun enforcement programs continue.

Thus far, a substantial portion of this discussion has focused on the use and effects of firearms within violent situations. However, as mentioned earlier in the discussion of the criminal events perspective (Meier, Kennedy, & Sacco, 2001; Sacco & Kennedy, 1996), weapon usage is but one of many situational and contextual variables that can affect the outcome of a

violent confrontation. The following discussion focuses on some of these key variables included in the present study.

In terms of circumstance, romantic conflicts⁷ were significantly more likely to result in a nonlethal injury and, when the victim was injured, more likely to result in victim death.

Although a comparison of romantic conflicts to arguments did not significantly alter chances of weapon use or firearm use, as found in previous models within this study, it does appear that the emotional intensity of the situation leads to higher levels of victim injury. Conversely, robberies were less likely to result in a nonlethal injury and also less likely to produce a fatality in the event that the victim was injured. This result is expected, as the motivation behind a robbery is instrumental, whereas the motivational factors driving an argument or romantic conflict are expressive.

Sexual assaults, also when compared to arguments, were significantly less likely to result in a nonlethal injury. Furthermore, when victim injury did occur, it was significantly less likely to be lethal. These results exhibit patterns similar to robberies, an instrumental crime, and may suggest that the goal of a sexual assault is also instrumental. Injuries suffered by the victim are incidental to the offense, and the offender does not engage in more violence than is necessary to achieve their goals. In this conceptualization, sex may be considered as a “commodity” that the offender takes from the victim by the use or threat of force. Thus, like robberies, the goal of the offense is not to express domination or inflict harm, but to obtain something of value, thereby making the crime sexually motivated. Many researchers have long held the reverse conceptualization of sexual assault (e.g., Brownmiller, 1975; Medea & Thompson, 1974).

⁷ It should be noted again that romantic conflicts, originally termed “lovers’ quarrels” in NIBRS, are in all likelihood not solely cases of domestic violence. Upon examining victim-offender relationships within this circumstance category, it appears that other cases are included, most likely incidents where the offender attacks the person that their significant other is cheating with, or something similar.

However, more recently, Felson (2002) has argued that sex is indeed the primary motivation behind sexual assaults, not expressions of power or domination. While the results found in the present study do not decisively close this debate, they do provide some evidence for Felson's (2002) arguments.

One final interesting result from this study was found in examining the effects of region on the outcome of violence. Compared to the South, incidents occurring in the Northeast, Midwest, and West were all significantly more likely to result in nonlethal victim injury, although the magnitude for the increase in likelihood was modest for the West (8%) and negligible for the Midwest (3%). Furthermore, when examining incidents that resulted in lethal injury, no significant differences in the likelihood of the victim suffering a lethal injury were found when comparing the South to the other regions. Interestingly, when compared to the South, the Northeast has lower rates of gun availability, while the Midwest has fairly similar rates (Kleck, 1997). These patterns may affect the likelihood that actual physical violence would ensue during a confrontation. For example, in the Northeast, where guns are fewer, offenders may not have the ability to use intimidation via firearms as often as offenders in other regions, thus victims may resist or fight back more often, increasing the risk of injury. Similarly, the chances of attacking a victim armed with a gun may not be seen as much of a concern in many situations, so the offender does not perceive actual physical attacks to be as risky.⁸ However, as mentioned, offenders in the South are not significantly more or less likely to kill their victims. On the surface, this may seem as contradictory to the Southern subculture of violence thesis. One obvious conclusion is that the effects of region on homicide may be indirectly established

⁸ Unfortunately, while actual weapon use on the part of the offender can be controlled in this analysis, NIBRS has no indicator of victim resistance or offender perceptions of whether or not their potential victim may be armed. This argument posits that regional variations of firearm ownership and socialization may impact these two factors, which could in turn impact victim injury.

through patterns of firearm use and the effects that firearms have on the outcome of violence, which was also supported by the findings of this research (see also Corzine, Huff-Corzine, & Whitt, 1998). Additionally, the findings within this research may indicate that Southerners are not absolutely more likely to kill their victims but may actually be more inclined to engage in violent conflicts with circumstances that are more likely to result in victim death. For example, regardless of region, this research has indicated that romantic conflicts are more likely to be lethal if injury is inflicted upon the victim. Southerners may be more likely to become violent in romantic conflicts, but may not be simply more likely to kill anyone they have a physical altercation with. Although this explanation may be merely splitting hairs, this is further evidence that the effect of region on homicide is indirect. Research on the Southern subculture of violence thesis may benefit further from applications of the criminal events perspective (Sacco & Kennedy, 1996).

Taken together, these results shed more light on the factors affecting the outcome of violent crime and provide examples of areas of potential intervention beyond limiting access to firearms that could reduce loss of life. One obvious finding is that incidents occurring in relation to other crime or deviance such as drug deals or gang activity are more likely to end in victim death even when controlling for weapon use, which is logical considering the nature of drug markets and gang activity. Thus, efforts to reduce these activities may also prevent drug- or gang-related homicides. Additionally, these results provide support for programs that foster alternative methods of dispute resolution other than physical violence. Although this is a lofty goal, such programs could focus on settling arguments and, especially, romantic conflicts without resorting to potentially lethal violence.

Other than crime-related violence, romantic conflicts and intimate partner violence are areas of concern. Primary prevention strategies mentioned above could potentially affect these topics, but increased “marketing” of services available to victims of this type of violence may also assist in preventing serious and potentially lethal injury. Of course, increasing the funding for the agencies that provide these services may also be beneficial. Additionally, more programs could also be developed for victimization awareness that not only assists victims in getting needed help, but also informs the general population that relationship violence is unacceptable and should not be tolerated. Another potential approach is increasing bystander awareness, which could motivate witnesses of these types of violence to alert the authorities on the victim’s behalf. All in all, programs such as those mentioned throughout this section are widely recognized as important by criminologists and public health researchers, but all too often, resources go to law enforcement and correctional systems to deal with the problems after they have developed. Granted, these two institutions are necessary sources of social control and in need of resources to carry out their functions, but they are only two of many vehicles for intervention. Furthermore, by their nature, law enforcement and correctional responses are largely brought in only when it is too late.

Although this research has provided some interesting findings, it is not without its limitations. As mentioned previously, though NIBRS is a useful and comprehensive source of crime data, it is not nationally representative. As it relies on voluntary reports from law enforcement organizations, some agencies have especially high caseloads and volumes of crime to deal with and thus choose not to report to NIBRS. Thus, the data are disproportionately from small to medium-sized and rural jurisdictions. Furthermore, NIBRS suffers from the classic problem of official crime statistics — only offenses reported to the police are included. This

limitation is likely most problematic for sexual assaults where offenses reported to police are more likely to be incidents of forcible rape between strangers rather than acquaintance or date rape. Thus, the findings for sexual assaults within this research should be interpreted with this limitation in mind.

Additionally, it should be specified that, regarding the first two series of analyses, this research indicates incidents that are more likely to involve firearms, not necessarily factors that impact offender choice of weaponry. This is due to the fact that NIBRS identifies incidents where firearms are used, and thus available, but not incidents where a firearm is readily available but another weapon is used. In addition to the aforementioned areas of potential future research relating to firearm use, sexual assaults, and regional variations, criminological research may also benefit from an analysis focusing on incidents where the offender does have a firearm readily available but instead uses another type of weapon. Finally, an indicator of whether or not the firearm was legally possessed may provide additional insight.

This research has also raised some suggestions for potential areas of study that could be further developed. One such area is that of female offending. Previous research has indicated that motivations for females to commit acts of violence are wide-ranging and can result from prior victimization, but also from more common themes such as a desire for valuables or respect (Kruttschnitt & Carbone-Lopez, 2006). Similar findings were apparent in the work of Miller (1998). However, this area of research can be expanded to examine motivations that lead to different types of violence or interpersonal violence within different circumstantial contexts. One example is the relative lack of research on female offenders of sexual assaults. Furthermore, a more in-depth analysis of differences and similarities in tactical considerations by male and female offenders may also produce some interesting results.

This research has also raised some questions in relation to the Southern subculture of violence theory. With weaponry controlled, Southerners were not found to be significantly more or less likely to kill their victims, which indicates an indirect effect of regional subcultures on homicide offending. This is inconsistent with Gastil (1971), who posited a direct link between Southern subcultures and killing, but is consistent with suggestions put forth by Corzine, Huff-Corzine, and Whitt (1998) that stated weapon ownership and firearm carrying outside the home amongst Southerners could explain an indirect link between the Southern subculture and killing. This research also raises the possibility that Southerners may be more likely to engage in violent altercations that are associated with a higher degree of lethality regardless of regional variations. Examining these indirect linkages may prove useful in continued refinement of the Southern subculture of violence theory.

Finally, as with nearly all lethality research, the understanding of potentially lethal violence would be greatly improved by fostering a combination of incident-level data and medical data. Information such as bullet caliber, number and location of wounds, and the time it takes to transport a wounded victim to an emergency room or trauma center would be quite useful. Additionally, it may also be interesting to examine the impact of situational and contextual variables on things such as the number and location of wounds sustained by victims of violence. Another limitation that should be noted is the relatively small amount of variance explained by the analytical models of this research. Incorporation of medical data would likely increase the amount of variance explained. Furthermore, in addition to quantitative analyses, qualitative investigations may uncover even more information pertaining to weapon use and violent injury, especially when attempting further explore the impact of offender intent on victim injury and/or death.

Despite the limitations of the present study, this research has shown that NIBRS is a valuable tool in criminological research. Furthermore, the present study has offered additional insight into factors predicting weapon usage, especially firearm use, and the effects that weapons and other situational and contextual variables have on the outcome of violent confrontations by making use of the criminal events perspective. In doing so, this research has also brought to light potentially interesting avenues for future research.

APPENDIX: TABLES

Table 1. Analytical dataset base frequencies for situational/contextual characteristics.

Weapon		Victim-Offender Relationship	
Unarmed	169,594 (37.3%)	Acquaintance	133,368 (29.3%)
Firearm	76,476 (16.8%)	Intimate Partner	80,500 (17.7%)
Knife/Cutting Instrument	61,418 (13.5%)	Family	44,110 (9.7%)
Blunt Object	41,427 (9.1%)	Stranger	59,502 (13.1%)
Other	49,095 (10.8%)	Unknown	67,593 (14.9%)
Unknown Weapon	16,539 (3.6%)	Relationship Missing	57,485 (14.8%)
Weapon Missing	39,948 (8.8%)		
		Population Group	
Injury		Urban	185,794 (40.9%)
No Injury	213,296 (46.9%)	Rural	268,703 (59.1%)
Nonlethal Injury	209,713 (46.1%)		
Lethal Injury	4,922 (1.1%)	Region	
Injury Missing	26,566 (5.8%)	South	221,334 (48.7%)
		Northeast	38,487 (8.5%)
Circumstance		Midwest	156,163 (34.4%)
Argument	142,432 (31.3%)	West	38,513 (8.5%)
Romantic	13,096 (2.9%)		
Sexual Assault	73,471 (16.2%)	Incident Hour	
Robbery	95,810 (21.1%)	Midnight to 3:59 am	91,318 (20.1%)
Other Crime/Deviance	9,224 (2.0%)	4 am to 7:59 am	31,272 (6.9%)
Other/Unknown	109,485 (24.1%)	8 am to 11:59 am	51,033 (11.2%)
Circumstance Missing	10,979 (2.4%)	Noon to 3:59 pm	72,424 (15.9%)
		4 pm to 7:59 pm	90,004 (19.8%)
Offender Drug/Alcohol Use	53,090 (11.7%)	8 pm to 11:59 pm	106,565 (23.4%)
		Incident Hour Missing	11,881 (2.6%)
Location			
Open Access	30,070 (6.6%)	Holiday	14,253 (3.1%)
Restricted Access	42,651 (9.4%)		
Residence	225,576 (49.6%)		
Outdoors	128,296 (28.2%)		
Other/Unknown	27,904 (6.1%)		

Note: N = 454,497

Table 2. Analytical dataset base frequencies for victim and offender demographics.

Victim Race		Offender Race	
Black	146,417 (32.2%)	Black	166,403 (36.6%)
White	273,171 (60.1%)	White	198,999 (43.8%)
Other	4,799 (1.1%)	Other	3,583 (.8%)
Unknown	12,422 (2.7%)	Unknown	30,240 (6.7%)
Race Missing	17,688 (3.9%)	Missing	55,272 (12.2%)
Victim Sex		Offender Sex	
Male	223,764 (49.2%)	Male	315,054 (69.3%)
Female	211,309 (46.5%)	Female	65,243 (14.4%)
Unknown	1,736 (.4%)	Unknown	18,928 (4.2%)
Sex Missing	17,688 (3.9%)	Sex Missing	55,272 (12.2%)
Victim Age		Offender Age	
Juvenile	82,335 (18.1%)	Juvenile	48,737 (10.7%)
18-24	100,349 (22.1%)	18-24	94,993 (20.9%)
25-34	96,067 (21.1%)	25-34	91,700 (20.2%)
35-44	78,929 (17.4%)	35-44	67,769 (14.9%)
45+	70,006 (15.4%)	45+	45,619 (10.0%)
Unknown	9,123 (2.0%)	Unknown	50,405 (11.1%)
Age Missing	17,688 (3.9%)	Age Missing	55,272 (12.2%)

Note: N = 454,497

Table 3. Series 1 descriptive statistics for Circumstance, Drug/Alcohol Use, Location, and Victim-Offender Relationship

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Circumstance				
Argument	38,725 (30.3%)	88,958 (69.7%)	71,112 (79.9%)	17,846 (20.1%)
Romantic	4,391 (37.3%)	7,390 (62.7%)	6,219 (84.2%)	1,171 (15.8%)
Sexual Assault	58,131 (89.7%)	6,682 (10.3%)	5,243 (78.6%)	1,429 (21.4%)
Robbery	38,391 (48.0%)	41,667 (52.0%)	13,332 (32.0%)	28,335 (68.0%)
Other Crime/Deviance	3,079 (40.2%)	4,571 (59.8%)	3,202 (70.1%)	1,369 (29.9%)
Other/Unknown	23,612 (24.8%)	71,710 (75.2%)	41,164 (65.8%)	24,546 (34.2%)
Circumstance Missing	3,265 (30.5%)	7,438 (69.5%)	5,658 (76.1%)	1,780 (23.9%)
Drug/Alcohol Use	21,227 (44.5%)	26,493 (55.5%)	21,790 (82.2%)	4,703 (17.8%)
Location				
Open Access	8,092 (35.3%)	14,839 (64.7%)	6,997 (47.2%)	7,842 (52.8%)
Restricted Access	17,929 (50.0%)	17,938 (50.0%)	13,109 (73.1%)	4,829 (26.9%)
Residence	93,313 (45.8%)	110,593 (54.2%)	80,681 (73.0%)	29,912 (24.3%)
Outdoors	39,177 (34.6%)	73,934 (65.4%)	43,802 (59.2%)	30,132 (40.8%)
Other/Unknown	11,083 (49.9%)	11,112 (50.1%)	7,351 (66.2%)	3,761 (33.8%)
V/O Relationship				
Acquaintance	53,271 (44.9%)	65,303 (55.1%)	47,518 (72.8%)	17,785 (27.2%)
Intimate Partner	32,554 (43.9%)	41,590 (56.1%)	34,385 (82.7%)	7,205 (17.3%)
Family	17,846 (45.7%)	21,221 (54.3%)	18,097 (85.3%)	3,124 (14.7%)
Stranger	19,490 (38.5%)	31,146 (61.5%)	16,444 (52.8%)	14,702 (47.2%)
Unknown	23,241 (40.1%)	34,700 (59.9%)	18,463 (53.2%)	16,237 (46.8%)
Relationship Missing	22,660 (40.0%)	34,029 (60.0%)	16,710 (49.1%)	17,319 (50.9%)

Table 4. Series 1 descriptive statistics for Population Group, Region, Incident Hour, and Holiday

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Population Group				
Urban	64,027 (37.6%)	106,455 (62.4%)	64,160 (60.3%)	42,295 (39.7%)
Rural	105,567 (46.4%)	121,961 (53.6%)	87,780 (72.0%)	34,181 (28.0%)
Region				
South	74,687 (38.4%)	119,765 (61.6%)	76,730 (64.1%)	43,035 (35.9%)
Northeast	12,645 (38.7%)	20,056 (61.3%)	16,302 (81.3%)	3,754 (18.7%)
Midwest	65,310 (47.7%)	71,572 (52.3%)	46,328 (64.7%)	25,244 (35.3%)
West	16,952 (49.9%)	17,023 (50.1%)	12,580 (73.9%)	4,443 (26.1%)
Incident Hour				
Midnight to 3:59 am	36,110 (44.7%)	44,631 (55.3%)	29,199 (65.4%)	15,432 (34.6%)
4 am to 7:59 am	11,855 (43.3%)	15,514 (56.7%)	10,162 (65.5%)	5,352 (34.5%)
8 am to 11:59 am	19,694 (45.3%)	23,736 (54.7%)	16,375 (69.0%)	7,361 (31.0%)
Noon to 3:59 pm	27,534 (43.8%)	35,301 (56.2%)	24,228 (68.6%)	11,073 (31.4%)
4 pm to 7:59 pm	31,205 (39.5%)	47,715 (60.5%)	32,693 (68.5%)	15,022 (31.5%)
8 pm to 11:59 pm	36,989 (39.0%)	57,817 (61.0%)	36,644 (63.4%)	21,173 (36.6%)
Incident Hour Missing	6,207 (62.6%)	3,702 (37.4%)	2,639 (71.3%)	1,063 (28.7%)
Holiday	5,465 (43.4%)	7,115 (56.6%)	4,805 (67.5%)	2,310 (32.5%)
Non-Holiday	164,129 (42.6%)	74,166 (57.4%)	147,135 (66.5%)	74,166 (33.5%)

Table 5. Series 1 descriptive statistics for victim demographics

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Victim Race				
Black	42,842 (32.6%)	88,677 (67.4%)	53,593 (60.4%)	35,084 (39.6%)
White	89,618 (72.9%)	33,273 (27.1%)	114,519 (77.5%)	33,273 (22.5%)
Other	1,814 (43.7%)	2,340 (56.3%)	1,530 (65.4%)	810 (34.6%)
Unknown	4,910 (46.5%)	5,639 (53.5%)	3,915 (69.4%)	1,724 (30.6%)
Race Missing	5,509 (38.3%)	8,869 (61.7%)	3,284 (37.0%)	5,585 (63.0%)
Victim Sex				
Male	59,950 (30.7%)	135,350 (69.3%)	87,880 (64.9%)	47,470 (35.1%)
Female	103,598 (55.4%)	83,323 (44.6%)	60,261 (72.3%)	23,062 (27.7%)
Unknown	537 (38.1%)	874 (61.9%)	515 (58.9%)	359 (41.1%)
Sex Missing	5,509 (38.3%)	8,869 (61.7%)	3,284 (37.0%)	5,585 (63.0%)
Victim Age				
Juvenile	45,041 (63.1%)	26,333 (36.9%)	19,785 (75.1%)	6,548 (24.9%)
18-24	36,119 (41.3%)	51,422 (58.7%)	32,266 (62.7%)	19,156 (37.3%)
25-34	31,241 (36.7%)	53,804 (63.3%)	35,770 (66.5%)	18,034 (36.6%)
35-44	24,835 (35.3%)	45,588 (64.7%)	21,144 (70.5%)	13,444 (29.5%)
45+	23,411 (37.9%)	38,331 (62.1%)	26,006 (67.8%)	12,325 (32.2%)
Unknown	3,438 (45.8%)	4,069 (54.2%)	2,685 (66.0%)	1,384 (34.0%)
Age Missing	5,509 (38.3%)	8,869 (61.7%)	3,284 (37.0%)	5,585 (50.3%)

Table 6. Series 1 descriptive statistics for offender demographics.

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Offender Race				
Black	57,489 (37.8%)	94,767 (62.2%)	57,812 (61.0%)	36,955 (39.0%)
White	84,150 (47.9%)	91,686 (52.1%)	71,620 (78.1%)	20,066 (21.9%)
Other	1,423 (44.5%)	1,777 (55.5%)	1,477 (83.1%)	300 (16.9%)
Unknown	9,842 (40.0%)	14,769 (60.0%)	8,053 (54.5%)	6,716 (45.5%)
Missing	16,690 (39.6%)	25,417 (60.4%)	12,978 (51.1%)	12,439 (48.9%)
Offender Sex				
Male	132,040 (46.6%)	151,187 (53.4%)	97,079 (64.2%)	54,108 (35.8%)
Female	16,247 (28.1%)	41,634 (71.9%)	37,071 (89.0%)	4,563 (11.0%)
Unknown	4,617 (31.2%)	10,178 (68.8%)	4,812 (47.3%)	5,366 (52.7%)
Sex Missing	16,690 (39.6%)	25,417 (60.4%)	12,978 (51.1%)	12,439 (48.9%)
Offender Age				
Juvenile	20,961 (48.6%)	22,134 (51.4%)	17,142 (77.4%)	4,992 (22.6%)
18-24	37,083 (44.0%)	47,146 (56.0%)	29,853 (63.3%)	17,293 (36.7%)
25-34	36,536 (44.1%)	46,224 (55.9%)	32,323 (69.9%)	13,901 (30.1%)
35-44	26,371 (43.0%)	35,015 (57.0%)	27,489 (78.5%)	7,526 (21.5%)
45+	15,708 (37.8%)	25,808 (62.2%)	19,067 (73.9%)	6,741 (26.1%)
Unknown	16,245 (37.9%)	26,672 (62.1%)	13,088 (49.1%)	13,584 (50.9%)
Age Missing	16,690 (39.6%)	25,417 (60.4%)	12,978 (51.1%)	12,439 (48.9%)

Table 7. Series 2 descriptive statistics for Circumstance, Drug/Alcohol Use, Location, and Victim-Offender Relationship (male offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Circumstance				
Argument	30,594 (33.6%)	50,445 (66.4%)	45,747 (75.7%)	14,698 (24.3%)
Romantic	3,781 (44.3%)	4,750 (55.7%)	3,778 (79.5%)	972 (20.5%)
Sexual Assault	51,557 (90.7%)	5,267 (9.3%)	4,141 (78.6%)	1,126 (21.4%)
Robbery	24,883 (47.1%)	27,978 (52.9%)	8,351 (29.8%)	19,627 (70.2%)
Other Crime/Deviance	2,239 (39.9%)	3,373 (60.1%)	2,403 (71.2%)	970 (28.8%)
Other/Unknown	16,954 (27.3%)	45,096 (72.7%)	29,482 (65.4%)	15,614 (34.6%)
Circumstance Missing	2,032 (32.2%)	4,278 (67.8%)	3,177 (74.3%)	1,101 (25.7%)
Drug/Alcohol Use				
Drug/Alcohol Use	17,779 (47.8%)	19,392 (52.2%)	15,497 (79.9%)	3,895 (20.1%)
Location				
Open Access	5,607 (36.3%)	9,833 (63.7%)	4,408 (44.8%)	5,425 (55.2%)
Restricted Access	13,493 (53.1%)	11,936 (46.9%)	8,649 (72.5%)	3,287 (27.5%)
Residence	77,330 (51.3%)	73,401 (48.7%)	51,446 (70.1%)	21,955 (29.9%)
Outdoors	27,139 (35.9%)	48,487 (64.1%)	27,763 (57.3%)	20,724 (42.7%)
Other/Unknown	8,471 (52.9%)	7,530 (47.1%)	4,813 (63.9%)	2,717 (36.1%)
V/O Relationship				
Acquaintance	46,404 (48.0%)	50,194 (52.0%)	34,412 (68.6%)	15,782 (31.4%)
Intimate Partner	29,030 (51.6%)	27,203 (48.4%)	21,183 (77.9%)	6,020 (22.1%)
Family	14,569 (50.3%)	14,393 (49.7%)	11,747 (81.6%)	2,646 (18.4%)
Stranger	17,410 (38.6%)	27,642 (51.4%)	13,833 (50.0%)	13,809 (50.0%)
Unknown	17,894 (44.1%)	22,686 (55.9%)	11,718 (51.7%)	10,968 (48.3%)
Relationship Missing	6,445 (42.2%)	8,837 (57.8%)	4,007 (45.3%)	4,830 (54.7%)

Table 8. Series 2 descriptive statistics for Population Group, Region, Incident Hour, and Holiday (male offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Population Group				
Urban	51,070 (41.4%)	72,436 (58.6%)	41,023 (56.6%)	31,413 (43.4%)
Rural	80,970 (50.7%)	78,751 (49.3%)	56,056 (71.2%)	22,695 (28.8%)
Region				
South	59,567 (42.4%)	81,071 (57.6%)	49,499 (61.1%)	31,572 (38.9%)
Northeast	7,972 (41.7%)	11,144 (58.3%)	9,490 (85.2%)	1,654 (14.8%)
Midwest	50,493 (52.0%)	46,558 (48.0%)	29,007 (62.3%)	17,551 (37.7%)
West	14,008 (53.0%)	12,414 (47.0%)	9,083 (73.2%)	3,331 (26.8%)
Incident Hour				
Midnight to 3:59 am	28,568 (49.7%)	28,906 (50.3%)	18,576 (64.3%)	10,330 (35.7%)
4 am to 7:59 am	9,477 (48.0%)	10,260 (52.0%)	6,550 (63.8%)	3,710 (36.2%)
8 am to 11:59 am	15,493 (49.4%)	15,855 (50.6%)	10,455 (65.9%)	5,400 (34.1%)
Noon to 3:59 pm	21,229 (47.4%)	23,587 (52.6%)	15,345 (65.1%)	8,242 (34.9%)
4 pm to 7:59 pm	23,824 (42.7%)	31,972 (57.3%)	20,938 (65.5%)	11,034 (34.5%)
8 pm to 11:59 pm	28,372 (42.6%)	38,189 (57.4%)	23,512 (61.6%)	14,677 (38.4%)
Incident Hour Missing	5,077 (67.7%)	2,418 (32.3%)	1,703 (70.4%)	715 (29.6%)
Holiday				
Holiday	4,321 (48.0%)	4,678 (52.0%)	3,094 (66.1%)	1,584 (33.9%)
Non-Holiday	127,719 (46.6%)	146,509 (53.4%)	93,985 (64.1%)	52,524 (35.9%)

Table 9. Series 2 descriptive statistics for victim demographics (male offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Victim Race				
Black	33,642 (37.7%)	55,484 (62.3%)	30,317 (54.6%)	25,167 (45.4%)
White	89,908 (51.4%)	84,998 (48.6%)	61,294 (72.1%)	23,704 (27.9%)
Other	1,406 (48.3%)	1,504 (51.7%)	996 (66.2%)	508 (33.8%)
Unknown	3,486 (49.3%)	3,588 (50.7%)	2,533 (70.6%)	1,055 (29.4%)
Race Missing	3,598 (39.1%)	5,613 (60.9%)	1,939 (34.5%)	3,674 (65.5%)
Victim Sex				
Male	41,524 (32.5%)	86,281 (67.5%)	53,541 (61.9%)	32,830 (38.1%)
Female	86,592 (59.6%)	48,733 (40.4%)	41,348 (70.4%)	17,385 (29.6%)
Unknown	326 (36.8%)	560 (63.2%)	341 (60.9%)	219 (39.1%)
Sex Missing	3,598 (39.1%)	5,613 (60.9%)	1,939 (34.5%)	3,674 (65.5%)
Victim Age				
Juvenile	37,194 (67.9%)	17,557 (32.1%)	12,868 (73.3%)	4,689 (26.7%)
18-24	28,839 (45.7%)	34,293 (54.3%)	20,565 (60.0%)	13,728 (40.0%)
25-34	24,431 (40.5%)	35,939 (59.5%)	22,898 (63.7%)	13,041 (36.3%)
35-44	18,971 (38.4%)	30,473 (61.6%)	20,813 (68.3%)	9,660 (31.7%)
45+	16,542 (40.2%)	24,573 (59.8%)	16,229 (66.0%)	8,344 (34.0%)
Unknown	2,465 (47.4%)	2,739 (52.6%)	1,767 (64.5%)	972 (35.5%)
Age Missing	3,598 (39.1%)	5,613 (60.9%)	1,939 (34.5%)	3,674 (65.5%)

Table 10. Series 2 descriptive statistics for offender demographics (male offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Offender Race				
Black	51,532 (41.5%)	72,667 (58.5%)	38,044 (52.4%)	34,623 (47.6%)
White	74,328 (50.4%)	73,055 (49.6%)	55,228 (75.6%)	17,827 (24.4%)
Other	1,243 (47.7%)	1,361 (52.3%)	1,088 (79.9%)	273 (20.1%)
Unknown	4,937 (54.6%)	4,104 (45.4%)	2,719 (66.3%)	1,385 (33.7%)
Offender Age				
Juvenile	17,974 (51.5%)	16,930 (48.5%)	12,379 (73.1%)	4,551 (26.9%)
18-24	33,032 (47.0%)	37,227 (53.0%)	21,049 (56.5%)	16,178 (43.5%)
25-34	32,481 (48.0%)	35,169 (52.0%)	22,576 (64.2%)	12,593 (35.8%)
35-44	23,185 (47.2%)	25,915 (52.8%)	19,368 (74.7%)	6,547 (25.3%)
45+	14,086 (40.9%)	20,339 (59.1%)	14,492 (71.3%)	5,847 (28.7%)
Unknown	11,282 (42.0%)	15,607 (58.0%)	7,215 (46.2%)	8,392 (53.8%)

Table 11. Series 2 descriptive statistics for Circumstance, Drug/Alcohol Use, Location, and Victim-Offender Relationship (female offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Circumstance				
Argument	6,125 (20.7%)	23,499 (79.3%)	21,629 (92.0%)	1,870 (8.0%)
Romantic	508 (17.1%)	2,471 (82.9%)	2,313 (93.6%)	158 (6.4%)
Sexual Assault	2,171 (82.1%)	472 (17.9%)	413 (87.5%)	59 (12.5%)
Robbery	2,475 (57.3%)	1,842 (42.7%)	1,061 (57.6%)	781 (42.4%)
Other Crime/Deviance	632 (55.1%)	514 (44.9%)	461 (89.7%)	53 (10.3%)
Other/Unknown	3,715 (24.8%)	11,237 (75.2%)	9,866 (87.8%)	1,371 (12.2%)
Circumstance Missing	621 (28.0%)	1,599 (72.0%)	1,328 (83.1%)	271 (16.9%)
Drug/Alcohol Use				
	1,959 (27.3%)	5,217 (72.7%)	4,837 (92.7%)	380 (7.3%)
Location				
Open Access	816 (36.7%)	1,410 (63.3%)	1,148 (81.4%)	262 (18.6%)
Restricted Access	2,034 (42.0%)	2,812 (58.0%)	2,561 (91.1%)	251 (8.9%)
Residence	9,400 (26.2%)	26,495 (73.8%)	23,865 (90.1%)	2,630 (9.9%)
Outdoors	2,944 (24.3%)	9,160 (75.7%)	7,942 (86.7%)	1,218 (13.3%)
Other/Unknown	1,053 (37.5%)	1,757 (62.5%)	1,555 (88.5%)	202 (11.5%)
V/O Relationship				
Acquaintance	5,730 (29.4%)	13,751 (70.6%)	12,165 (88.5%)	1,586 (11.5%)
Intimate Partner	2,989 (17.9%)	13,750 (82.1%)	12,701 (92.4%)	1,049 (7.6%)
Family	2,842 (30.7%)	6,412 (69.3%)	6,014 (93.8%)	398 (6.2%)
Stranger	1,603 (37.6%)	2,660 (62.4%)	2,181 (82.0%)	479 (18.0%)
Unknown	1,624 (33.6%)	3,206 (66.4%)	2,707 (84.4%)	499 (15.6%)
Relationship Missing	1,226 (42.3%)	1,674 (57.7%)	1,168 (69.8%)	506 (30.2%)

Table 12. Series 2 descriptive statistics for Population Group, Region, Incident Hour, and Holiday (female offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Population Group				
Urban	5,059 (21.0%)	19,004 (79.0%)	16,998 (89.4%)	2006 (10.6%)
Rural	11,188 (33.1%)	22,630 (66.9%)	20,073 (88.7%)	2,557 (11.3%)
Region				
South	7,885 (25.7%)	22,765 (74.3%)	19,788 (86.9%)	2,977 (13.1%)
Northeast	1,266 (27.4%)	3,349 (72.6%)	3,220 (96.1%)	129 (3.9%)
Midwest	5,804 (30.8%)	13,031 (69.2%)	11,836 (90.8%)	1,195 (9.2%)
West	1,292 (34.2%)	2,489 (65.8%)	2,227 (89.5%)	262 (10.5%)
Incident Hour				
Midnight to 3:59 am	2,630 (27.4%)	6,972 (72.6%)	6,316 (90.6%)	656 (9.4%)
4 am to 7:59 am	971 (26.9%)	2,636 (73.1%)	2,334 (88.5%)	302 (11.5%)
8 am to 11:59 am	2,058 (29.6%)	4,896 (70.4%)	4,328 (88.4%)	568 (11.6%)
Noon to 3:59 pm	3,093 (29.6%)	7,343 (70.4%)	6,526 (88.9%)	817 (10.9%)
4 pm to 7:59 pm	3,500 (17.0%)	9,451 (73.0%)	8,381 (88.7%)	1,070 (11.3%)
8 pm to 11:59 pm	3,393 (25.9%)	9,717 (74.1%)	8,640 (88.9%)	1,077 (11.1%)
Incident Hour Missing	602 (49.3%)	619 (50.7%)	546 (88.2%)	73 (11.8%)
Holiday				
Holiday	498 (28.3%)	1,262 (71.7%)	1,126 (89.2%)	136 (10.8%)
Non-Holiday	15,749 (28.1%)	40,372 (71.9%)	35,945 (89.0%)	4,427 (11.0%)

Table 13. Series 2 descriptive statistics for victim demographics (female offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Victim Race				
Black	4,628 (18.2%)	20,843 (81.8%)	18,745 (89.9%)	2,098 (10.1%)
White	10,354 (35.2%)	19,055 (64.8%)	16,937 (88.9%)	2,118 (11.1%)
Other	171 (35.8%)	306 (64.2%)	278 (90.8%)	28 (9.2%)
Unknown	481 (39.2%)	745 (60.8%)	664 (89.1%)	81 (10.9%)
Race Missing	613 (47.2%)	685 (52.8%)	447 (65.3%)	238 (34.7%)
Victim Sex				
Male	7,274 (22.6%)	24,906 (77.4%)	22,330 (89.7%)	2,576 (10.3%)
Female	8,285 (34.2%)	15,952 (65.8%)	14,218 (89.1%)	1,734 (10.9%)
Unknown	75 (45.2%)	91 (54.8%)	76 (83.5%)	15 (16.5%)
Sex Missing	613 (47.2%)	685 (52.8%)	447 (65.3%)	238 (34.7%)
Victim Age				
Juvenile	4,086 (44.0%)	5,204 (56.0%)	4,835 (92.9%)	369 (7.1%)
18-24	2,750 (24.6%)	8,409 (75.4%)	7,487 (89.0%)	922 (11.0%)
25-34	3,094 (23.3%)	10,183 (76.7%)	9,036 (88.7%)	1,147 (11.3%)
35-44	2,536 (22.1%)	8,959 (77.9%)	8,021 (89.5%)	938 (10.5%)
45+	2,679 (26.2%)	7,542 (73.8%)	6,688 (88.7%)	854 (11.3%)
Unknown	489 (42.9%)	652 (57.1%)	557 (85.4%)	95 (14.6%)
Age Missing	613 (47.2%)	685 (52.8%)	447 (65.3%)	238 (34.7%)

Table 14. Series 2 descriptive statistics for offender demographics (female offenders only)

Variable	Model 1		Model 2	
	Unarmed	Any Weapon	Non-Firearm	Firearm
Offender Race				
Black	5,894 (21.2%)	21,950 (78.8%)	19,712 (89.8%)	2,238 (10.2%)
White	9,763 (34.5%)	18,565 (65.5%)	16,344 (88.0%)	2,221 (12.0%)
Other	178 (30.3%)	409 (69.7%)	383 (93.6%)	26 (6.4%)
Unknown	412 (36.7%)	710 (63.3%)	632 (89.0%)	78 (11.0%)
Offender Age				
Juvenile	2,912 (36.4%)	5,090 (63.6%)	4,705 (92.4%)	385 (7.6%)
18-24	3,937 (28.8%)	9,711 (71.2%)	8,731 (89.9%)	980 (10.1%)
25-34	3,923 (26.6%)	10,809 (73.4%)	9,632 (89.1%)	1,177 (10.9%)
35-44	3,134 (25.8%)	9,022 (74.2%)	8,078 (89.5%)	944 (10.5%)
45+	1,480 (22.2%)	5,198 (77.8%)	4,425 (85.1%)	779 (14.9%)
Unknown	861 (32.3%)	1,804 (67.7%)	1,500 (83.1%)	304 (16.9%)

Table 15. Series 3 descriptive statistics for Weapon, Circumstance, Drug/Alcohol Use, Location, and Victim-Offender Relationship

Variable	Level of Injury		
	None	Nonlethal	Lethal
Weapon			
Unarmed	78,838 (49.2%)	80,875 (50.5%)	541 (0.3%)
Firearm	48,004 (69.1%)	19,031 (27.4%)	2,460 (3.5%)
Knife/Cutting Instrument	25,278 (43.2%)	32,581 (55.7%)	629 (1.1%)
Blunt Object	10,615 (26.7%)	29,014 (72.9%)	197 (0.5%)
Other	21,364 (45.5%)	25,218 (53.7%)	340 (0.7%)
Unknown Weapon	7,788 (52.2%)	6,725 (45.1%)	411 (2.8%)
Weapon Missing	21,409 (56.3%)	16,269 (42.8%)	344 (0.9%)
Circumstance			
Argument	51,395 (36.1%)	89,885 (63.1%)	1,152 (0.8%)
Romantic	3,747 (28.6%)	9,137 (69.8%)	212 (1.6%)
Sexual Assault	51,112 (72.5%)	19,228 (27.3%)	119 (0.2%)
Robbery	55,352 (68.7%)	25,041 (31.1%)	186 (0.2%)
Other Crime/Deviance	4,616 (50.0%)	4,427 (48.0%)	181 (2.0%)
Other/Unknown	45,686 (41.7%)	60,903 (55.6%)	2,896 (2.6%)
Circumstance Missing	1,388 (52.3%)	1,092 (41.1%)	176 (6.6%)
Drug/Alcohol Use			
Drug/Alcohol Use	19,144 (37.7%)	31,140 (61.4%)	451 (0.9%)
Location			
Open Access	13,734 (61.4%)	8,476 (37.9%)	162 (0.7%)
Restricted Access	17,155 (44.7%)	20,905 (54.5%)	309 (0.8%)
Residence	105,028 (48.3%)	109,663 (50.5%)	2,619 (1.2%)
Outdoors	64,062 (51.8%)	58,058 (47.0%)	1,498 (1.2%)
Other/Unknown	13,317 (50.7%)	12,611 (48.0%)	334 (1.3%)
V/O Relationship			
Acquaintance	66,953 (50.4%)	64,795 (48.7%)	1,179 (0.9%)
Intimate Partner	28,701 (35.7%)	50,872 (63.3%)	752 (0.9%)
Family	22,388 (50.9%)	21,138 (48.0%)	471 (1.1%)
Stranger	35,665 (60.0%)	23,427 (39.4%)	312 (0.5%)
Unknown	36,968 (54.8%)	29,121 (43.2%)	1,384 (2.1%)
Relationship Missing	21,712 (51.8%)	19,354 (46.2%)	819 (2.0%)

Table 16. Series 3 descriptive statistics for Population Group, Region, Incident Hour, and Holiday

Variable	Level of Injury		
	None	Nonlethal	Lethal
Population Group			
Urban	88,989 (50.2%)	86,035 (48.5%)	2,336 (1.3%)
Rural	124,307 (49.6%)	123,678 (49.4%)	2,586 (1.0%)
Region			
South	104,232 (49.4%)	104,155 (49.4%)	2,514 (1.2%)
Northeast	16,263 (47.4%)	17,774 (51.8%)	285 (0.8%)
Midwest	74,364 (51.0%)	69,729 (47.8%)	1,734 (1.2%)
West	18,437 (50.0%)	209,713 (49.0%)	389 (1.0%)
Incident Hour			
Midnight to 3:59 am	38,724 (44.4%)	47,313 (54.3%)	1,095 (1.3%)
4 am to 7:59 am	13,944 (47.2%)	15,145 (51.2%)	464 (1.6%)
8 am to 11:59 am	25,941 (54.7%)	20,843 (44.0%)	605 (1.3%)
Noon to 3:59 pm	36,597 (54.2%)	30,315 (44.9%)	664 (1.0%)
4 pm to 7:59 pm	43,843 (51.8%)	39,962 (47.2%)	821 (1.0%)
8 pm to 11:59 pm	47,987 (47.7%)	51,423 (51.1%)	1,137 (1.1%)
Incident Hour Missing	6,260 (56.4%)	4,712 (42.4%)	136 (1.2%)
Holiday			
Holiday	6,535 (48.4%)	6,834 (50.6%)	140 (1.0%)
Non-Holiday	206,761 (49.9%)	202,879 (49.0%)	4,782 (1.2%)

Table 17. Series 3 descriptive statistics for victim demographics

Variable	Level of Injury		
	None	Nonlethal	Lethal
Victim Race			
Black	69,073 (47.5%)	74,110 (51.0%)	2,212 (1.5%)
White	134,288 (50.6%)	128,775 (48.5%)	2,453 (0.9%)
Other	2,332 (49.6%)	2,315 (49.2%)	57 (1.2%)
Unknown	7,091 (60.5%)	4,505 (38.4%)	133 (1.1%)
Race Missing	512 (87.2%)	8 (1.4%)	67 (11.4%)
Victim Sex			
Male	99,811 (45.6%)	115,647 (52.9%)	3,347 (1.5%)
Female	111,784 (54.0%)	96,682 (45.3%)	1,476 (0.7%)
Unknown	1,189 (74.5%)	376 (23.5%)	32 (2.0%)
Sex Missing	512 (87.2%)	8 (1.4%)	67 (11.4%)
Victim Age			
Juvenile	49,056 (60.1%)	32,142 (39.4%)	458 (0.6%)
18-24	46,553 (47.2%)	51,140 (51.8%)	1,016 (1.0%)
25-34	43,233 (45.9%)	49,933 (53.0%)	1,125 (1.2%)
35-44	35,144 (45.6%)	40,956 (53.2%)	936 (1.2%)
45+	33,595 (50.1%)	32,320 (48.2%)	1,122 (1.7%)
Unknown	5,203 (60.4%)	3,214 (37.3%)	198 (2.3%)
Age Missing	512 (87.2%)	8 (1.4%)	67 (11.4%)

Table 18. Series 3 descriptive statistics for offender demographics

Variable	Level of Injury		
	None	Nonlethal	Lethal
Offender Race			
Black	78,508 (49.5%)	78,328 (49.4%)	1,627 (1.0%)
White	92,655 (49.1%)	94,186 (49.9%)	1,859 (1.0%)
Other	1,445 (42.2%)	1,934 (56.5%)	47 (1.4%)
Unknown	14,656 (52.2%)	12,817 (45.6%)	646 (2.2%)
Race Missing	26,032 (52.9%)	22,448 (45.6%)	773 (1.6%)
Offender Sex			
Male	152,619 (51.1%)	143,144 (47.9%)	3,118 (1.0%)
Female	25,883 (41.5%)	35,952 (57.7%)	501 (0.8%)
Unknown	8,762 (50.2%)	8,169 (46.8%)	530 (3.0%)
Sex Missing	26,032 (52.9%)	22,448 (45.6%)	773 (1.6%)
Offender Age			
Juvenile	25,746 (55.5%)	20,400 (44.0%)	221 (0.5%)
18-24	45,074 (50.0%)	44,050 (48.9%)	1,023 (1.1%)
25-34	40,513 (46.5%)	45,768 (52.5%)	927 (1.1%)
35-44	29,658 (45.9%)	34,226 (53.0%)	701 (1.1%)
45+	21,370 (48.9%)	21,714 (49.7%)	595 (1.4%)
Unknown	24,903 (53.3%)	21,107 (45.2%)	682 (1.5%)
Age Missing	26,032 (52.9%)	22,448 (45.6%)	773 (1.6%)

Table 19. Series 1 logistic regression analyses for effects of listed independent variables on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2).

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Circumstance				
Romantic	1.01	.021	1.00	.035
Sexual Assault	.07*	.016	.93	.033
Robbery	.29*	.013	4.73*	.017
Other Crime/Deviance	.49*	.026	1.31*	.036
Other/Unknown	1.18*	.011	1.54*	.013
Circumstance Missing	.85*	.025	.91	.034
Drug/Alcohol Use				
Drug/Alcohol Use	.88*	.012	.61*	.018
Location				
Open Access	1.27*	.018	.86*	.023
Restricted Access	.65*	.014	.54*	.021
Outdoors	1.16*	.010	.86*	.013
Other/Unknown	.74*	.017	.73*	.024
V/O Relationship				
Acquaintance	.80*	.014	.75*	.017
Intimate Partner	.56*	.016	.52*	.022
Family	.76*	.018	.42*	.026
Unknown	.85*	.015	1.04	.019
Relationship Missing	.86*	.023	1.16*	.030
Urban Jurisdiction				
Urban Jurisdiction	1.36*	.008	1.17*	.011
Region				
Northeast	1.30*	.015	.35*	.022
Midwest	.78*	.008	.82*	.011
West	.89*	.014	.76*	.021
Incident Hour				
Midnight to 3:59 am	.93*	.016	1.05	.022
8 am to 11:59 am	.97	.018	1.09*	.025
Noon to 3:59 pm	.94*	.017	1.13*	.023
4 pm to 7:59 pm	1.00	.016	1.13*	.022
8 pm to 11:59 pm	1.02	.016	1.20*	.022
Incident Hour Missing	.76*	.029	1.28*	.045
Holiday				
Holiday	.99	.021	.96	.029

Note: Model 1 N = 398,010; Model 2 N = 228,416; * p < .001

Table 20. Series 1 logistic regression analyses for effects of offender and victim demographics on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2).

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Offender Race				
Black	1.06*	.011	1.25*	.014
Other	1.05	.044	.74*	.070
Unknown	1.02	.026	.95	.037
Race Missing	1.16*	.024	1.47*	.033
Offender Sex				
Female	1.45*	.011	.27*	.018
Unknown	1.24*	.011	1.32*	.041
Offender Age				
18-24	.94*	.015	1.51*	.022
25-34	.86*	.015	1.25*	.022
35-44	.91*	.016	.99	.024
45+	1.17*	.018	1.37*	.025
Unknown	1.13*	.019	1.50*	.026
Victim Race				
Black	1.51*	.010	1.71*	.013
Other	1.17*	.037	1.17	.053
Unknown	1.07	.025	1.04	.037
Race Missing	2.55*	.028	2.09*	.038
Victim Sex				
Female	.57*	.008	.95*	.012
Unknown	.96	.065	1.25	.084
Victim Age				
18-24	1.70*	.014	1.44*	.020
25-34	1.89*	.014	1.35*	.020
35-44	1.89*	.014	1.17*	.021.
45+	1.64*	.015	1.12*	.021
Unknown	1.17*	.029	1.43*	.042

Note: Model 1 N = 398,010; Model 2 N = 228,416; * p < .001

Table 21. Series 2 logistic regression analyses for effects of listed independent variables on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2). Male offenders only.

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Circumstance				
Romantic	1.00	.024	1.02	.040
Sexual Assault	.07*	.018	.85*	.038
Robbery	.32*	.015	4.44*	.020
Other Crime/Deviance	.53*	.030	1.09	.042
Other/Unknown	1.17*	.012	1.43*	.015
Circumstance Missing	.79*	.034	.80*	.047
Drug/Alcohol Use				
Drug/Alcohol Use	.89*	.013	.64*	.020
Location				
Open Access	1.22*	.021	.88*	.027
Restricted Access	.63*	.016	.53*	.026
Outdoors	1.21*	.012	.89*	.015
Other/Unknown	.77*	.020	.73*	.029
V/O Relationship				
Acquaintance	.79*	.015	.77*	.018
Intimate Partner	.49*	.019	.54*	.026
Family	.76*	.021	.83*	.029
Unknown	.82*	.016	1.05	.020
Relationship Missing	1.01	.035	1.27*	.050
Urban Jurisdiction				
Urban Jurisdiction	1.40*	.010	1.13*	.013
Region				
Northeast	1.32*	.019	.33*	.030
Midwest	.78*	.010	.81*	.014
West	.89*	.017	.81*	.024
Incident Hour				
Midnight to 3:59 am	.92*	.019	1.06	.027
8 am to 11:59 am	.98	.021	1.13*	.030
Noon to 3:59 pm	.97	.020	1.19*	.028
4 pm to 7:59 pm	1.01	.019	1.18*	.027
8 pm to 11:59 pm	1.02	.019	1.23*	.026
Incident Hour Missing	.77*	.035	1.33*	.054
Holiday				
Holiday	.99	.025	.94	.035

Note: Model 1 N = 283,227; Model 2 N = 151,187; * p < .001

Table 22. Series 2 logistic regression analyses for effects of offender and victim demographics on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2). Male offenders only.

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Offender Race				
Black	1.01	.012	1.50*	.016
Other	1.04	.049	.79	.075
Unknown	1.00	.028	1.01	.039
Offender Age				
18-24	.94*	.017	1.56*	.024
25-34	.84*	.017	1.24*	.024
35-44	.89*	.018	.93	.026
45+	1.16*	.020	1.30*	.027
Unknown	1.11*	.021	1.51*	.028
Victim Race				
Black	1.44*	.012	1.55*	.016
Other	1.09	.045	1.07	.066
Unknown	1.07	.031	396	.046
Race Missing	2.20*	.042	1.83*	.059
Victim Sex				
Female	.62*	.011	.93*	.015
Unknown	1.07	.082	1.18	.105
Victim Age				
18-24	1.65*	.016	1.46*	.024
25-34	1.89*	.017	1.36*	.024
35-44	1.88*	.017	1.17*	.025
45+	1.61*	.018	1.06	.026
Unknown	1.21*	.035	1.50*	.050

Note: Model 1 N = 283,227; Model 2 N = 151,187; * p < .001

Table 23. Series 2 logistic regression analyses for effects of listed independent variables on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2). Female offenders only.

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Circumstance				
Romantic	1.01	.054	.89	.088
Sexual Assault	.10*	.056	1.81*	.148
Robbery	.20*	.041	6.10*	.064
Other Crime/Deviance	.26*	.068	.98	.154
Other/Unknown	.95	.026	1.40*	.040
Circumstance Missing	.89	.062	1.13	.099
Drug/Alcohol Use				
Drug/Alcohol Use	.96	.032	.63*	.059
Location				
Open Access	1.03	.054	.80	.085
Restricted Access	.69*	.037	.58*	.077
Outdoors	1.34*	.029	.98	.042
Other/Unknown	.67*	.046	.85	.082
V/O Relationship				
Acquaintance	1.25*	.040	.79*	.062
Intimate Partner	1.30*	.045	.47*	.070
Family	1.22*	.047	.43*	.081
Unknown	1.13	.048	.92	.074
Relationship Missing	1.40*	.073	1.81*	.108
Urban Jurisdiction				
Urban Jurisdiction	1.52*	.023	.96	.035
Region				
Northeast	1.42*	.040	.22*	.097
Midwest	.90*	.023	.64*	.038
West	.99	.042	.76*	.073
Incident Hour				
Midnight to 3:59 am	1.02	.049	.87	.078
8 am to 11:59 am	1.00	.051	1.06	.080
Noon to 3:59 pm	.97	.048	1.02	.076
4 pm to 7:59 pm	1.04	.047	1.04	.073
8 pm to 11:59 pm	1.03	.047	1.01	.020
Incident Hour Missing	.68*	.079	1.05	.146
Holiday				
Holiday	.95	.060	.99	.096

Note: Model 1 N = 57,881; Model 2 N = 41,634; * p < .001

Table 24. Series 2 logistic regression analyses for effects of offender and victim demographics on chances of weapon use compared to no weapon use (Model 1) and chances of firearm use compared to other weapon use (Model 2). Female offenders only.

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Offender Race				
Black	1.17*	.030	.73*	.048
Other	1.21	.108	.61	.220
Unknown	1.08	.075	.86	.134
Offender Age				
18-24	.91	.035	1.15	.068
25-34	.98	.035	1.33*	.067
35-44	1.04	.037	1.39*	.070
45+	1.31*	.043	2.20*	.073
Unknown	1.05	.056	1.47*	.091
Victim Race				
Black	1.75*	.031	1.25*	.049
Other	.94	.114	1.07	.223
Unknown	.97	.073	1.09	.142
Race Missing	1.50*	.091	1.47	.135
Victim Sex				
Female	.59*	.024	.97	.039
Unknown	.82	.184	1.11	.329
Victim Age				
18-24	1.91*	.036	1.45*	.070
25-34	1.93*	.036	1.54*	.069
35-44	1.98*	.037	1.42*	.071
45+	1.66*	.038	1.30*	.073
Unknown	1.16	.074	1.47	.136

Note: Model 1 N = 57,881; Model 2 N = 41,634; * p < .001

Table 25. Series 3 logistic regression analyses for effects of listed independent variables on chances of victim suffering nonlethal injury compared to no injury (Model 1) and, in the event of injury, chances of lethal injury compared to nonlethal injury (Model 2).

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Weapon				
Firearm	.21*	.012	15.49*	.053
Knife/Cutting Instrument	.55*	.011	2.47*	.062
Blunt Object	1.15*	.014	.80	.085
Other	.60*	.012	1.60*	.071
Unknown	.68*	.019	6.52*	.071
Weapon Missing	.52*	.013	3.09*	.072
Circumstance				
Romantic	1.17*	.022	2.14*	.082
Sexual Assault	.19*	.013	.65*	.103
Robbery	.26*	.012	.35*	.087
Other Crime/Deviance	.58*	.024	2.50*	.088
Other/Unknown	.90*	.009	2.47*	.040
Circumstance Missing	.47*	.043	7.45*	.111
Drug/Alcohol Use				
Drug/Alcohol Use	1.33*	.011	.73*	.054
Location				
Open Access	.81*	.017	.69*	.088
Restricted Access	1.20*	.013	.69*	.065
Outdoors	1.04*	.009	.73*	.038
Other/Unknown	1.06*	.015	.90	.064
V/O Relationship				
Acquaintance	1.15*	.012	1.50*	.067
Intimate Partner	1.60*	.014	1.21	.078
Family	1.09*	.015	2.03*	.080
Unknown	1.07*	.013	2.58*	.068
Relationship Missing	1.66*	.023	2.40*	.110
Urban Jurisdiction				
Urban Jurisdiction	1.09*	.007	1.08	.034
Region				
Northeast	1.18*	.013	.97	.068
Midwest	1.03*	.008	1.12	.034
West	1.08*	.013	1.15	.060

Note: Model 1 N = 423,009; Model 2 N = 214,635; * p < .001

Table 26. Series 3 logistic regression analyses for effects of listed independent variables on chances of victim suffering nonlethal injury compared to no injury (Model 1) and, in the event of injury, chances of lethal injury compared to nonlethal injury (Model 2).

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Incident Hour				
Midnight to 3:59 am	1.09*	.015	.71*	.060
8 am to 11:59 am	.71*	.017	1.09	.067
Noon to 3:59 pm	.72*	.016	.79*	.065
4 pm to 7:59 pm	.76*	.015	.70*	.063
8 pm to 11:59 pm	.92*	.015	.69*	.059
Incident Hour Missing	.80*	.025	1.12	.106
Holiday				
Holiday	1.05	.019	.85	.091
Offender Race				
Black	1.13*	.010	.73*	.047
Other	1.16*	.040	1.16	.168
Unknown	1.08*	.023	.92	.115
Missing	1.03	.022	1.07	.117
Offender Sex				
Female	.97	.010	.71*	.052
Unknown	1.02	.028	1.61*	.122
Offender Age				
18-24	1.13*	.013	2.06*	.081
25-34	1.15*	.014	1.98*	.082
35-44	1.08*	.014	2.00*	.085
45+	.98	.016	1.94*	.087
Unknown	1.30*	.017	.82	.098

Note: Model 1 N = 423,009; Model 2 N = 214,635; * p < .001

Table 27. Series 3 logistic regression analyses for effects of victim demographics on chances of sustaining nonlethal injury compared to no injury (Model 1) and, in the event of injury, chances of lethal injury compared to nonlethal injury (Model 2).

Variable	Model 1		Model 2	
	Odds Ratio	Std. Error	Odds Ratio	Std. Error
Victim Race				
Black	1.06*	.009	1.10	.042
Other	1.12	.035	1.20	.151
Unknown	.79*	.023	1.08*	.107
Race Missing	.03*	.358	1005.54*	.479
Victim Sex				
Female	.69*	.008	.93	.039
Unknown	.44*	.067	1.26	.225
Victim Age				
18-24	1.25*	.012	1.18	.062
25-34	1.19*	.012	1.50*	.062
35-44	1.17*	.012	1.80*	.063
45+	1.10*	.013	2.86*	.062
Unknown	.72*	.027	3.27*	.098

Note: Model 1 N = 423,009; Model 2 N = 214,635; * p < .001

LIST OF REFERENCES

- Addington, L. 2007. Hot vs. cold cases: Examining time to clearance for homicides using NIBRS data. *Justice Research and Policy*, 9, 87-112.
- Adibe, O. O., Caruso, R.P., and Swan, K.G. 2004. Gunshot wounds: Bullet caliber is increasing, 1998-2003. *American Surgeon*, 70, 322-325.
- Anderson, A. and Meier, R. 2004. Interactions and the criminal event perspective. *Journal of Contemporary Criminal Justice*, 4, 416-440.
- Block, C.R. and Christakos, A. 1996. *Major trends in Chicago homicide*. Chicago, IL: Illinois Criminal Justice Information Authority.
- Braga, A.A., Kennedy, D.M., Waring, E.J., and Piehl, A.M. 2001. Problem-oriented policing, deterrence, and youth violence: An evaluation of Boston's Operation Ceasefire. *Journal of Research in Crime and Delinquency*, 38, 195-225.
- Braga, A.A. and Pierce, G. 2005. Disrupting illegal firearms markets in Boston: The effects of Operation Ceasefire on the supply of new handguns to criminals. *Criminology and Public Policy*, 4, 717-748.
- Brecklin, L.R. and Ullman, S.E. 2001. The role of offender alcohol use in rape attacks. *Journal of Interpersonal Violence*, 16, 3-21.
- Brecklin, L.R. and Ullman, S.E. 2002. The roles of victim and offender alcohol use in sexual assaults: Results from the National Violence Against Women Survey. *Journal of Studies on Alcohol*, 63, 57-63.

- Brezina, T. and Wright, J.D. 2000. Going armed in the school zone. *Forum for Applied Research and Public Policy*, 15, 82-86.
- Brownmiller, S. 1975. *Against our will: Men, women, and rape*. New York: Simon and Schuster.
- Bureau of Justice Statistics. 2005. *Firearms and Crime Statistics*. Available online at <http://www.ojp.usdoj.gov/bjs/guns.htm>
- Bureau of Justice Statistics. 2000. *Firearm Injury and Death from Crime, 1993-97*. US Department of Justice.
- Bursik, R.J. and Grasmick, H.G. 1993. *Neighborhoods and Crime: The Dimensions of Effective Community Control*. Lenham: Lexington Books.
- Centers for Disease Control and Prevention. 2008. Accessed online at <http://www.cdc.gov/ViolencePrevention/index.html>
- Chilton, R., and Jarvis, J. 1999. Victims and offenders in two crime statistics programs: A comparison of the National Incident-Based Reporting System (NIBRS) and the National Crime Victimization Survey (NCVS). *Journal of Quantitative Criminology*, 15, 193-205.
- Cohen, L. and Felson, M. 1979. Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588-608.
- Cohn, E.G. and Rotton, J. 2003 Even criminals take a holliday: Instrumental and expressive crimes on major and minor holidays. *Journal of Criminal Justice*, 31, 234-239.
- Cook, P.J., Lawrence, B.A., Ludwig, J., and Miller, T.R. 1999. The medical costs of gunshot injuries in the United States. *Journal of the American Medical Association*, 282, 447-454.

- Cook, P.J. and Ludwig, J. 1996. *Guns in America: Results of a Comprehensive Survey of Gun Ownership and Use*. Washington: Police Foundation.
- Cook, P.J. and Ludwig, J. 2000. *Gun Violence: The Real Costs*. New York: Oxford University Press.
- Cook, P.J., Ludwig, J., and Braga, A. 2005. Homicide offending and prior criminal record. *Journal of the American Medical Association*, 294, 598-601.
- Cook, P.J. 1982. "The role of firearms in violent crime: an interpretative review of the literature." In M. Wolfgang and N.A. Weiner (eds.) *Criminal Violence*. Beverly Hills: Sage.
- Corso, P., Mercy, J., Simon, T., Finkelstein, E., and Miller, T. 2007. Medical costs and productivity losses due to interpersonal and self-directed violence in the United States. *American Journal of Preventive Medicine*, 32, 474-482.
- Corzine, J., Huff-Corzine, L., and Whitt, H.P. 1998. "Cultural and Subcultural Theories of Homicide." In *Homicide: A Sourcebook of Social Research*, edited by M.D. Smith and M.A. Zahn. Sage.
- Cottrol, R. 1994. *Gun control and the constitution: sources and explorations on the second amendment*. Routledge.
- Decker, S.H. 1995. Reconstructing homicide events: The role of witnesses in fatal encounters. *Journal of Criminal Justice*, 23, 439-450.
- Decker, S.H. and Rosenfeld, R. 2004. *Reducing gun violence: The St. Louis Consent-to- Search Program – Research Report*. Washington, DC: National Institute of Justice.
- Dobrin, A. 2001. The risk of offending on homicide victimization: A case control study. *Journal of Research in Crime and Delinquency*, 38, 154-173.

- Dobrin, A., Lee, D., and Price, J. 2005. Neighborhood structure differences between homicide victims and non-victims. *Journal of Criminal Justice*, 33, 137-143.
- Dunn, C.S. and Zelenock, T.J. 1999. NIBRS data available for secondary analysis. *Journal of Quantitative Criminology*, 15, 239-248.
- Fagin, J., Zimring, F., and Kim, J. 1998. Declining homicide in New York City: A tale of two trends. *Journal of Criminal Law and Criminology*, 88, 1277-1323.
- Faria, M. 2005. Gun violence is not a public health crisis. In Egendorf, L. (Ed.) *Guns and Violence* (39-53). Detroit: Thomson Gale.
- Faggiani, D. 2007. Introduction: Special issue on research using the National Incident-Based Reporting System. *Justice Research and Policy*, 9, 1-7.
- Felson, R.B. and Cares, A.C. 2005. Gender and the seriousness of assaults on intimate partners and other victims. *Journal of Marriage and Family*, 67, 1182-1195.
- Felson, R.B. and Messner, S. 1996. To kill or not to kill: lethal outcomes in injurious attacks. *Criminology*, 34, 519-545.
- Felson, R.B. 2002. *Violence & gender reexamined*. Washington, DC: American Psychological Association.
- Fox, J.A. and Swatt, M.L. 2009. Multiple imputation of the supplementary homicide reports, 1976-2005. *Journal of Quantitative Criminology*, 25, 51-77.
- Gastil, R.H. 1971. Homicide and a regional culture of violence. *American Sociological Review*, 36, 412-427.
- Haas, S.M., Jefferis, E., Jarvis, J.P., and Turley, E. 2007. Gun availability and crime in West Virginia: An examination of NIBRS data. *Justice Research and Policy*, 9, 139-159.
- Hackney, S. 1969. Southern violence. *American Historical Review*, 74, 906-925.

- Hemenway, D. 2004. *Private guns, public health*. Ann Arbor, MI: University of Michigan Press.
- Hepburn, L.M. and Hemenway, D. 2004. Firearm availability and homicide: A review of the literature. *Aggression and Violent Behavior*, 9, 417-440.
- Huff-Corzine, L., Corzine, J., and Moore, D.C. 1986. Southern exposure: Deciphering the South's influence on homicide rates. *Social Forces*, 64, 906-924.
- Jarvis, J.P. 2008. Personal communication, November 12, 2008.
- Kazemian, L. and LeBlanc, M. 2004. Exploring patterns of perpetration of crime across the life course. *Journal of Contemporary Criminal Justice*, 20, 393-415.
- Kellermann, A.L., Fuqua-Whitley, D., and Parramore, C.S. 2006. *Reducing gun violence: Community problem solving in Atlanta – Research Report*. Washington, DC: National Institute of Justice.
- Kellermann, A.L., Lee, R.K., Mercy, J.A., and Banton, J. The epidemiologic basis for the prevention of firearm injuries. *Annual Review of Public Health*, 12, 17-40.
- Kennedy, D.M. 1998. Pulling levers: Getting deterrence right. *National Institute of Justice Journal*, 236, 2-8.
- Kleck, G. and Gertz, M. 1995. Armed resistance to crime: The prevalence and nature of self-defensive use with a gun. *Journal of Criminal Law and Criminology*, 86, 150-187.
- Kleck, G. and McElrath, K. 1991. The effects of weaponry on human violence. *Social Forces*, 69, 669-692.
- Kleck, G. and Patterson, E.B. 1993. The impact of gun control and gun ownership levels on violence rates. *Journal of Quantitative Criminology*, 9, 249-287.

- Kleck, G. 1997. *Targeting guns: Firearms and their control*. Hawthorne, N.Y.: Aldine de Gruyter.
- Kruttschnitt, C. and Carbone-Lopez, K. 2006. Moving beyond the stereotypes: Women's subjective accounts of their violent crime. *Criminology*, 44, 321-352.
- Libby, N.E. and Corzine, J. 2007. Lethal weapons: Effects of firearm types on the lethality of violent encounters. *Justice Research and Policy*, 9, 113-137.
- Libby, N.E. and Wright, J.D. 2009. Influence of automatic firearms on the presence of multiple victims of violence. *Journal of Contemporary Criminal Justice*, 25, 89-105.
- Luckenbill, D. 1977. Criminal homicide as a situated transaction. *Social Problems*, 25, 176-186.
- Ludwig, J. and Cook, P.J (Eds.). 2003. *Evaluating gun policy: Effects on crime and violence*. Washington, DC: Brookings Institution Press
- McGarrell, E.F., Chermak, S., and Weiss, A. 2002. *Reducing gun violence: Evaluation of the Indianapolis Police Department's Directed Patrol Project – Research Report*. Washington, DC: National Institute of Justice.
- Medea, A. and Thompson, K. 1974. *Against rape*. New York: Farrar Straus and Giroux.
- Meier, R., Kennedy, L., and Sacco, V. (Eds.). 2001. *Advances in criminological theory: The process and structure of crime: Criminal events and crime analysis* (Vol. 9). New Brunswick, NJ: Transaction Publishing.
- Miller, J. 1998. Up it up: Gender and the accomplishment of street robbery. *Criminology*, 36, 37-65.
- Mueller, B.A., Rivara, F.P., and Bergman, A.B. 1988. Urban-rural location and the risk of dying in a pedestrian-vehicle collision. *Journal of Trauma*, 28, 91-95.

- National Research Council. 2005. *Firearms and violence: A critical review*. Washington, DC: National Academies Press.
- Office of Juvenile Justice and Delinquency Prevention. 2008. Accessed online at <http://ojjdp.ncjrs.org/>
- Park, R.E. and Burgess, E.W. 1925. *The City*. Chicago: University of Chicago Press.
- Phillips, S. and Maume, M.O. 2007. Have gun will shoot? *Homicide Studies*, 11, 272-294.
- Rader, N.E., May, D.C., and Goodrum, S. 2007. An empirical assessment of the "threat of victimization:" Considering fear of crime, perceived risk, avoidance, and defensive behaviors. *Sociological Spectrum*, 27, 475-505.
- Raphael, S., and Ludwig, J. 2003. "Prison sentence enhancements: The case of project exile." In *Evaluating gun policy: Effects on crime and violence* by J. Ludwig and P.J. Cook (eds.). Washington, DC: Brookings Institution Press.
- Ricci, M.A. 2003. *Improving Rural Trauma Care, Education, and Prevention through Telemedicine: Final Evaluation Report*.
- Riedel, M. and Welsh, W. 2002. *Criminal violence: Patterns, causes, and prevention*. Los Angeles: Roxbury Publishing.
- Rosenfeld, R., Fornango, R., and Baumer, E. 2005. Firearms research and the crime drop. *Criminology and Public Policy*, 4, 799-806.
- Sacco, V.F. and Kennedy, L. 1996. *The criminal event: Perspectives in space and time*. Belmont, CA: Wadsworth.
- Sampson, R.J., Raudenbush, S.W., and Earls, F. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, 15, 918-924.

- Shaw, C. and McKay H.D. 1942. *Delinquency and urban areas*. Chicago: University of Chicago Press.
- Sheley, J.F., Brody, C.J., Wright, J.D., and Williams, M.A. 1994. Women and Handguns: Evidence from National Surveys, 1973-1991. *Social Science Research*, 23, 219-235.
- Smith, T.W. 2001. *National gun policy survey of the National Opinion Research Center: Research findings*. Chicago: National Opinion Research Center.
- Smith, T.W. and Smith, R.J. 1995. Changes in firearms ownership among women, 1980-1994. *Journal of Criminal Law and Criminology*, 86, 133-149.
- Tita, G.E., Riley, K.J., Ridgeway, G., and Greenwood, P.W. 2005. *Reducing gun violence: Operation Ceasefire in Los Angeles – Research Report*. Washington, DC: National Institute of Justice.
- U.S. Department of Justice, Federal Bureau of Investigation. 2006. *National incident-based reporting system codebook*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.
- Varano, S., McCluskey, J., Patchin, J., and Bynum, T. 2004. Exploring the drugs-homicide connection. *Journal of Contemporary Criminal Justice*, 20, 369-392.
- Weaver, G.S., Wittekind, J.E.C., Huff-Corzine, L., Corzine, J., Petee, T.A., and Jarvis, J.P. 2004. Violent encounters: A criminal event analysis of lethal and nonlethal outcomes. *Journal of Contemporary Criminal Justice*, 20, 348-368.
- Wells, W. and Horney, J. 2002. Weapon effects and individual intent to do harm: Influences on the escalation of violence. *Criminology*, 40, 265-296.
- Wirth, L. 1938. Urbanism as a way of life. *American Journal of Sociology*, 44, 1-24.

- Wolfgang, M. 1958. *Patterns in criminal homicide*. Philadelphia: University of Pennsylvania Press.
- Wright, J.D. 1990. In the heat of the moment. *Reason*, 22, 44-45.
- Wright, J.D. 2009. Personal communication, January 12, 2009.
- Wright, R., Logie, R.H., and Decker, S.H. 1995. Criminal expertise and offender decision making: An experimental study of the target selection process in residential burglary. *Journal of Research in Crime and Delinquency*, 32, 3-53.
- Wright, J.D., Rossi, P.H., and Daly, K. 1983. *Under the gun: Weapons, crime, and violence in America*. New York: Aldine de Gruyter.
- Wright, J.D. and Rossi, P.H. 1986. *Armed and considered dangerous: A survey of felons and their firearms*. New York: Aldine Publishing Company.
- Wright, R.T. and Decker, S. H. 1997. *Armed robbers in action: Stickups and street culture*. Holliston, MA: Northeastern.
- Young, R. 1986. Gender, region of socialization, and ownership of firearms. *Rural Sociology*, 51, 169-182.
- Zawitz, M.W. 1996. *Firearm injury from crime*. Washington, DC: Bureau of Justice Statistics.
- Zimring, F.E. 1968. Is gun control likely to reduce violent killings? *University of Chicago Law Review*, 35, 721-737.
- Zimring, F.E. 1972. The medium is the message: Firearm caliber as a determinant of death from assault. *Journal of Legal Studies*, 1, 97-124.