

The Pennsylvania State University

The Graduate School

College of the Liberal Arts

**THE SOCIAL CONTEXT OF CRIME: SELF-CONTROL, ALCOHOL USE,  
AND DISPUTE-RELATED VIOLENCE**

A Dissertation in

Criminology

by

Christopher Palmore

© 2018 Christopher Palmore

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

August 2018

The dissertation of Christopher Palmore was reviewed and approved\* by the following:

Richard B. Felson  
Professor of Criminology and Sociology  
Dissertation Advisor  
Chair of Committee

Jeffery T. Ulmer  
Professor of Sociology and Criminology  
Associate Department Head, Department of Sociology and Criminology

Corina Graif  
Assistant Professor of Sociology and Criminology

H. Harrington Cleveland  
Associate Professor of Human Development and Family Studies

Thomas A. Loughran  
Professor of Sociology and Criminology  
Director, Graduate Program in Criminology

\*Signatures are on file in the Graduate School

## ABSTRACT

This dissertation examines the social context of criminal behavior. Despite the need for research that examines when criminal behavior is more or less likely, theoretical perspectives accounting for the social context of crime remain underdeveloped. I approached this issue using three separate papers to examine distinct issues in the literature. I wrote each chapter as a stand-alone study using the language from each body of literature.

Chapter 1 examines whether opportunity influences the relationship between low self-control and crime. Gottfredson and Hirschi's (1990) general theory of crime argues that low self-control is the primary individual-level cause of crime and research has consistently shown that low self-control is one of the strongest predictors of individual participation in crime. Most scholars have interpreted the theory as predicting that the supply of criminal opportunities and an offender's low self-control interact to produce crime. From this perspective, the effects of low self-control are contingent on the amount of available opportunities for crime. However, Gottfredson and Hirschi have since argued against this view and contend that opportunity for crime should have little effect on individuals with low self-control. I contribute to this debate by using a design that controls for selection into criminal opportunities, as well as all time-stable individual differences that could affect both opportunity and crime. Using routine activities as a measure of opportunity, I find that increases in opportunity were significantly related to violent and property crime. This relationship did not vary across levels of self-control for property crime but did vary across self-control for violent crime. The effect of opportunity was strongest for individuals with higher levels of self-control.

Chapter 2 examines an area that has received an enormous amount of attention: alcohol use and crime. Research consistently finds a strong association between alcohol use and offending.

However, alcohol use does not lead to crime every time it is consumed, or for every person who consumes it. Chapter 2 examines the role of routine activities in the relationship between alcohol use and crime. I examine the mediating and moderating effects of routine activities in the alcohol-crime relationship. The results suggest that alcohol use plays a strong role in both violent and nonviolent offending, and this effect is especially prominent when opportunity for crime is highest. The evidence suggests that the social context of alcohol use provides opportunity for crime and amplifies the effects of alcohol use for violent and property crime.

Chapter 3 makes use of incident-level data in order to determine which situational factors contribute to the escalation of violence. This study is based in impression management theory and examines whether disputes are more likely to be violent if one of the participants is intoxicated, whether the relationship between the participants plays a role in the outcome of a dispute, and whether weapons contribute to the escalation of violence. The findings suggest that alcohol use, by either actor in a dispute, significantly contributes to a violent outcome. Disputes are especially likely to turn violent when both disputants have been drinking. Relationship status also played a role in disputes becoming violent as disputes that involve acquaintances and intimate partners were somewhat more likely to become violent than those with strangers. The presence of firearms played a significant role in the escalation of violence. When both parties had a firearm, disputes were least likely to escalate.

## TABLE OF CONTENTS

LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
ACKNOWLEDGEMENTS.....	ix
Chapter 1. SELF-CONTROL AND CHANGES IN OPPORTUNITY.....	1
The General Theory of Crime.....	2
Low Self-Control and Opportunity.....	6
Perceptions of Criminal Opportunity.....	9
Routine Activities and Criminal Opportunity.....	11
The Current Study.....	14
Methods.....	15
Data.....	15
Measures.....	16
Analytic Strategy.....	19
Results.....	24
Conclusion and Discussion.....	27
References.....	34
Tables.....	42
Figures.....	46
Chapter 2. ALCOHOL AND ADULT CRIME: THE ROLE OF ROUTINE ACTIVITIES IN THE RELATIONSHIP BETWEEN ALCOHOL USE AND CRIME.....	47
Alcohol Use and Crime.....	49
Theories of Alcohol Use and Crime.....	50
Alcohol Use and Routine Activities.....	53
The Issue of Causality in the Relationship Between Alcohol Use and Crime.....	58
The Current Study.....	63
Methods.....	65
Data.....	65
Validity of the Life-Event Calendar.....	66
Measures.....	67
Analytic Strategy.....	71
Results.....	76
Conclusion and Discussion.....	79
References.....	87
Tables.....	101
Figures.....	104
Chapter 3. SITUATIONAL FACTORS OF INTERPERSONAL CONFLICT: WHAT CONTRIBUTES TO THE ESCALATION OF VIOLENCE IN DISPUTES?.....	107
Dispute-Related Violence.....	109
Situational Characteristics of Violence.....	114

Alcohol Use.....	114
Relationship between Opponents.....	117
Weapons.....	120
The Current Study.....	123
Hypotheses.....	123
Methods.....	125
Data.....	125
Incident Reports.....	125
Measures.....	127
Analyses.....	130
Results.....	131
Conclusion and Discussion.....	133
References.....	140
Tables.....	151

## LIST OF TABLES

Table 1.1. Descriptive Statistics.....	42
Table 1.2. Correlations between all Variables.....	43
Table 1.3. Violent Crime Hierarchical Logistic Regression Estimates with Cross-Level Interaction of Self-Control and Opportunity.....	44
Table 1.4. Property Crime Hierarchical Logistic Regression Estimates with Cross-Level Interaction of Self-Control and Opportunity.....	45
Table 2.1. Descriptive Statistics.....	101
Table 2.2. Property Crime Hierarchical Logistic Regression Estimates.....	102
Table 2.3. Violent Crime Hierarchical Logistic Regression Estimates.....	103
Table 3.1. Descriptive Statistics by Outcome.....	151
Table 3.2. Logistic Regression Estimates Predicting Assault.....	152

## LIST OF FIGURES

Figure 1.1. Predicted Probabilities of Violent Crime Across Levels of Opportunity by Self-Control.....	46
Figure 2.1. Theoretical Diagrams of the Relationship between Alcohol Use and Routine Activities.....	104
Figure 2.2. Alcohol Use and Routine Activities Interaction for Property Crime.....	105
Figure 2.3. Alcohol Use and Routine Activities Interaction for Violent Crime.....	106



## ACKNOWLEDGEMENTS

It has been said that no one achieves anything alone. This experience has taught me that statement could not be more true. This dissertation would not have been possible without the support of many individuals in my life. First, I would like to thank my advisor, Richard Felson for guiding me through my graduate career, helping me craft my approach to research, and reading the countless drafts of my work over the years. I am also extremely grateful to my distinguished committee members, including Jeff Ulmer, Corina Graif, and Bo Cleveland for their insightful comments and suggestions with my project and all of their patience through this process.

I am also thankful to all of the faculty, staff, and graduate students in the Department of Sociology and Criminology at Pennsylvania State University. The faculty was essential to my education and their encouragement helped me through each stage of my career. The staff was extremely helpful and consistently went above and beyond with their assistance. And to all the graduate students that I have met, I want to say thank you for all the support. I am also extremely grateful to the late Julie Horney. Her initial guidance will go a long way in my career, and I hope that this dissertation lives up to all the work she put in when she collected the data.

I owe a special thanks to my mother, Legia Paredes, my grandparents, Ernestine and Frank Paredes, and the rest of my family. They shower me with support and go out of their way to encourage me.

Finally, this dissertation would not have been possible without the love and support of my wife, Brittney Lewis. She started this adventure with me years ago and has stood by my side through all of it. Her unconditional love and endless support have helped me get through many sleepless nights. As always, all my work is for her.

## **CHAPTER 1: SELF-CONTROL AND CHANGES IN OPPORTUNITY**

In their seminal work, *A General Theory of Crime*, Gottfredson and Hirschi (1990) argue that low self-control is the primary individual-level cause of crime. In support of their central tenet, criminological research has consistently shown that low self-control is one of the strongest predictors of individual participation in crime (Pratt & Cullen, 2000). While low self-control is a robust predictor of crime, many researchers contend that other propositions of the theory have not been fully supported and may need to be revised. In particular, there is some debate regarding the role of opportunity in self-control theory. Most scholars have interpreted the theory as predicting that the supply of criminal opportunities and an offender's low self-control *interact* to produce crime (e.g., Grasmick, Tittle, Bursik, & Arneklev, 1993; Longshore, 1998). From this perspective, the effects of low self-control are contingent on the amount of available opportunities for crime. However, Gottfredson and Hirschi (2003) have since argued against this view and contend that opportunity for crime should have little effect on individuals with low self-control.

Previous research has investigated whether opportunity moderates the relationship between low self-control and crime. Most of these studies have found a significant interaction between low self-control and opportunity (e.g., Grasmick et al., 1993; Longshore & Turner, 1998; Longshore, 1998; Hay & Forrest, 2008; Piquero & Tibbets, 1996; Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1998; Kuhn & Laird, 2013; Desmond, Bruce, & Stacer, 2012; Smith, 2004), and find that individuals with low self-control with high opportunity commit more crime. However, many studies have also failed to find a significant interaction between the two variables (e.g., Burton, Cullen, Evans, Alarid, & Dunaway, 1998; LaGrange & Silverman, 1999;

Ousey & Wilcox, 2007; Sellers, 1999). A particular issue in this literature is the use of cross-sectional data and between-person analyses.

In this research, I examine the role of opportunity in the relationship between low-self-control and crime. The analyses are based on self-reported data collected from inmates that contain three-years of monthly measurements of opportunity and crime, and a time-stable measure of self-control. Using a within-individual change design, the analyses control for selection into activities that are likely to produce crime, as well as all time-stable individual differences that could affect both opportunity and crime. For the analyses, I first estimate within-person effects of opportunity on crime, then use cross-level interactions to determine the relationship varies across levels of self-control. I begin with a discussion of the general theory of crime, followed with an overview of the conflicting views regarding the role of opportunity in the theory. Then I discuss previous research in this area. The findings suggest that self-control partially conditions the relationship between opportunity and crime, although not in the direction that most research has previously found.

### **The General Theory of Crime**

Gottfredson and Hirschi's (1990) self-control theory is a micro-level crime theory developed from the control theory framework and draws heavily from the classical theory of criminal behavior (see also Hirschi & Gottfredson, 1993). Rather than seek to explain *why* individuals choose to commit crime, control theories seek to explain why people *do not* commit crime. Control theories maintain that mechanisms, either within the individual or from social sources, are needed to control their hedonistic needs in order to function within a society.

Gottfredson and Hirschi's (1990) view of human behavior is grounded in the classical theory of criminal behavior (Beccaria, 1764/1963). This perspective views human behavior as a

self-interested pursuit of pleasure and avoidance of pain. Individuals are viewed as rational decision-makers looking to maximize benefits of potential actions. Criminal behavior is similar to non-criminal behavior in this regard. In order to distinguish criminal behavior from non-criminal behavior, Gottfredson and Hirschi define crime as “acts of force and fraud undertaken in the pursuit of self-interest” (1990, p. 15). An offender is viewed as a “reasoning criminal” that has made a rational decision to engage in crime based on the extent to which they expect to maximize their benefits and minimize their costs (Clarke & Cornish, 1985; Cornish & Clarke, 1986). Decisions to commit crime are made under conditions that can influence the cost-benefit analysis of committing a crime, such as time constraints, emotional distress, and a lack of full information regarding the costs associated with the crime (Simon, 1957).

For proponents of this approach, motivation for crime is universal and constant. Crime does not require any unique motivation as it is a manifestation of natural pursuits of pleasure and avoidance of pain. Gottfredson and Hirschi (1990) derive a conception of the criminal that they consider to be logically consistent with the nature of crime. Based off their examination of the common characteristics of crimes, Gottfredson and Hirschi (1990) claim that individuals who participate in crime will also “tend to pursue immediate pleasures that are not criminal: they will tend to smoke, drink, use drugs, gamble, have children out of wedlock, and engage in illicit sex” (p. 90). Thus, the general theory of crime is not just a theory of crime, but also of deviance broadly defined to include problems in other aspects of life including relationships, employment, substance use, and accidents (Hay, 2001). They refer to this wide range of behaviors as crime equivalents or acts analogous to crime.

Self-control theory, like all control theories, focuses on what constrains motivation to commit crime. Most criminal acts are attractive because they are easy, simple, and exciting,

without requiring much exertion of effort. Crime provides “immediate, easy, and short-term pleasure (Gottfredson & Hirschi, 1990, p. 41), so it is a universally desirable way to obtain gratification and meet needs with little effort. Gottfredson and Hirschi build on previous work by asserting that classical theory lacks a specific concept that captures individual differences in vulnerability to “temptations of the moment” (1990, p. 87). The heart of their theory is this individual difference, which they refer to as self-control. Self-control has been described as the tendency to avoid short-term benefits when they outweigh long-term costs and is the main constraint on criminal motivation in self-control theory (Hirschi & Gottfredson, 2000; Hirschi, 2004). In other words, individuals are less likely to commit crime when they are able to resist the temptation of immediate benefits of crime because they see crime as containing significant, long-term, personal and social costs. These individuals are considered to have high self-control. Conversely, individuals who are unable to resist temptation and avoid long-term consequences are labeled as having low self-control.

The fundamental claim of the theory is that low self-control is the “primary individual characteristic causing criminal behavior” (Gottfredson & Hirschi, 1990, p. 111). They assert that individuals with low self-control tend to share six main characteristics; 1) they are more likely to act impulsively; 2) prefer easy or simple tasks over more complex tasks; 3) seek out risk and excitement; 4) prefer physical activities over complex mental activities; 5) tend to be self-centered and insensitive to the needs of others; and 6) lose their temper easily. These characteristics of low self-control are proposed to influence the cost-benefit analysis associated with engaging in criminal behavior (Gottfredson & Hirschi, 1990).

According to self-control theory, parental socialization is the primary mechanism for the development of self-control in children. Gottfredson and Hirschi (1990) point out that low self-

control tends to be more prevalent in the “absence of nurturance, discipline, or training” (p. 95). Family socialization, with a strong emphasis on parenting strategies, is key to the development of self-control. Effective management of the child entails parental monitoring of the child’s behavior, recognizing and acknowledging when the child has acted delinquently, and applying consistent and proportionate punishment for delinquent behavior when it occurs (Gottfredson & Hirschi, 1990). If these steps are taken, a child is likely to develop self-control. Poor parental strategies do not *cause* low self-control, instead children are naturally inclined to favor immediate gratification and ignore the long-term consequences. While other social institutions (e.g., school) may play a role in the development of self-control, it difficult for these institutions to make up for parental deficiencies (Gottfredson & Hirschi, 1990, p. 107). Once established in early childhood, an individual’s level of self-control remains relatively stable over the lifespan.<sup>1</sup> Compared to individuals with high self-control, those with low self-control are more likely to commit crime at all stages of lives.

In sum, the main arguments of self-control theory are that ineffective early childhood socialization leads to low self-control and, in turn, low self-control causes involvement in crime and “analogous acts,” and engagement in risky behaviors, such as going out at night or

---

<sup>1</sup> Gottfredson and Hirschi (1990) view self-control as a stable, trait-level characteristic. Other researchers view self-control as having properties similar to a muscle that can be strengthened and exhausted (Baumeister, Vohs, & Tice, 2007). There is considerable debate regarding the stability of self-control (e.g., Burt, Simons, & Simons, 2006; Burt, Sweeten, & Simons, 2014). In order to maintain consistency with the theoretical propositions of self-control theory, the current study uses self-control as a stable, trait-level characteristic.

frequently visiting bars. This causal relationship exists because low self-control makes the individual vulnerable to immediate temptations to undertake acts of force or fraud in the pursuit of self-interest. Low self-control is seen as a latent trait, or a summary construct of individual traits, that can be described as the ability to avoid short-term benefits when they outweigh long-term costs. Characteristics of individuals with low self-control include, impulsiveness, a preference for simple tasks, risk-seeking, a preference for physical tasks, and self-centeredness. These individual characteristics influence the analysis of costs and benefits associated with engaging in a particular behavior. Low self-control is established early in life and remains relatively stable throughout life.

### **Low Self-Control and Opportunity**

The main tenet of Gottfredson and Hirschi's (1990) general theory of crime, that low self-control is associated with participation in crime and analogous acts, has largely been supported in the empirical research (e.g., Arneklev, Grasmick, Tittle, & Bursik, 1993; Hay, 2001; Pratt & Cullen, 2000). However, researchers have taken exception to various aspects of the theory as a general theory of behavior. Of particular interest to the current study, there has been substantial debate regarding the role of opportunity in the general theory of crime (Hay & Forrest, 2008; Simpson & Geis, 2008; Goode, 2008).

Although Gottfredson and Hirschi (1990) gave very little attention to opportunity in their original statement of self-control theory, many scholars understood the theory as incorporating the role of criminal opportunity into the low self-control and crime relationship. Researchers interpreted the theory as asserting that opportunity conditions the effects of low self-control on crime. In other words, the effects of low self-control on crime are only able to manifest when criminal opportunity is present. From this perspective, the effects of low self-control should be

greater when opportunity for crime is high. As other scholars have noted (Hay & Forrest, 2008), this view was especially prevalent in early reviews of the theory (Barlow, 1991; Tittle, 1991) as well as the early empirical tests of the theory (e.g., Grasmick et al., 1993; Longshore, 1998). This perspective of low self-control and opportunity interacting to produce crime remains prominent in more recent tests of self-control and opportunity (e.g., Desmond et al., 2012; Ha & Beauregard, 2016; Hirtenlehner & Kunz, 2017; Seipel & Eifler, 2010). Scholars have criticized Gottfredson and Hirschi's treatment of opportunity in the theory asserting that the role of opportunity is unclear, remains relatively untested, and that the authors neglected a critical element of their own theory (Higgins & Rickketts, 2004; Smith, 2004; Simpson & Geis, 2008; Goode, 2008).

Gottfredson and Hirschi (2003; see also Hirschi & Gottfredson, 1993; Hirschi & Gottfredson, 2008), however, reject the idea that low self-control and opportunity interact to produce criminal acts. In the original statement of self-control theory, Gottfredson and Hirschi (1990) describe a set of necessary conditions for crime to occur, including *opportunity*, adversaries, victims, and goods. However, they do not expand upon this concept and, in later work, only define opportunity as “sets of circumstances favorable to crime” (Gottfredson & Hirschi, 2003). They contend that the simple nature of most crimes guarantees that opportunities for crimes are limitless, and further, variation in opportunity reflects variation in low self-control (Hirschi & Gottfredson, 1993; Gottfredson & Hirschi, 2003). Since most criminal acts are “as easy as falling down a mountain” (Gottfredson & Hirschi, 2003, p. 6), individuals with low self-control can easily create their own opportunities for crime, or have an easier time spotting opportunities as they develop than those with higher levels of self-control. They suggest that those with low self-control are less likely to stay at home and instead tend to “gravitate toward



the street” (Gottfredson & Hirschi, 1990, p. 157), creating their own opportunities for crime.

According to the authors of self-control theory, variation in opportunity is a product of low self-control, and the limitless supply of opportunities for most crimes means that opportunity should have little to no causal significance for explaining crime.

As previously mentioned, opportunity has been a major focus of researchers that have tested or critiqued self-control theory. Although Gottfredson and Hirschi (2003) contend that opportunity should not be given much attention, empirical evidence suggests that the incorporation of opportunity would strengthen self-control theory. Most studies that have looked for an interaction between self-control and opportunity have found a significant interaction revealing that those with lower self-control and higher levels of opportunity are at an increased risk for crime or deviant behavior (Grasmick et al., 1993; Longshore & Turner, 1998; Longshore, 1998; Hay & Forrest, 2008; Piquero & Tibbets, 1996; Cochran et al., 1998; Kuhn & Laird, 2013; Desmond et al., 2012; Smith, 2004; Hirtenlehner & Kunz, 2017; Bolin, 2004). While some studies fail to find a significant interaction between low self-control and opportunity (Burton et al., 1998; LaGrange & Silverman, 1999; Ousey & Wilcox, 2007; Ha & Beauregard, 2016; Zimmerman et al., 2012; Sellers, 1999), the majority of these studies do find significant effects of opportunity and low self-control with both measures included in statistical models. Additionally, studies have found significant variation in the frequency of encountering opportunities for crime, suggesting that opportunities are not constant and vary across individuals (Hay & Forrest, 2008; Longshore, 1998). While every individual comes across an opportunity to commit a crime at some point, the frequency of these encounters is likely to vary in ways not completely attributable to low self-control. These findings suggest that opportunity is

not solely a byproduct of low self-control and self-control theory would benefit from the development and theoretical integration of opportunity.

### **Perceptions of Criminal Opportunity**

Research that has examined opportunity in self-control theory has used a wide range of measures intended to capture “opportunity.” A common method used in tests of interactions between self-control and opportunity is the use of measures that capture respondent perceptions about opportunities they have encountered. These items typically ask respondents to report the frequency of encountering situations in which there was an opportunity to commit a specific crime that was easy to commit and there was a low risk of being detected by someone nearby. The first major test of self-control theory adopted this approach. In a general population sample of adults from Oklahoma City, Grasmick et al. (1993) asked respondents about their exposure to situations in which committing an act of force or fraud would have been “possible to do easily,” “gratifying at the moment,” and “without much chance somebody who much do something about it would quickly find out.” Respondents reported how many of these opportunities they had encountered in the previous five years. The researchers found a significant interaction between low self-control and opportunity, revealing that individuals with low self-control and high opportunities also had higher levels of crime.

Following this approach, another major test of self-control and opportunity found comparable results. Longshore (1998) asked serious offenders report the number of criminal opportunities they had encountered during the previous six months, with opportunities measured as the number of times the respondent saw an “opportunity” to commit a crime that would have been “easy to do” and they were “pretty sure nobody who might do something about it would quickly find out.” Results of the study supported the findings by Grasmick et al. (1993) that

individuals with low self-control and high opportunity displayed higher levels of criminal behavior.

Perceptions of opportunity are also common in more recent tests of opportunity and self-control. Some researchers have used measures that capture respondent perceptions of the ease of obtaining drugs, guns, alcohol, or cigarettes either at school or at home (Ousey & Wilcox, 2007; Desmond et al., 2012), perceived neighborhood disorder (Zimmerman et al., 2012), perceptions of frequency and acceptability of academic dishonesty on campus (Bolin, 2004), perceptions of a negative school environment (Moon & Alarid, 2014), or perceived peer deviance (Longshore & Turner, 1998; Wright et al., 2001; Moon & Alarid, 2014; Desmond et al., 2012; Kuhn & Laird, 2013). Others have included perceptions of the risk of getting caught or pleasure from committing a crime (Wright et al., 2001; Wright et al., 2004; Piquero & Tibbets, 1996; Ha & Beauregard, 2016).

The use of perceptions of opportunity in these studies poses a major issue. Hirschi and Gottfredson (2008) have objected to this approach to measure opportunity in self-control theory (see also Hirschi & Gottfredson, 1993; Gottfredson & Hirschi, 2003). In particular, the authors suggest that subjective evaluations of opportunities are properties of individuals, not objective situations. Further, these evaluations of easy opportunities are likely tied to individual levels of self-control. If individuals with low self-control perceive higher levels of opportunity in the same physical settings as individuals with high self-control, this would suggest that perceived opportunities are a function of self-control. Although there is extremely limited research in this area, there is some evidence differences in perceptions of opportunity are influenced by self-control (Schulz, 2006, p. 187; Young, Barnes, Meldrum, & Weerman, 2011).

Perceived opportunities for crime and self-control appear to be related. However, it is unlikely that the perception of criminal opportunities is completely attributable to self-control. Studies that have included both opportunity and self-control in their models generally find significant main effects for both variables (Grasmick et al., 1993; Longshore & Turner, 1998; Longshore, 1998). This suggests two possible explanations. First, opportunity may have causal effect on crime above and beyond individual characteristics. This is the focus of situational crime prevention (Clarke, 1980). Second, there could be other individual characteristics related to the perceptions of opportunity that have not been controlled for in prior studies. Opportunity for crime is generally defined in terms of rewards obtained from the crime, risk of getting caught, and the sanctions associated with getting caught. There is some research that suggests these concepts are differentially affected by low self-control. For example, research conducted by Piquero & Tibbets (1996) found that low self-control was related to the perceived pleasure of committing a crime, but had no effect on the perceived sanctions associated with that crime. Further, some research shows that perceived sanctions and expected rewards remain significant predictors of crime even after controlling for low self-control (e.g., Nagin & Paternoster, 1993). These findings suggest that there are other individual characteristics that influence the perception of criminal opportunities. For example, certain personality characteristics or differences in cognitive functions might be related to the detection of opportunities, as well as the storage and recall of those memories. Without knowing which individual characteristics are related to the perception of criminal opportunities, studies that examine opportunity and self-control would benefit from designs that eliminate the effects of time-stable characteristics.

## **Routine Activities and Criminal Opportunity**

As an alternative to using perceived measures of opportunity, some researchers have drawn on routine activities theory to define opportunities for crime. Routine activities theory asserts that criminal motivation is not a sufficient cause of crime as motivated offenders must encounter an opportunity for crime that contains a suitable target and lacks a capable guardian (Cohen & Felson, 1979). Opportunities, in large part, are determined by conventional routine activities. Early work in routine activities theory was mostly used to predict crime events or victimization (Meier & Miethe, 1993), until Osgood et al. (1996) applied the routine activity framework to individual offending. Osgood and colleagues' (1996) extension of the routine activities framework asserts that unstructured and unsupervised socializing with peers produces situational temptations for deviance and crime (Briar & Piliavin, 1965). Osgood and colleagues suggested that motivation for crime can arise from certain situations that are likely to produce easy and rewarding opportunities for crime.

Routine activities have been used as measures of opportunity in some tests of self-control theory. Some researchers have used the reported number of nights out per week the respondent the respondent goes out for recreation as a proxy for opportunity (Evans, Cullen, Burton, Dunaway, & Benson, 1997; Burton et al., 1998; Burton, Evans, Cullen, Olivares, & Dunaway, 1999). Additional routine activities used as measures of opportunity include the frequency of visiting family members, attending cultural events, and engaging in physical activities (Hirtenlehner & Kunz, 2017) or spending time in public settings (Wikström & Svensson, 2008).

An issue found in the above studies is that not all routine activities are likely to produce ample opportunities for crime. Going out at night is probably not related to crime if the individual attends a book club meeting. Osgood et al. (1996) proposed that situations conducive

to deviance are likely to arise when individuals socialize with peers in leisure time. These routine activities increase the likelihood of offending by creating opportunities for deviance by making crime easier and more rewarding. One of the major contributions of the work by Osgood et al. (1996) is their emphasis on situational temptations produced by routine activities related to offending, above and beyond characteristics of the individual. Some researchers have used concepts related to unstructured socializing, such as unsupervised time away from home (Hay & Forrest, 2008), time spent with peers (Hay & Forrest, 2008; LaGrange & Silverman, 1999), adult supervision (Hay & Forrest, 2008; LaGrange & Silverman, 1999; Moon & Alarid, 2014), frequency of going to bars (Wolfe, Resig, & Holtfreter, 2016), and driving around with nowhere to go (LaGrange & Silverman, 1999).

There are two key issues found in studies that have used routine activities as measures of opportunity in tests of self-control theory. First, many have used routine activities that should not be theoretically related to crime. Going out at night is not particularly criminogenic if the individual goes to the movie theater. Related, visiting family members or attending cultural events are hardly seen as criminogenic.

A larger issue found in these studies is the use of cross-sectional data. Cross-sectional studies are poorly suited to address selection and may suffer from omitted variable bias (Firebaugh, 2008). Omitted variable bias could occur if differences in opportunity are related to any other causes of crime, and selection could occur if individuals choose to participate in certain routine activities based on their expectations of these activities. Both omitted variable bias and selection could be present if there are baseline differences in opportunity that are related to other unknown causes of crime. One way of addressing these biases is by adding control variables in order to control for the association between opportunity and any other unknown causes of crime

(Firebaugh, 2008). The problem with this approach is that researchers are rarely privy to all known causes of crime that could also be related to opportunity. Past studies that have used cross-sectional analyses have controlled for self-control and examined the effects of current levels of opportunity, but they have potentially omitted variables that could bias the results. For example, individuals with low self-control may be more likely to engage in certain routine activities and commit crime.

One way of addressing selection effects and omitted variable bias is the use of longitudinal data and a within-individual approach. With these models, individuals are measured repeatedly over time, and comparisons are made within individuals, not between individuals. As it relates to the current study, a within-individual analysis compares participation in crime when individuals have low opportunity compared to when they have higher levels of opportunity. The use of within-individual analyses eliminates the effects of all time-stable factors by portioning out the effects of any unmeasured, preexisting differences that might be related to both exposure to opportunity and offending that produce biased estimates (Allison, 1990; Allison, 2009). While a within-individual analysis would eliminate the effects of all time-stable factors, it still may suffer from omitted variable bias due to time-varying factors. However, this approach is significantly less prone to bias from omitted variables (Firebaugh, Warner, & Massoglia, 2013). These models provide a way to estimate effects and make a stronger causal claim because they control for selection and omitted variable bias. To the author's knowledge, there have been no tests of opportunity and self-control that have used a within-individual analysis.

### **The Current Study**

The current study examined retrospective self-reported accounts of criminal behavior by

adult male inmates to investigate the possible conditioning effect self-control on the opportunity and crime relationship. The current study extends prior research in three ways. First, virtually all past research has used cross-sectional data and between-person analyses. Instead of focusing on differences between individuals, the current study compares individuals to themselves. Using a within-individual change analysis, I first estimate the effect of opportunity on crime controlling for selection and all time-stable factors related to both opportunity and crime. Then I make use of cross-level interactions to determine if the relationship varies across levels of self-control. Second, many prior studies have used measures of perceived opportunities, which may be related to self-control or other individual characteristics. Furthermore, while some studies have used more objective of routine activities, they are generally not seen as activities that are especially conducive to crime (e.g., attending cultural events, living with a partner, spending time in public settings). To address this issue, I use frequency of certain routine activities as a measure of opportunity. Third, past research has used measures of crime and opportunity that extend far back in time (e.g., 6 months, 1 year, 5 years). Since the effect of opportunity on crime should be immediate, these studies may have misestimated the effect of opportunity on crime. The current research uses three years of monthly measures of crime and opportunity in order to estimate a more contemporaneous effect of opportunity on crime.

## **Methods**

### **Data**

The data used for the study come from the Second Nebraska Inmate Study (Horney, 2001). Respondents were randomly sampled from an all-male intake cohort admitted to the diagnostic and evaluation unit of the state correctional system. Sampling took place over a 14-month period beginning in November 1997 and ending in December 1998. The response rate for invited



respondents was 90.4%, providing a total sample of 717 inmates that completed the original interview. Of the original sample, 22 respondents were omitted from analyses due to missing data on vital crime measures. In the second stage of analyses, an additional 7 respondents were omitted from the sample because they were missing too many items in the self-control scale (more on this below).

Interviewers met with respondents in private visiting rooms where they read survey questions and entered the responses into a laptop computer. The original study gathered information about the respondent's stable background characteristics including their criminal history, level of self-control, and family relationships. The interviewers used a life event calendar (LEC) to gather data about the respondents' lives for the three-year period prior to commission of the crime that resulted in incarceration. They recorded month-to-month changes in offending and in life circumstances including frequency of different routine activities, being under correctional supervision or probation, their living arrangements, employment, social activities, and alcohol and drug use.

## **Measures**

**Crime measures.** The main dependent variables used in the analyses were two dichotomous measures of crime. For each of the 36 months on the LEC, respondents indicated whether they committed specific offenses. Respondents were asked about their monthly participation in burglary, theft, auto theft, forgery, and fraud. These offenses were combined into a single measure of property crime. Respondents were also asked about their participation in assaults and robberies. Assaults included physical confrontations in which the respondent attacked another person (beyond pushing or shoving), and robberies included instances where the respondent reported taking money using force or the threat of force directly from an individual or a business.

These items were combined into a single measure of violent crime. The dependent variables were and coded as “one” if the respondent reported committing the offense in a specific month and “zero” if he did not.<sup>2</sup> Both dependent variables were recorded at monthly intervals and are included in level-1 of the statistical models (more on the design below).

**Opportunity.** A measure of opportunity was created using routine activities that were recorded at monthly intervals. Routine activities that are likely to produce criminal opportunities are activities that involve peers, lack a structure or orientation, and occur away from the supervision of guardians (Osgood et al., 1996). Proposed through an opportunity framework, these activities have been shown to be a robust predictor of crime (Hoeben, Meldrum, Walker, & Young, 2016). For each month that the respondent was not incarcerated, they reported how often they went cruising in a car or motorcycle, went to bars, hung out with friends, and how many nights they spent out per week. The first three variables were coded on 4-point scales ranging from “Never” to “Almost Every Day.” The number of nights out variable ranged from 0-7. I transformed the nights out variable to a 4-point variable, and then took the average of all the measures so each measure contributed equally to the scale. Higher scores indicate higher levels of opportunity. Opportunity was recorded at monthly intervals and is included in level-1 of the statistical models.

**Low self-control.** The independent variable that was used to differentiate respondents was their level of self-control. Low self-control was measured with the Grasmick et al. (1993) scale that was administered during the survey. The Grasmick et al. (1993) scale contains 24 attitudinal

---

<sup>2</sup> The data allowed for the examination of variety measures for property crime and violent crime.

The use of variety measures did not change the substantive results.

items, 4 for each of the 6 characteristics that were originally described by Gottfredson and Hirschi (1990), including dimensions of impulsivity, a preference for simple tasks, risk seeking, a preference for physical activities, self-centeredness, and temper. Each of the original low self-control items was scored using a scale that ranged from 1 to 4, with higher scores indicating higher levels of that characteristic. The 24 items were averaged to create the final self-control scale with higher scores indicating lower self-control ( $\alpha = .86$ ). Self-control scores were only computed for those participants that had responses to at least 18 of the 24 items.<sup>3</sup> Self-control is treated as a between-person difference and is included in level-2 of the statistical models.

**Control Variables.** The statistical approach used in the analyses (more on this below) controls for stable individual differences, so there is no need to control for time-stable factors related to opportunity or crime. However, the design does not control for explanatory factors that varied over time, so time-varying control variables were added to the models. The number of hours worked for each month was measured using a 7-point scale, with possible categories including “0,” “1-10,” “11-20,” “21-30,” “31-40,” “41-50,” “51-60,” and “60+.”<sup>4</sup> Various living situations were recorded, including whether or not the respondent was living with a wife, cohabitating with a dating partner, living with their children, or living with other relatives. Each of these were treated as a dichotomous variable and coded with a “1” if true and “0” if not. Other

---

<sup>3</sup> Alternative measures of self-control were assessed for participants that answered 18, 20, and 22 of the 24 possible items. The use of different cut-off points for the number of items reported did not alter the results.

<sup>4</sup> A dichotomous measure indicating employment or not, as well as the number jobs held in a month, were both tested as alternatives. The use of these measures did not affect the results.

time-varying controls that could influence the supply of criminal opportunities available for the respondent included whether or not the respondent was on probation or community corrections. Each of these measures was treated as a dichotomous variable, coded as a “1” if true” and “0” if not.

### **Analytic Strategy**

In order to examine the possible moderating effect of self-control on the relationship between opportunity and crime, I use a series of hierarchical linear models (HLM). Since each respondent reported monthly values for the full three years prior to incarceration, there are essentially 36 “waves” of data for each respondent. This type of data presents two primary statistical issues. First, due to the nesting of months within individuals, the data are subject to statistical dependence. Statistical dependence occurs in this data because individuals are more likely to resemble themselves than other respondents and there are differences in overall rates of offending, otherwise known as unobserved heterogeneity. Additionally, dependence occurs because observations that are closer in time tend to be similar than those that are further apart, also known as serial correlation (Osgood, 2010). With nested data of this nature, the use of ordinary regression techniques violates the independence assumption and would produce biased estimates (Raudenbush & Bryk, 2002). In order to account for the nesting of months within persons, unobserved heterogeneity, and serial autocorrelation, Generalized Hierarchical Non-Linear Modeling (HLM) version 7.01 was used for the analyses (Raudenbush, Bryk, & Congdon, 2013).

HLM is also useful because it is an effective way of modeling within-individual and between-individual change over time (Raudenbush & Bryk, 2002; Horney, Osgood, & Marshall, 1995; Osgood, 2010). This is accomplished in a two-step process. First, the difference from the

individual specific mean in each month models the within-individual change over time, also known as person-mean centering. Person-mean centering, or expressing each variable as a deviation from its person-specific mean, eliminates the effects of time-stable individual characteristics from the time-varying variables and the outcome variables. The resulting level-1 coefficients represent the contrast between each person's involvement in crime when they have lower levels of a measure to their involvement in crime when they have higher levels of a measure. The strength of this approach lies in its ability to control for unmeasured time-stable explanatory variables as it "controls" for all time-stable characteristics of the person, such as personality characteristics or IQ. One of the major problems with standard between-person analyses is they fail to address any unmeasured variables that could influence both the independent variables as well as the dependent variables, otherwise known as omitted variable bias. While person-mean centering (and other fixed effects approaches) eliminates omitted variable bias that results from time-stable variables, it does not eliminate omitted variable bias from time-varying variables (Allison, 2009). However, the assumption that there are only time-varying variables that need to be controlled is a much more reasonable assumption to meet (Firebaugh et al., 2013). Person-mean centering also controls for the correlation between the time-varying covariates and the mean level of offending (Raudenbush & Bryk, 2002).

Second, between-person differences are captured in level-2 of the equation. The aggregate measure of opportunity in level-2 controls for individual differences in opportunity and captures between-person differences in the overall level of opportunity and its effects on offending. Aggregate measures represent the average level of exposure to opportunity over all months that the respondent has reported. The inclusion of aggregate measures of opportunity in level-2 reduces the possibility of obtaining biased estimates from the possibility that individuals vary by

their average exposure to opportunity (Osgood, 2010). As it relates to the current study, the inclusion of an aggregate measure of opportunity in level-2 captures the possibility that individuals differ in their involvement in crime based on their overall exposure to opportunity.

The outcomes used in the study are dichotomous, so normal distribution of the residuals and prediction estimates using a linear model would provide estimates that are out of the 0-1 range. In order to account for the nature of the dependent variable, I employed a logistic multilevel regression model with a Bernoulli link. The logistic multilevel model is advantageous because it resolves issues that arise when using measures of crime and delinquency that usually have highly skewed and discrete distributions that violate the assumptions of the standard ordinary least squares regression (Osgood, 2010). Based on preliminary analyses, the models included linear, quadratic, and cubic time variables in order to allow for complex patterns of offending across time (Horney et al., 1995; Felson et al., 2012). Time is measured from 1 to 36, with 36 representing the most recent month and 1 representing the most distant month.<sup>5</sup> A dummy variable representing the last month prior to incarceration was also added to account for any irregular circumstances that lead to the final arrest. HLM is also able to handle the variable nature of longitudinal data that contains a large number of waves (Raudenbush & Bryk, 2002). For example, individuals may be missing information for particular months, or the timing between monthly observations may vary across individuals. This is especially useful for this data set as months in which the respondent was incarcerated for at least half a month were excluded

---

<sup>5</sup> The time variables were transformed to reduce correlation and to make the coefficients more interpretable. This transformation does not affect the coefficients for the independent or control variables.

leaving only “street months” in the analyses. HLM weights results according to how many observations an individual contributes to the data, so including only “street” months is not an issue. Individuals with more street months have more observations and contribute more information to the estimates. In order to contribute to within-person estimates, respondents must have reported “change” in the measure. For example, a respondent that reports the same amount of opportunity in each month does not contribute to the opportunity estimate.

I specify the models using HLM notation (Raudenbush & Bryk, 2002). The models consist of two levels. The first level is the within-individual component and was comprised of monthly measures of the independent opportunity variable, the control variables, and the time variables. As mentioned above, all level-1 variables were person-mean centered. The control variables do not include an error term, as there is no a priori reason to believe that the effects of the covariates should vary randomly or systematically across individuals (Slocum, Simpson, & Smith, 2005; Horney et al., 1995). A simplified model is shown below:

Level-1 Model (Within-Individual):

$$\text{Log}[\text{odds}(Y_{it} = 1)] = \pi_{0i} + \pi_{1i}(\text{Opportunity}_{it} - \overline{\text{Opportunity}_i}) + \pi_{2i}(\text{Time}_{it} - \overline{\text{Time}_i}) \quad (1)$$

In equation 1, the natural log odds that individual,  $i$ , will offend at time,  $t$ , is a function of opportunity and time. The time-varying effect of opportunity on offending is captured in  $\pi_{1i}$ , and the rate of change in the log odds of offending is represented by  $\pi_{2i}$ . Although not shown in the simplified model above, the level-1 equation includes the full time trend variables, control variables, and a dummy variable representing the last month prior to the current incarceration spell.

Monthly measures in level-1 are nested within individuals in level-2. Each level-1 parameter becomes the dependent variable in the between-individual model. A simplified version of the

level-2 equation is shown below:

Level-2 Model (Between-Individual):

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{Opportunity}) + \beta_{02}(\text{Self-Control}) + r_{0i} \quad (2)$$

$$\pi_{1i} = \beta_{10} + \beta_{11} (\text{Self-Control}) \quad (3)$$

$$\pi_{2i} = \beta_{20} + r_{3i} \quad (4)$$

The level-2 model provides the  $\beta$ s, which represent the within-individual changes in a covariate on the within-individual changes in offending. In equation 2,  $\beta_{01}$  represents the individual-specific average level of opportunity and  $\beta_{02}$  represents the individual specific measure of low self-control. Although not shown in the simplified equation, individual-specific means of the control variables are included. Equation 2 also contains an error term added to the intercept, which allows for random variation across individuals' average levels of offending and serves as a way to control for persistent unobserved heterogeneity (Horney et al., 1995; Slocum et al., 2005). In equation 3,  $\beta_{10}$  represents the average change in an individual's log expected count of offending associated with a one-unit change in opportunity, and  $\beta_{11}$  represents the interaction between the within-person effect of opportunity and the between-person effect of low self-control. In equation 4, there is an error term included for the linear time variable that captures gradual changes in offending over time and variation in time trends across individuals (Horney et al., 1995; Slocum et al., 2005).

In sum, HLM was used to account for the nesting of months within individuals and to separate the within-person and between-person variation in opportunity and involvement in crime. The use of person-mean centering of all level-1 variables eliminates the between-person variation in these measures and the influence of any time-stable characteristics. Level-1 estimates of opportunity reveal the effect of changes in opportunity on involvement in crime net



of all time-stable factors. At level-2, time-stable individual differences in self-control are added along with the cross-level interaction between opportunity and self-control. The cross-level interaction reveals if the effects of opportunity vary across levels of self-control.

## Results

Descriptive statistics are presented in Table 1.1. The level-1 means provide the average score for a variable across all person-months. For measures that are dichotomous, the mean is interpreted as the percent of all person-months coded as 1. The last column of the table represents the percentage of respondents that “changed” scores at least once during the reference period. As noted earlier, only participants that had variation in a measure contributed to that estimate. Across all person-months, violent crime was committed in 11% of the month and property crime was committed in 17% of the months. Almost 70% of respondents reported some level of change in their violent crime participation, and almost 50% of respondents reported some level of change in their property crime participation. Respondents also reported significant change in opportunity. Across all months, respondents averaged 1.56 ( $SD = 0.73$ ) for the opportunity scale, and almost 60% of all respondents reported change in these behaviors. The level-2 variable of low self-control is included as a between-person measure. Respondents averaged 2.16 ( $SD = 0.54$ ) on the low self-control scale, and since it is treated as a time-stable characteristic, there is no “change” in this measure.

In Table 1.2, correlations between all variables are presented. The correlations show the low self-control is significantly associated with higher levels of opportunity ( $r = 0.34, p < .001$ ), violent crime ( $r = 0.27, p < .001$ ), and property crime ( $r = 0.26, p < .001$ ). Across all person-months, individuals with low self-control engaged in more criminogenic routine activities and commit more violent crime and property crime than individuals with higher levels of self-

control. Furthermore, low self-control is negatively associated with the number of hours worked in a week ( $r = -.22, p < .001$ ) and living with a wife ( $r = -.16, p < .01$ ), and positively associated with alcohol use ( $r = 0.22, p < .001$ ), marijuana use ( $r = 0.29, p < .001$ ), and drug use ( $r = 0.29, p < .001$ ). This is important because as can be seen in the second column of the table, the number of hours worked in a week ( $r = -.27, p < .001$ ) and living with a wife ( $r = -.22, p < .001$ ) are negatively associated with opportunity, while alcohol use ( $r = 0.26, p < .001$ ), marijuana use ( $r = 0.36, p < .001$ ), and drug use ( $r = 0.24, p < .001$ ) are all positively associated with opportunity. Although this analysis is only correlational, it suggests that individuals with low self-control engage in behaviors that are more likely to produce opportunities for crime and also less involved in the roles of working and marriage that reduce opportunities for crime.

Multilevel hierarchical logistic regression estimates for violent crime are presented in Table 1.3. In Model 1, the level-1 opportunity estimate indicates that within-person increases in opportunity in a month are significantly associated with an increase in violent crime in that same month ( $b = 0.60, SE = 0.11, p < .01$ ), controlling for all time-stable characteristics and other important time-varying measures. Increases in marijuana use ( $b = 0.12, SE = 0.05, p < .05$ ) and drug use ( $b = 0.26, SE = 0.04, p < .001$ ) are also significantly related to an increase in violent crime. In Model 2, low self-control is added to the analyses. The level-2 estimate indicates that between-person differences in self-control are significant associated with violent crime ( $b = 0.65, SE = 0.13, p < .001$ ). Individuals with low self-control engaged in significantly more violent crime than individuals with high self-control in a given month.

In Model 3, the cross-level interaction between the time-varying measure of opportunity and the time-stable measure of self-control is added to the model and is significant but negative, ( $b = -0.50, SE = 0.20, p < .05$ ). The significant interaction indicates that the relationship between

opportunity and violent crime is contingent on a person's level of self-control. The interaction is displayed in Figure 1.1. Predicted probabilities were created by exponentiating the coefficient and dividing the exponentiated term by itself plus 1. For both self-control and opportunity, high and low categories were created using the mean plus or minus a standard deviation, respectively. Across all levels of self-control, increases in opportunity are associated with an increase in violent crime. However, the effect of opportunity on violent crime is significantly stronger for those with higher levels of self-control. For example, going from low opportunity to high opportunity increased the probability of committing a violent crime by only 20% for the low self-control group, but increased the probability of committing a violent crime by almost 35% for the high-self-control group. As can be seen from the figure, individuals with low self-control committed more crime than those with high self-control during months with low and medium levels of opportunity, however, individuals with higher levels of self-control committed slightly more crime during months with higher levels of opportunity.

The multilevel hierarchical logistic regression estimates for property crime are presented in Table 1.4. In Model 1, the level-1 opportunity estimate indicates that within-person changes in opportunity in a given month are significantly associated with an increase in property crime in that same month ( $b = 1.03$ ,  $SE = 0.15$ ,  $p < .001$ ), controlling for all time-stable characteristics and other important time-varying measures. Increases in marijuana use ( $b = 0.18$ ,  $SE = 0.06$ ,  $p < .01$ ), drug use ( $b = 0.38$ ,  $SE = 0.05$ ,  $p < .001$ ), and community corrections ( $b = -1.03$ ,  $SE = 0.14$ ,  $p < .001$ ) are also significantly related to an increase in property crime. Living with a significant other increased property crime ( $b = 0.52$ ,  $SE = 0.20$ ,  $p < .05$ ), while living with a child decreased property crime ( $b = -0.76$ ,  $SE = 0.36$ ,  $p < .05$ ). In Model 2, low self-control is added to the analyses. The level-2 estimate indicates that between-person differences in self-control are

significant associated with property crime ( $b = 1.36, SE = 0.24, p < .001$ ). Individuals with low self-control engage in significantly more property crime than individuals with high self-control in a given month.

In Model 3, the cross-level interaction between the time-varying measure of opportunity and the time-stable measure of self-control is added to the model and is not significant, ( $b = -0.11, SE = 0.25, p > .05$ ). The insignificant interaction indicates that the relationship between changes in opportunity and property crime is not contingent on a person's level of self-control.

### **Conclusion and Discussion**

Gottfredson and Hirschi's (1990) self-control theory has received considerable empirical support as low self-control is one of the strongest known predictors of crime. The current study examined one of the ongoing debates in the self-control literature that is still unresolved: the role of opportunity. Gottfredson and Hirschi have been criticized for the underdevelopment of opportunity in self-control theory (Grasmick et al., 1993; Simpson & Geis, 2008; Goode, 2008), and in their response to this criticism they have hardened their stance that opportunity is not a major factor in the theory and that they have been misinterpreted (Hirschi & Gottfredson, 2008). Despite their objections, researchers continue to test for interactions between opportunity and self-control. These studies find that opportunity plays a significant role in self-control theory and suggest that opportunity should be incorporated more fully into the general theory of crime (see Hay & Forrest, 2008).

The current research sought to make a contribution to this debate. Instead of assessing if *current* levels of opportunity moderate the relationship between self-control and crime, the current study assessed if self-control moderates the relationship between *increases* in levels of opportunity and crime. The strength of the study lies in the design and analytic approach. The

statistical analyses examined within-individual changes in opportunity, which research has not previously done. Unlike previous studies, I first estimated the effects of opportunity on crime. The use of within-individual analyses controlled for all time-stable factors related to opportunity and crime and baseline differences in exposure to opportunity. Using cross-level interactions between opportunity and self-control, I was able to determine if the relationship varied across levels of self-control.

The results of the study lend some support to Gottfredson and Hirschi's claim that opportunity should play a relatively minor role in the commission of crimes for individuals with low self-control. For violent crime, increases in opportunity were related to increases in crime, but this effect was considerably stronger for individuals with *high* self-control. Individuals with low self-control committed more violent crimes compared to their low self-control counterparts, however, their violent behavior was less affected by opportunity. Additionally, no significant interaction was detected between opportunity and self-control for property crimes. The amount of opportunities available for property crime did not affect differences in criminal behavior across levels of self-control. These findings support the position that opportunity should have little effect for individuals with low self-control.

However, results of the study also provide contradictory evidence for Gottfredson and Hirschi's (1990) self-control theory. First, opportunity was related to both violent and property crime, net of all individual factors. The statistical approach used in the analyses controls for all time-stable differences, including self-control. This finding is consistent with previous research that has shown a significant main effect of opportunity, even after controlling for self-control (e.g., Grasmick et al., 1993; Lonshore, 1998). These findings counter arguments made by Gottfredson and Hirschi (2003) that opportunities for crime are a function of self-control (see

also Hirschi & Gottfredson, 1993; Hirschi & Gottfredson, 2008). It also suggests that opportunities for crime are not a function of any time-stable individual trait and can be objectively measured as behaviors. This is probably not true for perceptions of opportunities. In other words, individuals with low self-control are more likely to perceive criminal opportunities compared to individuals with higher levels of self-control. Secondly, Gottfredson and Hirschi (1990) pay no attention to the factors associated with crime for individuals with *high* self-control. They briefly mention that “people with high self-control are less likely under all circumstances throughout life to commit crime” (Gottfredson & Hirschi, 1990, p. 188). The results of the current study do not support this claim. Individuals with high self-control were more likely to offend given increases in opportunities. Additionally, self-control did not matter when there were low levels of opportunity. Across all levels of self-control, crime was unlikely to occur when there were lower levels of opportunity.

Evidence from the current study appears to contradict past studies that find that opportunity matters more for individuals with low self-control. For violent crime, I find that increases in opportunity matter more for individuals with higher levels of self-control. So why are there opposing findings? One potential reason for this is that much of the past research has used measures of perceptions that are dependent on individual characteristics. The analyses used in the current study eliminated all of those factors. Still, even studies that have used measures of routine activities as opportunity conclude that opportunity matters more for those with low self-control. A more likely scenario is that the current study controlled for individual differences in engagement in routine activities likely to produce opportunities for crime. Since past studies have used between-person analyses with cross-sectional data, they have been unable to completely eliminate bias from selection and omitted variables, which could bias the results. The

current research focused on within-individual changes in opportunity and crime. Instead of comparing individuals to each other in terms of their self-control, crime, and opportunity, within-individual analyses allow for the comparison of the same person over time. I examined whether *increases* in opportunity were related to crime, and how this relation varied across levels of self-control. These findings do not suggest that opportunity is not important for individuals with low self-control. In fact, the Table 1.1 shows that low self-control is correlated with higher levels of routine activities likely to produce opportunities for crime and both types of crime.

The evidence does suggest that individuals with higher levels of self-control may be more attuned to increases in opportunity. These individuals might be more sensitive to certain types of opportunities. They may be able to restrain from offending when the costs are high or may be better at discerning when opportunities for crime are easier. Criminal opportunities present a choice between restraining from or engaging in a criminal act. The decision to engage in the criminal behavior involves a risk comprised of the possible rewards of the crime coupled with potential loss or sanctions (Nagin & Pogarsky, 2001). Individuals with higher levels of self-control tend to be more risk averse and prefer the safety of a sure thing rather than risk the negative consequences associated with crime. Some studies have examined whether deterrence has a stronger effect for individuals with higher or lower self-control, but these studies have provided inconsistent results (e.g., Wright et al., 2004; Piquero & Tibbets, 1996; Nagin & Paternoster, 1993). Individuals with higher levels of self-control may be more likely to avoid crime when the risks are high and only offend when opportunities are more rewarding or least costly.

On the other hand, at least for violent crime, individuals with low self-control may be less influenced by the presence of easier opportunities. That is, they may be more likely to offend

even when the risks are high. Individuals with low self-control tend to be risk-seeking rather than risk averse and tend to risk a loss for even the slightest chance of a reward (Nagin & Pogarsky, 2001). Their lack of self-regulatory ability leads them to offend, even during instances when they are less likely to be successful. Furthermore, as previously mentioned, self-control may not matter much when there is low opportunity. For example, during times when individuals do not go out and socialize with peers, opportunities for crime are relatively low. The effects of low self-control may not be able to manifest during these times.

### **Limitations and Directions for Future Research**

Future research should examine alternative types of opportunity related to the self-control crime relationship. The current research focused specific routine activities likely to produce opportunities for crime, which is appropriate because the routine activity framework is based in the opportunity framework and has been widely supported in the empirical literature (Hoeben et al., 2016). But there are likely additional routine activities that create opportunities for crime (see Miller, 2013). The study of these activities and their incorporation into the general theory of crime would help to expand its predictive validity and theoretical development. The routine activities approach is nested within the classical theory of criminal behavior and is logically consistent with self-control theory (Hay & Forrest, 2008), which makes the two approaches compatible. Using both frameworks, further research could elaborate on the differences in routine activities between individuals with varying levels of self-control, as well the differential responses between these individuals to criminal opportunities nested within their routine activities.

The development of the concept of opportunity in self-control theory would also aid in understanding the mechanisms that explain differences in reactions to opportunity. In other



words, how do the components of self-control (impulsiveness, risk-seeking, etc.) influence the decision to commit a crime? There is some evidence that individuals with higher self-control are more attuned to potential sanctions (Wright et al., 2004), but other studies suggest that rewards play a more significant role in the decision to commit crime (Piquero & Tibbets, 1996). It is worthwhile to investigate whether the components of self-control influence different aspects of the cost-benefit analysis.

The current research also relied on self-reported retrospective data collected from inmates and future research should attempt to collect prospective data. Retrospective data sometimes suffers from recall issues, and it may have been difficult for some respondents to accurately recall their various life circumstances and frequency of routine activities at monthly intervals that stretch back three years. This may be an issue if recall issues systematically vary across levels of self-control, which has not been studied. However, this issue is not restricted to the life-event calendar and is found in most survey techniques. It seems just as likely that individuals would have a difficult time recalling the number of nights out the pent per week across the previous year or 5-years. Limited research suggests that the data gathered from the life-event calendar is at least as good as other techniques in terms of quality, and usually outperforms other methods (Roberts & Horney, 2010).

The use of an inmate sample can be seen as a strength and a limitation of the current research. An inmate sample might limit the ability of researchers to generalize the results to a different sample. For example, research suggests that the components of self-control may vary in importance for different samples. The temper component of self-control may be more important for convicted felons than a sample of college undergraduates, even if the overall scales are similar (Delisi, Hochstetler, & Murphy, 2003). Additionally, compared to non-serious offenders,

inmates are likely to have lower levels of self-control. The “high” self-control group in the current study probably has lower self-control than a high self-control group from a general sample (Gottfredson & Hirschi, 1990). The use of an inmate sample, however, did allow for the examination of serious crimes, which are commonly too infrequent to analyze in a general population sample.

Future research would also benefit from the incorporation of current research that highlights the flexibility and instability of self-control (Baumeister, et al., 2007; Burt et al., 2006; Burt et al., 2014). There is considerable debate regarding the stability of self-control and in order to stay true to the logical underpinnings of self-control theory, the current research used self-control as a time-stable characteristic. It seems reasonable to think that self-control is relatively stable over a 3-year span compared to a 5- or 10-year span, however, psychological research finds that self-control can be strengthened over time and exhausted under certain circumstances (Baumeister et al., 2007). Incorporating this research into self-control theory could bridge the gap between psychological and criminological research in self-control and may not violate the stability assumption.

In sum, the evidence from the current research highlights the importance of opportunity in self-control theory. Controlling for average differences in opportunity and all time-stable factors, increases in opportunity were significantly related to violent and property crime. This relationship did not vary across levels of self-control for property crime but did vary across self-control for violent crime. The effect of opportunity was strongest for individuals with higher levels of self-control. The current research supports the further incorporation of opportunity into the self-control framework, and also suggests that our understanding of the relation between self-control and opportunity may be oversimplified.

## References

- Allison, P. D. (1999). *Multiple regression: A primer*. Pine Forge Press.
- Allison, P. D. (2009). *Fixed effects regression models*. SAGE publications.
- Arneklev, B. J., Grasmick, H. G., Tittle, C. R., & Bursik, R. J. (1993). Low self-control and imprudent behavior. *Journal of Quantitative Criminology*, 9, 225-247.
- Barlow, H. D. (1991). Review essay. Explaining crimes and analogous acts, or the unrestrained will grab at pleasure whenever they can. *Journal of Criminal Law and Criminology*, 82, 229-242.
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, 16, 351-355.
- Beccaria, C. (1963). *On crimes and punishment and other writings*. Indianapolis: Bobbs-Merrill (Original work published 1764).
- Bolin, A. (2004). Self-control, perceived opportunity, and attitudes as predictors of academic dishonesty. *The Journal of Psychology*, 138, 101-114.
- Burt, C. H., Simons, R. L., & Simons, L. G. (2006). A longitudinal test of the effects of parenting and the stability of self-control: Negative evidence for the general theory of crime. *Criminology*, 44, 353-642.
- Burt, C. H., Sweeten, G., & Simons, R. L. (2014). Self-control through emerging adulthood: Instability, multidimensionality, and criminological significance. *Criminology*, 52, 450-487.
- Burton, V. S., Cullen, F. T., Evans, T. D., Alarid, L. F., & Dunaway, R. G. (1998). Gender, self-control, and crime. *Journal of Research in Crime and Delinquency*, 35, 123-147.

- Burton, V. S., Evans, T. D., Cullen, F. T., Olivares, K. M., & Dunaway, R. G. (1999). Age, self-control, and adults' offending behaviors: A research not assessing a general theory of crime. *Journal of Criminal Justice, 27*, 45-54.
- Clarke, R. V. (1980). Situational crime prevention: Theory and practice. *British Journal of Criminology, 20*, 136-147.
- Clarke, R. V., & Cornish, D. B. (1985). Modelling offenders' decisions: A framework for research and policy. *Crime and Justice, 6*, 147-185.
- Cochran, J. K., Wood, P. B., Sellers, C. S., Wilkerson, W., & Chamlin, M. B. (1998). Academic dishonesty and low self-control: An empirical test of a general theory of crime. *Deviant Behavior, 19*, 227-255.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review, 44*, 588-608.
- Cornish, D. B. & Clarke, R. V. (Eds.). (1986). *The reasoning criminal: Rational choice perspectives on offending*. New York: Springer.
- DeLisi, M., Hochstetler, A. L., & Murphy, D. S. (2003). Self-control behind bars: A validation study of the Grasmick et al. scale. *Justice Quarterly, 20*, 241-263.
- Desmond, S. A., Bruce, A. S., & Stacer, M. (2012). Self-control, opportunity, and substance use. *Deviant Behavior, 33*, 425-447.
- Evans, T. D., Cullen, F. T., Burton, V. S., Dunaway, R. G., & Benson, M. L. (1997). The social consequences of self-control: Testing the general theory of crime. *Criminology, 35*, 475-504.
- Felson, R. B., Osgood, D. W., Horney, J., & Wiernik, C. (2012). Having a bad month: General versus specific effects of stress on crime. *Journal of Quantitative Criminology, 28*, 347-363.

- Firebaugh, G. (2008). *Seven rules for social research*. Princeton, New Jersey: Princeton University Press.
- Firebaugh, G., Warner, C., & Massoglia, M. (2013). Fixed effects, random effects, and hybrid models for causal analysis. In S. L. Morgan (Ed.), *Handbook of causal analysis for social research* (pp. 113-132). Netherlands: Springer Netherlands.
- Goode, E. (2008). Out of control? An introduction to the general theory of crime. In E. Goode (Ed.), *Out of control: Assessing the general theory of crime* (pp. 3-25). Stanford, CA: Stanford University Press.
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Gottfredson, M. R., & Hirschi, T. (2003). Self-control and opportunity. In C. L. Britt & M. R. Gottfredson (Eds.), *Control theories of crime and delinquency* (pp. 5-19). New Brunswick, NJ: Transaction Publishers.
- Grasmick, H. G., Tittle, C. R., Bursik, R. J., & Arneklev, B. J. (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *Journal of Research in Crime and Delinquency*, 30, 5-29.
- Ha, O. K., & Beauregard, E. (2016). Sex offending and low self-control: An extension and test of the general theory of crime. *Journal of Criminal Justice*, 47, 62-73.
- Hay, C. (2001). Parenting, self-control, and delinquency. A test of self-control theory. *Criminology*, 39, 707-736.
- Hay, C., & Forrest, W. (2008). Self-control theory and the concept of opportunity: The case for a systematic union. *Criminology*, 46, 1039-1072.

- Higgins, G. E., & Ricketts, M. L. (2004). Motivation or opportunity: Which serves as the best mediator in self-control theory? *Western Criminology Review*, 5, 77-96.
- Hirschi, T. (2004). Self-control and crime. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 537-552). New York: Guilford Press.
- Hirschi, T., & Gottfredson, M. (1993). Commentary: Testing the general theory of crime. *Journal of Research in Crime and Delinquency*, 30, 47-54.
- Hirschi, T. & Gottfredson, M. R. (2000). In defense of self-control. *Theoretical Criminology*, 4, 55-69.
- Hirschi, T., & Gottfredson, M. (2008). Critiquing the critics: The authors respond. In E. Goode (Ed.), *Out of control: Assessing the general theory of crime* (pp. 217-232). Stanford, CA: Stanford University Press.
- Hirtenlehner, H., & Kunz, F. (2017). Can self-control theory explain offending in late adulthood? Evidence from Germany. *Journal of Criminal Justice*, 48, 37-47.
- Hoeben, E. M., Meldrum, R. C., Walker, D., & Young, J. T. N. (2016). The role of peer delinquency and unstructured socializing in explaining delinquency and substance use: A state-of-the-art review. *Journal of Criminal Justice*, 47, 108-122.
- Horney, J. (2001). Criminal events and criminal careers: An integrative approach to the study of violence. In R. F. Meier, L. W. Kennedy, & V. F. Sacco (Eds.), *The process and structure of crime: Criminal events and crime analysis* (pp. 141-167). Piscataway, NJ: Transaction Publishers

- Horney, J., Osgood, D., & Marshall, I. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review*, *60*, 655-673.
- Kuhn, E. S., & Laird, R. D. (2013). Parent and peer restrictions of opportunities attenuate the link between low self-control and antisocial behavior. *Social Development*, *22*, 813-830.
- LaGrange, T. C., & Silverman, R. A. (1999). Low self-control and opportunity: Testing the general theory of crime as an explanation for gender differences in delinquency. *Criminology*, *37*, 41-72.
- Longshore, D. (1998). Self-control and criminal opportunity: A prospective test of the general theory of crime. *Social Problems*, *45*, 102-113.
- Longshore, D., & Turner, S. (1998). Self-control and criminal opportunity: Cross-sectional test of the General Theory of Crime. *Criminal Justice and Behavior*, *25*, 81-98.
- Meier, R.F., & Miethe, T. D. (1993). Understanding theories of criminal victimization. *Crime and Justice: An Annual Review of Research*, *17*, 459-499.
- Miller, J. (2013). Individual offending, routine activities, and activity settings: Revisiting the routine activity theory of general deviance. *Journal of Research in Crime and Delinquency*, *50*, 390-416.
- Moon, B. & Alarid, L. F. (2014). School bullying, low self-control, and opportunity. *Journal of Interpersonal Violence*, *30*, 839-856.
- Nagin, D. S., & Paternoster, R. (1993). Enduring individual differences and rational choice theories of crime. *Law & Society Review*, *27*, 467-496.
- Nagin, D. S., & Pogarsky, G. (2001). Integrating celerity, impulsivity, and extralegal sanction threats into a model of general deterrence: Theory and evidence. *Criminology*, *39*, 865-891.

- Osgood, D. W. (2010). Statistical models of life events and criminal behavior. In A. R. Piquero & D. Weisburd (Eds.), *Handbook of quantitative criminology* (pp. 375-396). New York: Springer-Verlag New York.
- Osgood, D. W., Wilson, J. K., Bachman, J. G., & Johnston, L. (1996). Routines activities and individual deviant behavior. *American Sociological Review*, *61*, 635-655.
- Ousey, G. C., & Wilcox, P. (2007). The interaction of antisocial propensity and life-course varying predictors of delinquent behavior: Differences by method of estimation and implications for theory. *Criminology*, *45*, 313-354.
- Piquero, A., & Tibbets, S. (1996). Specifying the direct and indirect effects of low self-control in offenders' decision making: Toward a more complete model of rational offending. *Justice Quarterly*, *13*, 481-510.
- Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, *38*, 931-964.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods, Second Edition*. Newbury Park, CA: Sage.
- Raudenbush, S.W., Bryk, A.S., & Congdon, R. (2013). HLM 7.01 for Windows [Computer software]. Skokie, IL: Scientific Software International, Inc.
- Roberts, J., & Horney, J. (2010). The life event calendar method in criminological research. In A. R. Piquero & D. Weisburd (Eds.), *Handbook of quantitative criminology* (pp. 289-312). New York: Springer.
- Schulz, S. (2006). *Beyond self-control: Analysis and critique of Gottfredson and Hirschi's general theory of crime*. Berlin: Duncker & Humbolt.



- Seipel, C., & Eifler, S. (2010). Opportunities, rational choice, and self-control: On the interaction of person and situation in a general theory of crime. *Crime & Delinquency*, *56*, 167-197.
- Sellers, C. (1999). Self-control and intimate violence: An examination of the scope and specification of the general theory of crime. *Criminology*, *37*, 375-404.
- Simpson, S. S., & Geis, G. (2008). The undeveloped concept of opportunity. In E. Goode (Ed.), *Out of Control: Assessing the general theory of crime* (pp. 49–60). Stanford, CA: Stanford University Press.
- Simon, H. A. (1957). *Models of man*. New York: John Wiley.
- Slocum, L. A., Simpson, S. S., & Smith, D. A. (2005). Strained lives and crime: Examining intra-individual variation in strain and offending in a sample of incarcerated women. *Criminology*, *43*, 1067–1110.
- Smith, T. R. (2004). Low self-control, staged opportunity, and subsequent fraudulent behavior. *Criminal Justice and Behavior*, *31*, 542-563.
- Tittle, C. R. (1991). Book review: A general theory of crime. *American Journal of Sociology*, *96*, 1609-1611.
- Wikström, P.-O., & Svensson, R. (2008). Why are English youths more violent than Swedish youths?: A comparative study of the role of crime propensity, lifestyles, and their interactions in two cities. *European Journal of Criminology*, *5*, 309-330.
- Wolfe, S. E., Reisig, M. D., & Holtfreter, K. (2016). Low self-control and crime in late adulthood. *Research on Aging*, *38*, 767-790.
- Wright, B. R. E., Caspi, A., Moffitt, T. E., & Silva, P. A. (2001). The effects of social ties on crime vary by criminal propensity: A life-course model of interdependence. *Criminology*, *39*, 321-352.

- Wright, B. R. E., Caspi, A., Moffitt, T. E., & Paternoster, R. (2004). Does the perceived risk of punishment deter criminally prone individuals? Rational choice, self-control, and crime. *Journal of Research in Crime and Delinquency, 41*, 180-213.
- Young, J. T. N., Barnes, J. C., Meldrum, R. C., & Weerman, F. M. (2011). Assessing and explaining misperceptions of peer delinquency. *Criminology, 49*, 599-630.
- Zimmerman, G. M., Botchkovar, E. V., Antonaccio, O., & Hughes, L. A. (2012). Low self-control in “bad” neighborhoods: Assessing the role of context on the relationship between self-control and crime. *Justice Quarterly, 32*, 56-84.

**Table 1.1. Descriptive Statistics**

Variables	Min, Max	Mean (SD)	% Change
<i>Level-1</i>			
Violent variety score	0, 1	0.11	0.68
Property variety score	0, 1	0.17	0.46
Opportunity	0, 3	1.56 (0.73)	0.57
Hrs. worked per week	0, 7	3.35 (2.52)	0.63
Live with wife	0, 1	0.16	0.13
Live with sig. other	0, 1	0.26	0.31
Live with child	0, 1	0.20	0.13
Live with relatives	0, 1	0.34	0.35
Alcohol use	0, 2	0.82 (0.90)	0.31
Marijuana use	0, 4	1.85 (1.83)	0.27
Drug use	0, 4	1.05 (1.56)	0.45
Community corrections	0, 1	0.03	0.32
Probation	0, 1	0.17	0.37
<i>Level-2</i>			
Low self-control	1, 4	2.16 (0.54)	
No. of respondents =	667		
No. of person months =	20,770		

**Table 1.2. Correlations between all Variables**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Low self-control														
(2) Opportunity	<b>0.34</b>													
(3) Hrs. worked per week	<b>-0.22</b>	<b>-0.27</b>												
(4) Live with wife	<b>-0.16</b>	<b>-0.22</b>	<b>0.22</b>											
(5) Live with sig. other	0.01	-0.03	<b>0.12</b>	<b>-0.26</b>										
(6) Live with child	<b>-0.11</b>	<b>-0.22</b>	<b>0.19</b>	<b>0.57</b>	<b>0.12</b>									
(7) Live with relatives	<b>0.08</b>	<b>0.19</b>	<b>-0.39</b>	<b>-0.32</b>	<b>-0.41</b>	<b>-0.35</b>								
(8) Alcohol use	<b>0.22</b>	<b>0.26</b>	-0.01	<b>-0.08</b>	<b>0.09</b>	-0.04	-0.04							
(9) Marijuana use	<b>0.29</b>	<b>0.36</b>	<b>-0.21</b>	<b>-0.12</b>	-0.02	<b>-0.13</b>	<b>0.11</b>	<b>0.11</b>						
(10) Drug use	<b>0.29</b>	<b>0.24</b>	<b>-0.08</b>	-0.06	0.04	-0.06	<b>-0.11</b>	<b>0.11</b>	<b>0.33</b>					
(11) Community corrections	<b>0.09</b>	<b>0.08</b>	<b>-0.13</b>	<b>-0.10</b>	0.01	<b>-0.10</b>	0.05	-0.02	0.01	-0.03				
(12) Probation	<b>0.14</b>	<b>0.08</b>	-0.07	0.01	-0.01	0.01	0.05	-0.01	0.05	<b>0.12</b>	<b>0.09</b>			
(13) Violent crime	<b>0.27</b>	<b>0.28</b>	<b>-0.20</b>	<b>-0.12</b>	-0.01	<b>-0.13</b>	<b>0.08</b>	0.05	<b>0.27</b>	<b>0.16</b>	0.07	<b>0.12</b>		
(14) Property crime	<b>0.26</b>	<b>0.23</b>	<b>-0.14</b>	<b>-0.09</b>	-0.04	<b>-0.12</b>	0.07	0.06	<b>0.15</b>	<b>0.21</b>	<b>0.11</b>	0.03	<b>0.28</b>	.

*Note:* Correlations significant at least at the .05 level are bolded (two-tailed tests). Except for the measure of self-control, the variables represent the average of all monthly scores for each respondent.

**Table 1.3. Violent Crime Hierarchical Logistic Regression Estimates with Cross-Level Interaction of Self-Control and Opportunity**

Variables	Model 1				Model 2				Model 3			
	Coef.	S.E.	OR	p	Coef.	S.E.	OR	p	Coef.	S.E.	OR	p
<i>Level-1</i>												
Opportunity	0.60	0.11	1.57	***	0.59	0.12	1.80	***	1.76	0.49	5.83	**
Hrs. worked	-0.02	0.02	1.00		-0.02	0.02	0.98		-0.02	0.02	0.98	
Live with wife	0.31	0.25	1.36		0.32	0.26	1.37		0.35	0.26	1.42	
Live with sig. other	0.01	0.14	1.02		0.01	0.14	1.01		0.01	0.13	1.01	
Live with child	-0.16	0.24	0.81		-0.17	0.25	0.84		-0.23	0.25	0.79	
Live with relatives	-0.27	0.13	0.83	*	-0.27	0.13	0.76	*	-0.29	0.13	0.75	*
Alcohol use	0.12	0.08	1.14		0.11	0.08	1.12		0.10	0.08	1.11	
Marijuana use	0.12	0.05	1.06	*	0.12	0.05	1.13	*	0.12	0.05	1.13	*
Drug use	0.26	0.04	1.22	***	0.25	0.04	1.29	***	0.26	0.04	1.29	***
Comm. corrections	-0.12	0.12	1.08		-0.12	0.12	0.88		-0.13	0.12	0.88	
Probation	0.10	0.11	1.02		0.09	0.11	1.10		0.10	0.11	1.11	
<i>Level-2</i>												
Low self-control	.	.	.		0.65	0.13	1.92	***	0.68	0.13	1.96	***
<i>Cross-Level Interaction</i>												
Low self-control*Opportunity	.	.	.		.	.	.		-0.50	0.20	0.60	*

*Note:*  $NT = 20,770$  and  $N = 667$ . Although not shown, all models include a time trend, a dummy variable representing the last month in the reference time frame, and the mean of each predictor across all months. All level-1 predictors are person-mean centered.

<sup>^</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed tests).

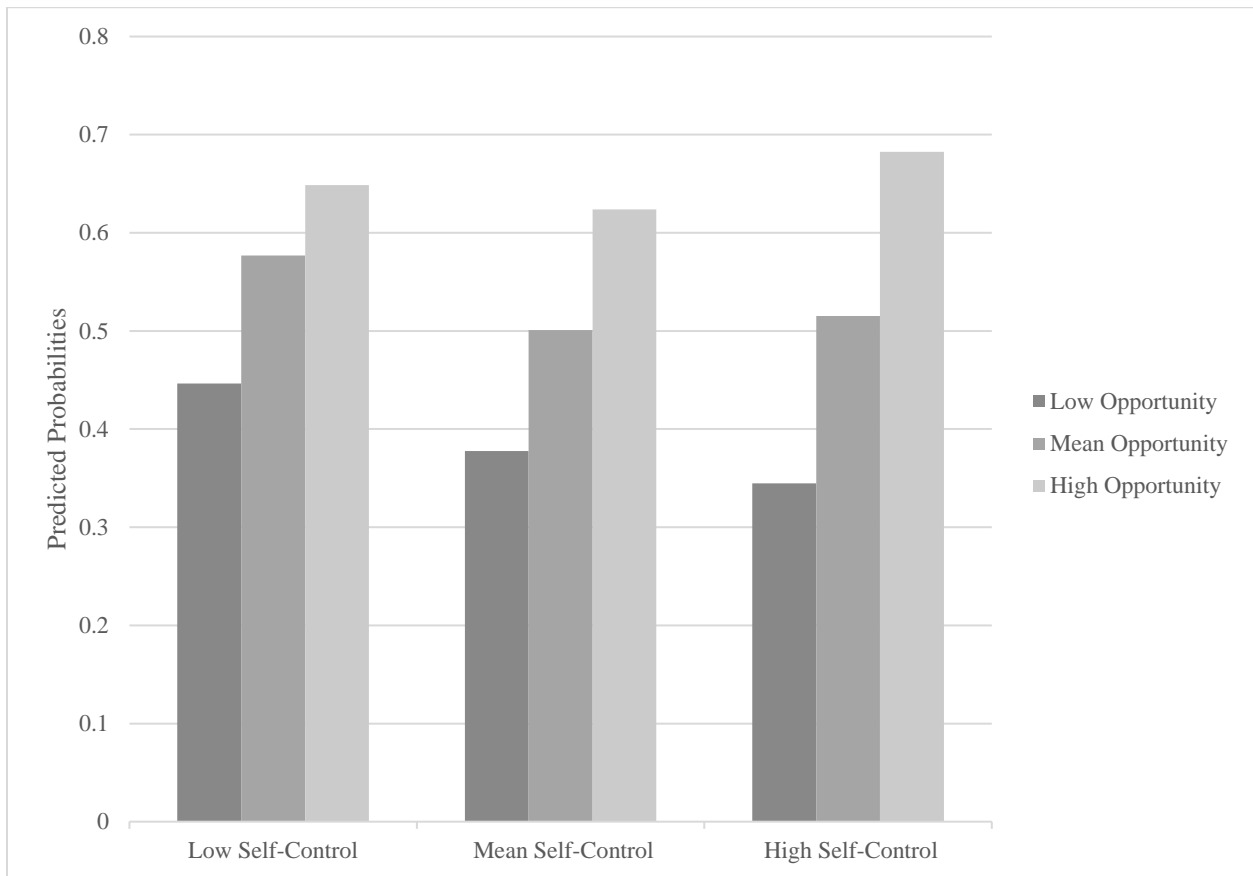
**Table 1.4. Property Crime Logistic Poisson Regression Estimates with Cross-Level Interaction of Self-Control and Opportunity**

Variables	Model 1				Model 2				Model 3			
	Coef.	S.E.	OR	p	Coef.	S.E.	OR	p	Coef.	S.E.	OR	p
<i>Level-1</i>												
Opportunity	1.03	0.15	2.80	***	1.02	0.15	2.77	***	1.27	0.62	3.56	*
Hrs. worked	-0.12	0.03	0.89	***	-0.12	0.03	0.87	***	-0.12	0.03	0.90	***
Live with wife	0.51	0.40	1.67	*	0.54	0.41	1.72	**	0.56	0.41	1.74	**
Live with sig. other	0.52	0.20	1.70	*	0.54	0.20	1.71	*	0.54	0.20	1.71	*
Live with child	-0.76	0.36	0.47	*	-0.78	0.36	0.46	*	-0.79	0.36	0.46	*
Live with relatives	-0.12	0.16	0.83		-0.19	0.16	0.83		-0.19	0.16	0.83	
Alcohol use	0.12	0.10	1.13		0.11	0.10	1.12		0.11	0.10	1.11	
Marijuana use	0.18	0.06	1.20	**	0.18	0.06	1.20	**	0.18	0.06	1.20	**
Drug use	0.38	0.05	1.46	***	0.37	0.05	1.45	***	0.37	0.05	1.45	***
Comm. corrections	-1.03	0.17	0.36	***	-1.04	0.17	0.36	***	-1.03	0.17	0.36	***
Probation	0.09	0.14	1.10		0.08	0.14	1.09		0.09	0.14	1.09	
<i>Level-2</i>												
Low self-control	.	.	.		1.36	0.24	3.90	***	1.39	0.24	3.93	***
<i>Cross-Level Interactions</i>												
Low self-control*Opportunity	.	.	.		.	.	.		-0.11	0.25	0.90	

*Note:*  $NT = 20,770$  and  $N = 667$ . Although not shown, all models include a time trend, a dummy variable representing the last month in the reference time frame, and the mean of each predictor across all months. All level-1 predictors are person-mean centered.

<sup>^</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed tests).

**Figure 1.1. Predicted Probabilities of Violent Crime Across Levels of Opportunity by Self-Control**



## **CHAPTER 2: ALCOHOL AND ADULT CRIME: THE ROLE OF ROUTINE ACTIVITIES IN THE RELATIONSHIP BETWEEN ALCOHOL USE AND CRIME**

Substantial empirical evidence shows a strong association between alcohol use and criminal behavior (Collins & Messerschmidt, 1993; Fagan, 1990; Boles & Miotto, 2003). For example, offenders have higher rates of alcohol use compared to the general population and frequently report using alcohol prior to committing a crime (Greenfeld, 1998; Roizen, 1997; Karberg & James, 2005). Results of experiments and within-person studies reveal a causal effect of alcohol use on crime (Bushman & Cooper, 1990; Exum, 2006). However, alcohol use does not lead to crime in every instance, or for every person that consumes it. The extant literature suggests that the relationship between alcohol and crime is complex and is influenced by cultural and social factors (e.g., Pernanin, 1991; Fagan, 1993).

In the current research, I examine the role of routine activities in the relationship between alcohol and crime. The data used in the study come from a sample of inmates, some of whom are heavy drinkers and many of whom have serious criminal histories. Using a within-person design, I examine two important issues in the literature: 1) whether differences in routine activities can explain a significant portion of the relationship between alcohol and crime; and 2) whether certain routine activities condition the effect of alcohol on crime.

Routine activities may mediate a substantial portion of the relationship between alcohol and crime. When individuals go out to drink, they commonly hang out with peers at night, either in bars or other locations that are low in social control. These routine activities themselves create opportunities for crime. Osgood and colleagues (1996) propose that routine activities that include the presence of peers, lack a structure or plan, and occur away from capable guardians, are likely



to provide easy and rewarding opportunities for crime. These activities provide opportunities for crime and a social setting in which alcohol is regularly consumed (Osgood et al., 1996; Hoeben, Meldrum, Walker, & Young, 2016; Hoeben & Weerman, 2016). Some of the effects of alcohol use on crime, then, could be due to the routine activities themselves.

There is also reason to think that routine activities may condition the effects of alcohol use on crime. Moderation effects could be found if the situational changes caused by alcohol use interact with the increased opportunities provided by routine activities. When individuals have been drinking, they become disinhibited and “myopic” (Steele & Josephs, 1996). Intoxicated individuals tend to focus on the salient rewards of a crime, while discounting the costs. Social drinking increases exposure to intoxicated individuals, which can lead to social conflict and produce opportunities for violent crime (Tedeschi & Felson, 1994). Certain routine activities also produce opportunities for property crime (Miller, 2013; Hoeben et al., 2016), and individuals that have been drinking may be more likely to act on these opportunities.

In this study, I contribute to past research by investigating how the social context of alcohol consumption influences the relationship between alcohol use and crime. The analyses are based on self-reported data that contains three-years of monthly measurements of alcohol use, crime, and routine activities. For the analyses, I use a within-individual change design that controls for selection, as well as all time-stable factors that could affect alcohol use, routine activities, and crime. Additionally, I examine both violent and property crime. The majority of the literature focuses on the relationship between alcohol and violence, and less attention has been given to the effects of alcohol use on property crime.

## **Alcohol Use and Crime**

There has been extensive research on the relationship between alcohol use and violence. A large percentage of violent offenders and victims report being intoxicated or using alcohol prior to a violent incident (Greenfeld, 1998; Roizen, 1997; McClelland & Teplin, 2001; Pernanen, 1991; Wolfgang & Strohm, 1956). Compared to those who drink less frequently, chronic drinkers engage in more violence (e.g., Potter, Sacks, Kresnow, & Mercy, 1999). Men and juveniles, two groups overrepresented in crime statistics, are more likely to experience alcohol problems and commit violent crime (White, Johnson, & Garrison, 1985; Collins, 1986). Research has found that alcohol use is strongly related to different types of violent crime, including sexual assaults (Felson & Burchfield, 2004; Ullman, Karabastos, & Koss, 1999; Testa, 2002), domestic violence (Thompson & Kingree, 2006), physical assaults (e.g., Mustaine, & Tewksbury, 1998), robberies (Karberg & James, 2005), and homicides (Auherhahn & Parker, 1999; Parker & Rebhun, 1995).

Fewer studies have examined the role of alcohol use in property crime. Similar to the findings for violent crime, many offenders report using alcohol prior to commission of a property crime (e.g., Karberg & James, 2005). However, studies typically find that alcohol has a stronger relationship to violent crime than property crime. For example, a survey of state prisoners found that more violent offenders reported being intoxicated at the time of their offense compared to property offenders (Rand, Sabol, Sinclair, & Snyder, 2010). Alcohol use has also found to be more prevalent during robberies than burglaries, thefts, and motor vehicle thefts (Karberg & James, 2005). Using data from a large, nationally representative sample of inmates, Felson and Staff (2010) found that alcohol intoxication had the strongest effects for violent crimes that involved personal confrontation compared to property crime. Further research conducted by

Felson, Savolainen, Aaltonen, & Moustgaard (2008a) found some evidence of causal relationship between alcohol use and vandalism, and to a lesser extent, motor vehicle theft and using graffiti. Alcohol use may be more relevant for impulsive property crimes that are committed in groups, compared to offenses that are planned and committed alone (Collins & Messerschmidt, 1993; Felson et al., 2008a).

### **Theories of Alcohol Use and Crime**

Psychopharmacological models of alcohol use emphasize how alcohol influences neurochemical activity and the subsequent effects on cognitive processes (Bushman, 1997; Chermack & Giancola, 1997; Giancola, 2002; Boles & Miotto, 2003). Most of the cognitive processes affected by alcohol fit under a general model of executive functioning (Giancola, 2002; Hoaken & Stewart, 2003). Executive functioning generally refers to a set of higher order cognitive processes that involve planning, initiation, and regulation, of goal-directed behavior. Executive functions impact a wide range of cognitive processes including attentional control, strategic goal planning, abstract reasoning, self- and social-monitoring, cognitive flexibility, and working memory (Diamond, 2013). Alcohol intoxication can lead to disinhibition and decreased anxiety, distortions of cognition and perception, deficits in attention to situational cues and self-attention, and reductions in intellectual functioning including poor judgement (Goldstein, 1985; Collins, 1981; Fagan, 1990; Bushman, 1997; Leonard, 2008).

According to these models, the cognitive impairments caused by alcohol influences the cost-benefit analysis of committing a crime. Alcohol can disrupt an individual's ability to allocate attention to multiple aspects in a given situation. The lack of cognitive resources available for attention leads intoxicated individuals to focus more on salient cues and ignore less salient cues. This alcohol-induced myopia is similar to "tunnel vision," where individuals focus on what is

right in front of them and ignore distal factors and long-term costs associated with behavior (Steele & Josephs, 1990). The use of alcohol can also affect assessments of risk. Alcohol has anxiolytic effects that can lead to reductions in fear and can interfere with the recognition of a threat (Pihl, Petersen, & Lau, 1993; Hoaken & Stewart, 2003). Intoxicated individuals often fail to respond to negative feedback and will continue to act in an aggressive manner even though it has resulted in punishment (Weisman & Taylor, 1994; Zeichner & Pihl, 1979; Schmutte & Taylor, 1980). These findings suggest that alcohol plays a major role in the decision to commit a crime or act aggressively by increasing focus on the most salient cues (i.e. rewards), while interfering with the assessment of risks and sensitivity to negative consequences of behavior (i.e. costs).

The psychopharmacological models discussed above suggest a direct effect of alcohol use on criminal behavior. Theories that emphasize social beliefs and expectations also attempt to explain the effects of alcohol but suggest an indirect effect of alcohol use. The main proposition of these models is that individuals hold beliefs about what is acceptable behavior when drinking and expect to act in certain ways when intoxicated (Quigley & Leonard, 2006; Dermen & George, 1989). Individuals who believe that alcohol will make them aggressive will act that way after they have been drinking. The effects of alcohol use on crime operate through individual beliefs about the influence of alcohol on their behavior. For example, research has found that many offenders use alcohol as an excuse or justification for their behavior (Sykes & Matza, 1957; Scully & Marolla, 1984; Zhang, Welte, & Wieczorek, 2002). However, some evidence suggests these expectancy effects play only a minor role in aggression and violent crime (Graham et al., 1998; Room & Bullock, 2002; Felson, Savolainen, Bjarnason, Anderson, & Zhora, 2011).

Cultural theories of alcohol use also suggest an indirect effect of alcohol use on crime. Cross-cultural studies find that alcohol has a differential impact on behavior depending on the social and cultural contexts in which it is consumed (Parker & Rebhun, 1995; Fagan, 1993, Felson et al., 2011). Early work in this area found that in certain tribal cultures, alcohol use did not lead to violent behavior, even if the individuals were extremely intoxicated (MacAndrew & Edgerton, 1969). Cultural theories of alcohol use assert that the physical effects of alcohol use are culturally defined. From this perspective, alcohol consumption can be viewed as a cultural pattern or form of collective behavior and patterns of drinking are transmitted by social and cultural processes (Lemert, 1962; Levinson, 1983). The variation found across cultures in alcohol effects are due to culturally learned social beliefs about alcohol. Some cultures may use alcohol as an excuse for socially disapproved behavior, while others incorporate alcohol use into their daily social rituals. Scholars sometimes categorize cultures as either “wet” or “dry” depending on their patterns of alcohol use (Room, 2001, 2007; Felson et al., 2011). The major difference between a wet and dry culture is how well alcohol use is incorporated into daily social life. For example, in wet cultures found in the Mediterranean and Southern Europe alcohol is frequently consumed but individuals rarely drink to the point of extreme intoxication. The dry cultures in Northern and Eastern Europe, on the other hand, drink less frequently but drink larger amounts of alcohol when they do drink. While the effects of alcohol use on crime vary across cultures, empirical evidence suggests that these differences may not be due to cultural beliefs about alcohol use (Felson et al., 2011; Room & Bullock, 2002).

In sum, an extensive body of work finds that alcohol use is significantly related to both violent and property crime. Psychopharmacological theories of alcohol use suggest that alcohol has a direct causal effect on crime, which is confirmed by some experimental research. On the

other hand, studies also find significant variation in the effects of alcohol across social contexts and cultures. Cultural theories propose that culturally learned beliefs about the effects of alcohol cause crime and not the physical effects of alcohol. However, some research finds that cultural differences are not due to culturally constructed beliefs of alcohol use.

### **Alcohol Use and Routine Activities**

Even though substantial evidence finds a strong relation between alcohol and crime, research also indicates that alcohol does not lead to crime every time it is consumed, or for each person that has consumed it. Alcohol use usually involves a social event and the social context in which drinking occurs can be a major factor that influences the likelihood of crime (Fagan, 1990, 1993; Pernanen, 1991; Felson et al., 2011; Parker & Rebhun, 1995). While researchers acknowledge that the social context or setting in which alcohol is consumed is a contributing factor in crime, the research on setting or context as a construct has been largely descriptive and underdeveloped (Fagan, 1993).

A primary way that the social context of alcohol consumption can affect crime is through the production of criminal opportunities. Individuals commonly drink alcohol while engaged in other activities and the opportunity structure of the drinking context can affect the likelihood of crime. According to the routine activity approach, opportunities for crime can be found in conventional routine activities that move individuals away from the household (Cohen & Felson, 1979). Some activities (e.g., going out at night, frequenting bars, or hanging out in public) increase the risk of crime by exposing potential targets to motivated offenders in areas that lack guardians who could prevent the crime from occurring (Miethe, Stafford, & Long, 1987; Meier & Miethe, 1993).

Researchers have also noted that individuals who spend more time socializing with peers in leisure time are at an increased risk of engaging in crime (Agnew & Peterson, 1989; Gold, 1970).

Osgood and colleagues' (1996) extension of the routine activities framework asserts that unstructured and unsupervised socializing with peers produces situational temptations for deviance and crime (Briar & Piliavin, 1965). Osgood et al. (1996) paid particular attention to routine activities that include the presence of peers, occur away from authority figures, and lack a general structure or plan. These activities increase the likelihood of offending by creating opportunities for deviance that are easier and more rewarding (Osgood et al., 1996; see also Hoeben & Weerman, 2016). Peers may provide practical help in the criminal act and confer status and reputation to the offender when crimes are committed. The absence of guardians reduces the odds of being detected and increases the perception that the individual will get away with the crime. Activities that lack structure lead to deviance because they do not have designated ways in which time is supposed to be spent and they do not include roles that have responsibility for social control over others in the group.

In the empirical literature, there has been considerable support for Osgood et al.'s (1996) routine activity theory of general deviance. Research has shown that the relationship between these types of routine activities and crime remains significant even after controlling for association with deviant peers (Haynie & Osgood, 2005). This finding lends support to Osgood et al.'s (1996) assertion that the activities produce opportunities for crime above and beyond individual characteristics. Routine activities are associated with multiple types of crime, including general scales of delinquency (e.g., Haynie & Osgood, 2005; Osgood & Anderson, 2004), substance use (e.g., Anderson & Hughes, 2009; Staff, Osgood, Schulenberg, Bachman, & Messersmith, 2010; Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007), property offending (e.g., Meldrum & Clark, 2015; Miller, 2013; Hoeben & Weerman, 2016) and violent behavior (e.g., Maimon & Browning, 2010; Miller, 2013).

Individuals often consume alcohol during leisure time while socializing with others (e.g., Osgood et al., 1996; Anderson & Hughes, 2009; Barnes et al., 2007; Lotz & Lee, 1999; Meldrum & Clark, 2015; Augustyn & McGloin, 2013). Drinking alcohol with peers is a common pastime. Restaurants and bars cater to groups of people with specials on alcoholic beverages, commonly referred to as “happy hour.” Parties and social gatherings in homes tend to have alcohol available for consumption. Two major characteristics of routine activities that are especially relevant to the relationship between alcohol use and crime are the level of guardianship of in places where people drink alcohol and the presence of peers.

Places with low levels of guardianship, such as licensed drinking establishments, are high-risk locations for alcohol-related aggression (Archer, Holloway, & McLoughlin, 1995; Leonard, Quigley, & Collins, 2002; Rossow, 1996; Eck & Weisburd, 1995). Certain types of drinking locations are also likely to influence drinking patterns and crime. Research finds that university students drink more alcohol per occasion when they are in a bar or disco than when they are at home (Demers et al., 2002). Further, attending parties has been found to be associated with drinking and driving and alcohol-related problems (Stoduto, Adlaf, & Mann, 1998). Some bars and restaurants may contribute to aggression by having competitive games for patrons (Homel & Clark, 1994). Violence is also more likely when adolescents are drinking and are unsupervised compared to when they are drinking in the company of adults (Rossow, 1996; Wells et al., 2008).

The presence of peers is also important to the relationship between alcohol use and crime. For example, research has found that the number of people present, the nature of their relationships, and the permissiveness of the situation can affect the likelihood of crime when individuals have been drinking (Levinson, 1983; Burns, 1980). In addition, research has found that adolescents who have friends who drink are also more likely to report alcohol-related



injuries and engage in violence (Bonomo et al., 2001; Rossow, Pape, & Wichstrom, 1999; Rossow, 1996). Adolescents tend to consume larger amounts of alcohol when they are with friends or strangers, compared to when they are with relatives or family members (Mayer, Forster, Murray, & Wagenaar, 1998; Demers et al., 2002; Wells et al., 2008).

Opportunities for crime are likely to be present when individuals have been drinking. Drinking around others that have been drinking is likely to increase exposure to motivated offenders. Intoxicated individuals are more likely to be aggressive and to violate social norms (Felson & Burchfield, 2004; Graham, West, & Wells, 2000; Steele & Josephs, 1990). Poor social behavior can produce interpersonal conflict and grievances if it offends other people (Felson, 1997; Tedeschi & Felson, 1994). These grievances can lead to physical fights, especially if peers or third parties are present that support the use of violence (Tedeschi & Felson, 1994; Felson & Boba, 2010). Opportunities for robberies and property crime are also likely to arise when individuals engage in certain routine activities. It could be that exposure to intoxicated individuals provides offenders with targets that are unable to adequately protect themselves (Felson & Burchfield, 2004). Additionally, committing a robbery in the presence of peers may confer status to the offender, while also providing potential co-offenders for the offense, which makes a crime easier to accomplish (Felson, 2003; McGloin & Piquero, 2010; Warr, 2002; Hoeben & Weerman, 2016).

Routine activities can affect the likelihood of crime when drinking in a number of ways. First, routine activities may explain some of the relationship between alcohol use and crime. When individuals socialize with peers, they often consume alcohol. Osgood et al. (1996) argued that routine activities that involve peers and are unstructured produce easy and rewarding opportunities for crime, above and beyond individual characteristics. Since alcohol use

frequently occurs in the presence of peers and away from capable guardians, opportunities for crime are readily available in these social events. Mediation effects suggest that crime occurs during these instances not because people have been drinking, rather, because they are informally socializing with peers. It is unlikely that routine activities fully mediate the relationship between alcohol and crime. Studies using within-person designs have found significant effects of alcohol use and unstructured routine activities when the measures are included together in the statistical models (e.g., Felson, Osgood, Horney, & Wiernik, 2012; Bernasco, Ruitter, Bruinsma, Pauwels, & Weerman, 2013). The mediating effects of routine activities on the relationship between alcohol use and crime have not been extensively studied. This is most likely due to the fact that most studies in the routine activity framework examine alcohol use as an outcome, instead of a predictor.

Second, routine activities may condition the effects of alcohol use on crime. Moderation effects would imply that intoxicated individuals are more likely to act on opportunities created by routine activities. Moderation effects also suggest that alcohol use will not always lead to crime. Rather, the same individuals, with similar drinking patterns, will behave differently in various social contexts or settings. An interaction could occur if the situational effects of alcohol use (i.e. cognitive impairments) have a stronger effect when there are more opportunities for crime compared to when there are fewer opportunities. The cognitive impairments caused by alcohol use alters the cost-benefit analysis in the decision to commit a crime. Intoxicated individuals tend to be myopic and focus on the most salient cues in front of them, while also being less inhibited in their behavior. Osgood et al. (1996) acknowledged that people might be differentially vulnerable to opportunities for crime produced by routine activities, and alcohol use can increase situational motivation for crime (Wikström & Treiber, 2009).

There is some evidence that supports an interaction between the situational effects of alcohol and opportunities for crime. Experimental evidence finds that the effect of alcohol is particularly strong when participants have also been provoked (Chermack & Giancola, 1997; Bushman & Cooper, 1990; Exum, 2006), and the relationship between alcohol and aggression is moderated by situational factors (see Ito, Miller, & Pollock, 1996). Additionally, Felson et al. (2011) found that adolescents who drank with peers and in places low in social control were more likely to engage in violence than those who drank with few peers and in homes. Alternatively, alcohol use may not matter much when there is low opportunity. For example, during times when individuals stay at home, work, have a partner, and do not socialize with peers, opportunities for crime are relatively low. The effects of alcohol may not have the ability to manifest during these times. During these periods, the effects of alcohol may be restricted to opportunities that do not include going out at night or hanging out with peers. Instead, the effects of alcohol may be more relevant for crime that occurs within the home, such as domestic violence (Thompson & Kingree, 2006; Sellers, 1999). To the author's knowledge, there has been no research that has examined a moderation effect of opportunity on the relationship between alcohol use and property crime.

### **The Issue of Causality in the Relationship Between Alcohol Use and Crime**

Before moving to the description of the current study and the results, it is important to discuss a significant issue found in the study of alcohol use and crime: establishing a causal relationship (Lipsey, Wilson, Cohen, & Derzon, 1997; Leonard, 2005). Most models of alcohol use and crime posit a causal effect of alcohol on crime. That is, the use of alcohol is significantly increases the probability of crime occurring and this relationship is not due to extraneous variables. Experiments provide evidence of a causal relationship through random assignment to the treatment and control conditions (Firebaugh, 2008). Results from experimental studies show

that participants that consume alcohol act more aggressively than those in control groups (e.g., Exum, 2006).

While experimental studies can provide evidence of a causal relationship, they sacrifice external validity for stronger internal validity. For example, many studies of alcohol and violence in laboratory settings use the administration of electric shocks as a measure of aggression or violence. The use of this measure limits the generalizability of the effects to naturally occurring violent events, such as assaults or robbery. Additionally, many experimental studies draw from samples of college students, most of which may never commit a serious crime.

Establishing causality outside of the laboratory is a challenging task (Lipsey et al., 1997). Two major sources of bias in nonexperimental studies come from omitted variables and selection (Firebaugh, 2008). Omitted variable bias could occur if alcohol use is related to any other causes of crime, and selection could occur if individuals choose to drink alcohol based on their expectations of these activities as they relate to crime. Bias from omitted variables and selection could be present if there are baseline differences in alcohol use that are related to other unknown causes of crime and could render much of the relationship between alcohol use and crime spurious.

Research suggests that there are many common risk factors for both alcohol use and crime (White, 1990; White, Brick, & Hansell, 1993). Individual differences in hyperactivity, impulsivity, risk taking, inability to delay gratification, and lack of parental nurturance contribute to both alcohol use and crime (Hawkins, Catalano, & Miller, 1992). Many of the individual characteristics listed above are components of Gottfredson and Hirschi's (1990) self-control theory. The authors argue that the relationship between alcohol use and crime is mostly attributable to individual levels of self-control. According to the theory, individuals with low

self-control are likely to drink alcohol frequently, drink larger quantities of alcohol, and commit crime. Considerable evidence supports the notion that low self-control is related to both alcohol use and crime (Pratt & Cullen, 2000).

Other individual risk factors that may account for the relationship between alcohol use and crime include gender, age, and prior alcohol use. Men and youth drink more often, drink greater amounts when they do drink, and drink more with friends and in groups compared to women and older individuals (Treno, Alaniz, & Gruenewald, 2000). Rates of alcohol-related violent incidents are highest for males and individuals between the ages of 20- and 30-years old (Collins & Messerschmidt, 1993). As individuals age, their quantity of alcohol consumption decreases and they tend to drink more at home, especially if they are married or have children in the house, and they tend to spend more time at home in general (Treno et al., 2000; Osgood & Lee, 1993). Prior alcohol use also contributes to the relationship. Violent offenders have higher rates of daily drinking, heavy drinking, and alcohol abuse compared to the general population (Greenfield & Henneberg, 2001). Chronic drinkers may be more likely to commit crime than non-drinkers, however, they may also be more likely to be intoxicated during other non-criminal activities (Phillips, Matusko, & Tomasovic, 2007).

The discussion above suggests that the relationship between alcohol use and crime is comprised of both causal and spurious effects. Few studies have attempted to simultaneously estimate both the spurious and causal effects in this relationship. A series of studies conducted by Felson and colleagues utilized a method of situational decomposition, which separates the spurious and causal portions of the relationship between alcohol and crime (Felson et al., 2008a; Felson, Teasedale & Burchfield, 2008b; Felson et al., 2011; Felson & Burchfield, 2004; Felson & Staff, 2010). The situational decomposition model of alcohol use and crime separates the

causal portion of the relationship from the spurious portion of the relationship by comparing crime when sober to the overall relationship between alcohol use and crime. According to the design, the total relationship contains both spurious and causal effects of frequency of alcohol use on crime. This design assumes that the relationship between alcohol use and crime when *sober* represents the spurious portion of the relationship. This portion of the relationship is compared to the overall relationship to determine how much of the total effects are causal. If the effects of frequency of alcohol use on sober crime are as strong as the total effects, this provides evidence of a spurious relationship. This suggests that frequent drinkers are more likely to commit a crime when sober, so the relationship cannot be due to alcohol intoxication. The difference between the spurious portion of the relationship and the total relationship represents the causal effects of alcohol use. A major advantage of using this approach is that there is no need to control for variables that could influence both alcohol use and crime, which is a major limitation of cross-sectional analyses. The series of studies by Felson and colleagues found causal effects of alcohol use on crime, but there was also a significant portion of the relationship that was deemed spurious.

Another method available for providing evidence of a causal relationship between alcohol use and crime is the use of longitudinal data and a within-individual approach. The within-individual design eliminates the effects of bias caused by selection and reduces bias from omitted variables. The within-individual design controls for selection effects by comparing the same person's behavior when they have higher levels of alcohol consumption to times when they have lower levels of alcohol consumption. The focus of this design is change. The design compares within-individual changes in risk factors over time with within-individual changes in crime over time (Farrington, Loeber, Yin, & Anderson, 2002). Comparing individuals to themselves

portions out the effects of any unmeasured, preexisting differences that might be related to both alcohol use and offending (Allison, 2009). This approach also reduces bias from omitted variables as it eliminates the effects of all time-stable factors, whether they are measured or not (Osgood, 2010). Although it does not eliminate bias from omitted variables due to time-varying factors, this approach is significantly less prone to omitted variable bias (Firebaugh, Warner, & Massoglia, 2013).

Studies that have used within-individual approach have found that changes in alcohol use are significantly related to crime. For example, research has found that violent behavior is more likely on days when the individuals have been drinking compared to days when they are sober (Fals-Stewart, 2003; Chermack & Blow, 2002). Research conducted by Bernasco and colleagues (2013) examined the situational effects on offending in a sample of adolescents from the Netherlands. Using data from a space-time budget interview and fixed-effects statistical approach (i.e. within-individual) the researchers compared hours in which the adolescents committed crime to hours when they were not committing crime. The results indicated that alcohol use was significantly related to offending, above the effects of time-stable individual characteristics and time-varying controls. While this study is a major contribution to the literature, it has some limitations. First, the analyses are based on a sample of 76 offenders with an average age of 14-years old, which limits its applicability to adults. Second, alcohol use was rare in this sample. Out of the 104 offenses used in the analyses, only 19 involved alcohol (roughly 18%). Since adults can legally purchase and drink alcohol, they might be more likely to drink and commit more crime when they have been drinking. Lastly, the dependent measure of offending was primarily made up of assaults (51%) and vandalism (39%) and the researchers did

not estimate separate models for violent and property crimes. There may be different effects of alcohol use depending on the type of crime.

Additionally, two previous studies have used a within-individual design with monthly retrospective data collected from inmates, which is the same approach as the current study. Research conducted by Horney, Osgood, and Marshall (1995) found that increases in alcohol use were significantly related to a higher probability of property crime in a given month but were unrelated to assaults. However, they did not control for routine activities so they were unable to determine how the effects of alcohol varied across these contexts. Using the same data set used in the current study, research conducted by Felson et al. (2012) used the same approach to study the effects of strain on offending. Since the focus of this study was on the effects of life stressors, alcohol use and routine activities were included as control variables and not focal variables. With both alcohol use and routine activities measures simultaneously included in the models, the results revealed that alcohol use was significantly related to property crime, but not assaults or dealing drugs, while routine activities were positively associated with all three dependent measures. They did not attempt to estimate mediation or moderation effects, since alcohol use and routine activities were not the focus of the study.

### **The Current Study**

The current research examined retrospective self-report data from adult male inmates to investigate the relationship between alcohol use, routine activities, and crime. In the first set of analyses, I examine how much of the relationship between alcohol use and crime is explained by the social context of drinking, which is conceptualized as unstructured socializing. In the second set of analyses, I examine whether the social context of drinking moderates the relationship



between alcohol use and crime. Both sets of analyses are conducted for violent and property crime.

The theoretical diagrams for the mediating and moderating effects of routine activities are presented in Figure 1.1. The top portion of the figure displays the prediction that routine activities mediate the alcohol-crime relationship. In this model, alcohol use leads to certain routine activities, which produces opportunities for crime. Note that there is also a direct effect of alcohol use on crime, suggesting that routine activities do not fully mediate the relationship. While drinking alcohol with peers is common, many individuals drink by themselves. The bottom portion of the figure displays the prediction that routine activities as a moderator of the alcohol use-crime relationship. In this model, alcohol use and routine activities interact to produce crime. When intoxicated individuals are presented with a criminal opportunity, they may be more likely to act on it. Mediation and moderation effects may be found for both violent and property crime, although prior research in alcohol and violence suggests that the effects might be stronger for violent crime.

In order to address causality, I use a multilevel analytic approach to study within-person changes in alcohol use and crime. This approach eliminates the effects of all time-stable factors, whether they are measured or not, and controls for biases resulting from selection and omitted variables. Controls are added to the models to address the possibility that time-varying factors could account for the relationship between alcohol use and crime.

Additionally, the current research makes use of monthly measurements of crime, routine activities, and alcohol use. Since participation in routine activities increases immediate opportunities for crime, the effects should be contemporaneous. In other words, the effect of

opportunity should increase crime when they are presented and not necessarily predict crime in a later time.

## **Methods**

### **Data**

The data used in the study comes from the Second Nebraska Inmate Study (Horney, 2001). Respondents for the original data collection were randomly sampled from an all-male intake cohort admitted to the diagnostic and evaluation unit of the Nebraska Department of Corrections over a 14-month period beginning in November 1997 and ending in December 1998. The response rate for the invited respondents was roughly 90%, resulting in a total sample of 717 inmates who completed the original interview. Seven respondents were dropped from the analysis because they were missing information about their criminal behavior. The final sample consisted of 710 respondents.

Interviewers met face-to-face with respondents in private visiting rooms where they read survey questions and entered responses into a laptop computer. The original study gathered information about the respondent's background and personality characteristics including their criminal history, personality measures, and family history. The interviewers used a life event calendar (LEC) to gather data about the respondents' lives for the three-year period prior to commission of the crime that resulted in their current incarceration. Monthly measures of offending, alcohol and drug use, relationship characteristics, employment, and routine activities were recorded. Months in which the respondent was incarcerated in prison or jailed for more than half a month were removed from the analysis in order to capture "street months" and not months serving prison or jail sentences. This left 21,558 person-months for the analyses.

## **Validity of the Life-Event Calendar**

There may be questions regarding the accuracy of respondents' recall ability for monthly items that extend back three years, and the validity of the LEC. The LEC was designed to collect retrospective data and facilitate recall by tapping into sequential and hierarchical memory storage (Caspi et al., 1996; Roberts & Horney, 2010). Many memories are part of a linked set of events that are stored at the same time (sequential storage) and serve as "autobiographical sequences" (Bradburn, Rips, & Shevell, 1987). These memories are stored in a hierarchical fashion and are made up of extended events, summarized events, and specific events (Belli, 1998). Extended events are at the top of the hierarchy and serve as the basic building blocks for organizing memory. Extended events include events that last for a relatively long period of time, such as marriage or place of residence. Summarized events make up the next level of the hierarchy and involve common themes with a shorter time period than extended events. Specific events make up the bottom of the hierarchy, and are short, distinctive events that reside in a specific time period.

The LEC uses processes of recall and cuing that capitalize on the autobiographical and hierarchical storage of memory (Roberts & Horney, 2010; Belli, 1998; Caspi et al., 1996). First, researchers use sequential cuing to track a particular domain, such as living arrangements, for the entire calendar period before moving on to another domain. This process taps into memories stored in autobiographical sequences and cues memories linked to other domains. Next parallel cuing is used to tap into cross-domain relationships. An example of this is if a respondent has trouble recalling a start date for a specific job. The researcher can ask the respondent if the start of the job coincided with living in a particular residence, which they have already noted on the calendar. Finally, top-down cuing is used to tap into extended memories and to recall memories

lower in the hierarchy. When a respondent thinks about living with a partner or working at a specific job, he or she can use these higher memories to recall lower memories of going to bars or hanging out with friends. The use of these cuing processes helps to contextualize memories by connecting memories to each other and aids in the recall of less-easily remembered events by connecting them to more memorable life events or “landmarks” (Caspi et al., 1996; Roberts & Horney, 2010).

Research has found that data obtained with a LEC are frequently of higher quality than data obtained with standard survey methods. Compared with other forms of self-report surveys (Caspi et al., 1996; Yacoubian 2000, 2003) and records data (Roberts & Wells, 2009), LEC data is richer and more accurate (Belli, Shay, & Stafford, 2001). Some research has found that there is no difference between standard methods and the LEC, however, the standard methods are rarely more effective than the LEC (Roberts & Horney, 2010). The LEC also appears to have additional benefits over traditional methods when the tasks place a heavy burden on recall. When the events to be recalled are less salient and more frequent, the LEC outperforms traditional survey methods (Roberts & Horney, 2010). One reason recall is improved with a LEC is due to researchers working alongside respondents to fill out the calendar. When respondents work closely with researchers, they are more likely to trust them and are reassured that their answers are confidential. Increased trust and reassurances of confidentiality can help create a sense of two people working closely on a project together, which facilitates participation and improves recall (Belli et al., 2001).

## **Measures**

**Outcome Measures.** The main dependent variables used in the analyses were two dichotomous measures of crime. For each of the 36 months on the LEC, respondents indicated

whether they committed specific offenses. Respondents were asked about their monthly participation in burglary, theft, auto theft, forgery, and fraud. These offenses were combined into a single measure of property crime. Respondents were also asked about their participation in assaults and robberies. Assaults included physical confrontations in which the respondent attacked another person (beyond pushing or shoving), and robberies included instances where the respondent reported taking money using force or the threat of force directly from an individual or a business. These items were combined into a single measure of violent crime. The dependent variables were and coded as “one” if the respondent reported committing the offense in a specific month and “zero” if he did not.<sup>6</sup>

**Alcohol Use.** The main independent variable used in the analyses was the amount of alcohol use reported by the respondent in each month. The alcohol use measure was created from two variables: frequency of alcohol consumption and amount of alcohol consumption. For months in which respondents drank more than once a week and consumed more than 7 drinks per day when they consumed alcohol, respondents were classified as “heavy drinkers” and coded with a “2”, while “light drinkers” were defined as respondents that drank alcohol less than once per week regardless of the amount or had fewer than four drinks per day when they drank (regardless of the frequency) and were coded with a “0.” All other respondents were coded as “moderate drinkers” and coded with a “1.”

**Routine Activities.** In each month, respondents were asked how often they went cruising in a car or motorcycle, went to bars, hung out with friends, and how many nights they spent out per

---

<sup>6</sup> The data allowed for the examination of variety measures for property crime and violent crime.

The use of variety measures did not change the substantive results.

week. The first three variables were coded on 4-point scales ranging from “Never” to “Almost Every Day.” The number of nights out variable ranged from 0-7. I converted the nights out variable to a 4-point measure, and then took the average of all the measures so each item contributed equally to the scale.

**Control Variables.** The statistical approach used in the analyses controls for stable individual differences, so there was no need to control for time-stable factors related to routine activities or crime (e.g., stable criminal propensity, IQ). However, the design does not control for explanatory factors that varied over time, so time-varying control variables were added to the models. Especially relevant are activities and life circumstances that could reduce the amount of time available for routine activities and variables related to participation in crime. The number of hours worked for each month was measured using a 7-point scale, with possible categories including “0,” “1-10,” “11-20,” “21-30,” “31-40,” “41-50,” “51-60,” and “60+.”<sup>7</sup> Attending school was included as a dichotomous variable, coded as “1” if the respondent attended school that month and “0” if he did not. Participation in organized, pickup sports, and gambling each month were measured using 4-point scales ranging from “Never” to “Almost Every Day.” Living arrangements were also included as controls. Respondents reported months in which they lived with a wife, lived with a significant other, lived with their children, or lived with relatives. Each of these variables were treated as dichotomous measures and coded as “1” if true and “0” if not.<sup>8</sup>

---

<sup>7</sup> A dichotomous measure indicating employment or not, as well as the number jobs held in a month, were both tested as alternatives. The use of these measures did not affect the results.

<sup>8</sup> Alternatively, a set of dummy variables representing the relationship status of the respondent was tested. These included whether they were single, dating, cohabitating with an intimate

Other time-varying controls that could influence the amount of time available for routine activities or the amount of opportunities available for the respondent to commit crime included whether or not the respondent was on probation, community corrections, or was a member of a gang. Each of these measures was treated as a dichotomous variable, coded as a “1” if true and “0” if not. Two measures of drug use were also included. The first measure was based on the respondents’ usage of marijuana. Respondents were asked to report on the frequency of marijuana use during each of the months with responses ranging from “never” (0) to “almost daily” (4). The second measure of drug use was based on drugs other than marijuana including cocaine, crack, heroin, speed/meth or amphetamine, acid or other hallucinogens, or any other drugs not specifically asked about but the respondent may have used. The drug measure combined all of the drugs into a single category and reflected the frequency with which the respondent used whichever drug he used most often in each month. Responses for hard drug use were coded using the same scale as marijuana use.<sup>9</sup>

---

partner, or married. The use of the relationship dummy variables allows for comparisons between different relationships but does not change the substantive results of the study.

<sup>9</sup> Although age is a time-varying measure and is related to both routine activities and crime, it was not included as a time-varying control in the analyses. This decision was made because the span of the study only covers three years and respondents are in the same age-range at the start and end of the study. Although maturation is an issue for measuring the effects of life events on crime (Osgood, 2010), it is less of a concern in models with waves that span only three years. Furthermore, the statistical analyses included a term to account for unobserved heterogeneity, which would also include differences in the ages of offenders.

## **Analytic Strategy**

I use a series of hierarchical linear models for the analysis. Since each respondent reported monthly values for the full three years prior to incarceration, there are essentially 36 “waves” of data for each respondent. Months in which the respondent was incarcerated for at least half a month were excluded leaving only “street months” in the analyses. This type of data presents two primary statistical issues. First, due to the nesting of months within individuals, the data are subject to statistical dependence. Statistical dependence occurs in this data because individuals are more likely to resemble themselves than other respondents and there are differences in overall rates of offending, otherwise known as unobserved heterogeneity. Additionally, dependence occurs because observations that are closer in time tend to be similar than those that are further apart, also known as serial autocorrelation (Osgood, 2010). With nested data of this nature, the use of ordinary regression techniques violates the independence assumption and would produce biased estimates (Raudenbush & Bryk, 2002). In order to account for the nesting of months within persons, unobserved heterogeneity, and serial autocorrelation, Generalized Hierarchical Non-Linear Modeling (HLM) version 7.01 was used for the analyses (Raudenbush, Bryk, & Congdon, 2013).

HLM is also useful because it is an effective way of modeling within-individual and between-individual change over time (Raudenbush & Bryk, 2002; Horney et al., 1995; Osgood, 2010). This is accomplished in a two-step process. First, the difference from the individual specific mean in each month models the within-individual change over time, also known as person-mean centering. Person-mean centering of the level-1 variables, or expressing each variable as a deviation from its person-specific mean, eliminates the effects of time-stable individual characteristics from the time-varying variables and the outcome variables (Uggen &



Thompson, 2003). The resulting level-1 coefficients represent the contrast between each person's involvement in crime when they have lower levels of alcohol use to their involvement in crime when they have higher levels of alcohol use. The strength of this approach lies in its ability to control for unmeasured time-stable explanatory variables as it eliminates time-stable characteristics of the person, such as criminal propensity or personality characteristics. One of the major problems with standard between-person analyses is they fail to address any unmeasured variables that could influence both the independent variables as well as the dependent variables, otherwise known as omitted variable bias. While person-mean centering and other fixed effects approaches (Allison, 2009) eliminate omitted variable bias that results from time-stable variables, it does not eliminate omitted variable bias from time-varying variables. However, the assumption that there are only time-varying variables that need to be controlled is a much more reasonable assumption to meet (Firebaugh et al., 2013). Person-mean centering also controls for the correlation between the time-varying covariates and the average level of offending (Raudenbush & Bryk, 2002).

Second, between-person differences are captured in level-2 of the equation. The aggregate measure of alcohol use in level-2 controls for individual differences related to alcohol use and captures between-person differences in the overall level of alcohol use and its effects on offending. Aggregate measures represent the average level of alcohol use over all months that the respondent has reported. The inclusion of aggregate measures of alcohol use in level-2 reduces the possibility of obtaining biased estimates from the possibility that individuals vary by their average use of alcohol (Osgood, 2010). The combination of person-mean centering of the level-1 measures and including aggregate scores of variables in level-2 has been used in past research that studied within-individual change in data sets that contain a fair amount of monthly

measurements for each respondent (e.g., Horney et al., 1995; Slocum, Simpson, & Smith, 2005; Felson et al., 2012).

The outcomes used in the study are dichotomous, so normal distribution of the residuals and prediction estimates using a linear model would provide estimates that are out of the 0-1 range. In order to account for the nature of the dependent variable, I employed a logistic multilevel regression model with a Bernoulli link. The logistic multilevel model is advantageous because it resolves issues that arise when using measures of crime and delinquency that usually have highly skewed and discrete distributions that violate the assumptions of the standard ordinary least squares regression (Osgood, 2010). Based on preliminary analyses, the models included linear, quadratic, and cubic time variables in order to allow for complex patterns of offending across time (Horney et al., 1995; Felson et al., 2012). Time is measured from 1 to 36, with 36 representing the most recent month and 1 representing the most distant month.<sup>10</sup> A dummy variable representing the last month prior to incarceration was also added to account for any irregular circumstances that lead to the final arrest.

HLM is also able to handle the variable nature of longitudinal data that contains a large number of waves (Raudenbush & Bryk, 2002). For example, individuals may be missing information for particular months, or the timing between monthly observations may vary across individuals. This is especially useful for this data set as months in which the respondent was incarcerated for at least half a month were excluded leaving only “street months” in the analyses.

---

<sup>10</sup> The time variables were transformed to reduce correlation and to make the coefficients more interpretable. This transformation does not affect the coefficients for the independent or control variables.

HLM weights results according to how many observations an individual contributes to the data, so including only “street” months is not an issue. Individuals with more street months have more observations and contribute more information to the estimates. In order to contribute to within-person estimates, respondents must have reported “change” in the measure. For example, a respondent that reports the same amount of opportunity in each month does not contribute to the opportunity estimate.

I specify the models using HLM notation (Raudenbush & Bryk, 2002). The models consist of two levels. The first level is the within-individual component and is comprised of monthly measures of the independent alcohol use variable, the control variables, the time variables, and the dependent variables. As mentioned above, all level-1 variables are person-mean centered. The use of logistic multilevel regression changes the interpretation of the coefficients to logistic coefficients. A simplified model is shown below:

Level-1 Model (Within-Individual):

$$\text{Log}[\text{odds}(Y_{it} = 1)] = \pi_{0i} + \pi_{1i}(\text{Alcohol Use}_{it} - \overline{\text{Alcohol Use}_i}) + \pi_{2i}(\text{Time}_{it} - \overline{\text{Time}_i}) \quad (1)$$

In equation 1, the natural log of the odds that individual,  $i$ , will offend at time,  $t$ , is a function of alcohol use and time. The time-varying effect of alcohol use on offending is captured in  $\pi_{1i}$ , and the rate of change in the log odds of offending is represented by  $\pi_{2i}$ . Although not shown in the simplified model above, the level-2 equation includes the full time trend variables, control variables, and a dummy variable representing the last month prior to the current incarceration spell.

Monthly measures in level-1 are nested within individuals in level-2. Each level-1 parameter becomes the dependent variable in the between-individual model. A simplified version of the level-2 equation is shown below:

Level-2 Model (Between-Individual):

$$\pi_{0i} = \beta_{00} + \beta_{01}(\text{Alcohol Use}) + r_{0i} \quad (2)$$

$$\pi_{1i} = \beta_{10} \quad (3)$$

$$\pi_{2i} = \beta_{20} + r_{3i} \quad (4)$$

The level-2 model provides the  $\beta$ s, which represent the within-individual changes in a covariate on the within-individual changes in offending. In equation 2,  $\beta_{01}$  represents the individual-specific average level of alcohol use. Although not shown in the simplified equation, individual-specific means of the control variables were included. Equation 2 also contains an error term added to the intercept, which allows for random variation across individuals' average levels of offending and serves as a way to control for persistent unobserved heterogeneity (Horney et al. 1995; Slocum et al. 2005). In equation 3,  $\beta_{10}$  represents the average change in an individual's log odds of offending associated with a one-unit change in alcohol use. In equation 4, there is an error term included for the linear time variable that captures gradual changes in offending over time and variation in time trends across individuals (Horney et al. 1995; Slocum et al. 2005).

After estimating within-individual estimates of alcohol use on crime, the next set of analyses examined mediation and moderation effects of routine activities for each dependent variable. Logistic regression provides a challenge for the estimation of mediators as the introduction of new variables into a logistic regression model can alter the coefficients of the independent variable due to mediation, or due to the rescaling that results from changes in the error variance (Allison, 2009). In order to estimate mediation effects in the logistic regression, I used Breen, Karlson, & Holm's (2013) method, also known as the BKH method. The BKH methods decomposes the alcohol use coefficient into total, direct, and indirect effects. From the fully specified model, the coefficient for alcohol use represents the direct effect on crime. Then the routine activities mediator is regressed on alcohol use, along with the controls, and the residuals

are stored. Next, crime is regressed on alcohol use, the controls, and the residuals from the previous step to obtain the total effect of alcohol use on crime. The residuals from the mediator are independent from alcohol use. Then the difference in the two alcohol use coefficients is taken and represents the indirect effect of alcohol use on crime (Breen et al., 2013; see also Apel & Horney, 2017). The indirect effect represents the portion of the alcohol use effect attributable to routine activities. Moderation effects were estimated by including an interaction term between the time-varying alcohol use and routine activities measures.

## Results

Descriptive statistics are presented in Table 1.1. The mean of a measure represents the average score across all person-months. For the dichotomous measures, the mean represents the percent of all person-months that are recorded with a “1.” The last column of the table represents the percent of all respondents that reported “change” on the measure. In other words, the percent change column is the percent of all respondents who did not report the same score for a measure across all months. Property crime was committed in 13% of the months and a little over 43% of all respondents reported change. Violent crime was less frequent and only occurred in 10% of the months, although roughly 77% of the respondents reported change. The average score for alcohol use was 0.82 ( $SD = 0.90$ ) and 30% reported change in the frequency of alcohol use. The average score for routine activities was 1.56 ( $SD = 0.73$ ) and almost 56% of respondents reported change.

The first set of analyses examined the relationship between alcohol use and property crime. Hierarchical logistic regression estimates for property crime are presented in Table 1.2. In Model 1, alcohol use and controls were entered without the inclusion of the routine activities measure. As can be seen, there is a strong and positive effect of alcohol use on property crime ( $b = 0.49$ ,

$SE = 0.15, p < .01$ ). The odds ratio indicates that for every 1-unit increase in alcohol use, the odds of committing a property crime increase by a factor of 1.51. Increases in the number of hours worked in a week ( $b = -0.12, SE = 0.05, p < .01$ ) and community corrections ( $b = -1.17, SE = 0.32, p < .01$ ) decreases the log odds of committing property crime. Increases in marijuana use ( $b = 0.24, SE = 0.09, p < .05$ ) and hard drug use ( $b = 0.43, SE = 0.09, p < .001$ ) are associated with an increase in the log odds of committing a property crime in a given month.

Mediation effects of alcohol use are examined in Model 2 of Table 1.2. After routine activities are added to the model, the effect of alcohol use is reduced, but remains significant ( $b = 0.31, SE = 0.15, p < .05$ ). Increases in routine activities are also significantly related to property crime ( $b = 1.00, SE = 0.24, p < .001$ ). Results of the BKH method of mediation revealed a total effect of alcohol use ( $b = 0.39, p < .01$ ), a direct effect of alcohol use ( $b = 0.31, p < .05$ ), and a significant indirect effect of alcohol use attributable to routine activities ( $b = 0.08, p < .05$ ). Routine activities account for roughly 20% of the relationship between alcohol use and property crime.

In Model 3, the interaction between alcohol use and routine activities is added to the models and is significant ( $b = 0.18, SE = 0.08, p < .05$ ). In order to interpret the interaction term, I converted the estimates to predicted probabilities and graphed the interaction. Predicted probabilities were created by exponentiating the log odds, and then dividing the exponentiated term by itself plus one. Low and high scores for alcohol use and routine activities were based on the mean plus or minus one standard deviation of the measure. The interaction is displayed in Figure 1.2. As can be seen in the figure, the effects of alcohol on property crime are strongly influenced by levels of routine activities. For example, alcohol use has the weakest effect on property crime for those with low levels of routine activities. For levels of routine activities one

standard deviation below the mean, going from low levels of alcohol use to high levels of alcohol use only increases the probability of committing a property crime by roughly 9%. The strongest effect of alcohol use is found in higher levels of routine activities. For levels of routine activities one standard deviation above the mean, going from low levels of alcohol use to high levels of alcohol use increases the probability of committing a property crime by over 30%. Even though increases in alcohol use are associated with higher odds of property crime across all levels of routine activities, the effects of alcohol use are much stronger when there are more criminal opportunities available.

The next set of analyses examined the relationship between alcohol use and violent crime. Hierarchical logistic regression estimates for violent crime are presented in Table 1.3. In Model 1, alcohol use and controls are entered without the inclusion of routine activities. Similar to the results of property crime, alcohol use has a strong and positive effect on violent crime ( $b = 0.25$ ,  $SE = 0.09$ ,  $p < .01$ ). The odds ratio indicates that for every 1-unit increase in alcohol use, the odds of committing a violent crime increases by a factor of 1.28. Increases in marijuana use ( $b = 0.15$ ,  $SE = 0.07$ ,  $p < .05$ ) and hard drug use ( $b = 0.25$ ,  $SE = 0.09$ ,  $p < .001$ ), as well as being in a gang ( $b = 1.63$ ,  $SE = 0.66$ ,  $p < .05$ ), are all associated with an increase in the log odds of committing a violent crime.

Mediation effects of routine activities on violent crime are examined in Model 2 in Table 1.3. After routine activities are added to the model, the effect of alcohol use on violent crime is reduced, but remains significant ( $b = 0.17$ ,  $SE = 0.09$ ,  $p < .05$ ). Increases in routine activities are also significantly related to increases in violent crime ( $b = 0.56$ ,  $SE = 0.16$ ,  $p < .01$ ). Results of the BKH method of mediation revealed a total effect of alcohol use ( $b = 0.27$ ,  $p < .01$ ), a direct effect of alcohol use ( $b = 0.17$ ,  $p < .05$ ), and an indirect effect of alcohol use attributable to

routine activities ( $b = 0.05, p < .05$ ). Routine activities account for roughly 18% of the relationship between alcohol use and violent crime.

In Model 3 the interaction term between routine activities and alcohol use is added to the model and is significant ( $b = 0.14, SE = 0.04, p < .01$ ). The estimates were converted to predicted probabilities and the interaction is displayed in Figure 1.3. As can be seen in the figure, increases in alcohol use are associated with higher probabilities of committing a violent crime across all levels of routine activities. Similar to the interaction for property crime, the largest effects of alcohol use are seen for higher levels of routine activities. For levels of routine activities one standard deviation above the mean, going from low alcohol use to high alcohol use increases the probability of committing a violent crime by almost 31%. The same increase in alcohol use for levels of routine activities one standard deviation below the mean results in roughly a 15% increase in the probability of committing a violent crime.

### **Conclusion and Discussion**

The relationship between alcohol and crime has received considerable theoretical and empirical attention. While alcohol has psychopharmacological effects that impair cognition and increase the likelihood of crime, studies also find that the social context of alcohol consumption plays a major role in whether alcohol intoxication leads to crime. Scholars have noted that these findings pose a “conundrum” in the alcohol literature (Felson et al., 2011, p. 720). While alcohol has a causal effect on crime, the effects also depend on where the drinking takes place. The current research argued that routine activities are important factors in the relationship between alcohol use and crime because they provide opportunities for crime and a social context in which individuals regularly consume alcohol.



It was hypothesized that routine activities would explain, or mediate, a significant portion of the effects of alcohol. This prediction was based on Osgood et al.'s (1996) assertion that certain routine activities produce easy and rewarding opportunities for crime, and the evidence supported this prediction. Since alcohol use frequently occurs in the presence of peers and away from capable guardians, opportunities for crime are readily available in these social events. Drinking around others who have been drinking can lead to grievances and interpersonal conflict. Grievances can lead to physical fights if peers or third parties are present who support the use of violence (Tedeschi & Felson, 1994).

Furthermore, the mediating effect of routine activities was not limited to assaults. The violent crime measure included personal and business robberies. Robbing an individual may be a way to restore justice and save face in front of peers following a grievance (Tedeschi & Felson, 1994; Felson, Baumer, & Messner, 2000). Social drinking may also generate suitable targets for robbery. Exposure to intoxicated individuals provides offenders with targets that are unable to adequately protect themselves (e.g., Felson & Burchfield, 2008). Additionally, committing a robbery in the presence of peers may confer status on the offender, while also providing potential co-offenders for the offense. An opportunity explanation also fits the finding that some of the relationship between alcohol use and property crime is mediated by routine activities. When individuals drink alcohol they also engage in certain routine activities that produce opportunities for property crime.

The findings also revealed significant interactions between alcohol use and routine activities. It was hypothesized that routine activities would condition the effects of alcohol use and crime, and this prediction was supported for both violent and property crime. The interactions suggest that the effects of alcohol were strongly influenced by routine activities.

Alcohol use had the largest impact if it was accompanied by more criminal opportunities. If an individual was drinking heavily but not going out with friends, the probability of committing a crime was relatively low.

Taken together, the moderation analyses imply that intoxicated individuals are more likely to act on opportunities created by routine activities compared to those who have not been drinking. The cognitive impairments caused by alcohol use alters the cost-benefit analysis in the decision to commit a crime and can lead to crime when presented with increased opportunities. These results support the findings of Felson et al. (2011), which suggested that adolescents who drank with peers and in places low in social control were more likely to engage in violence than those who drank with few peers and in homes. In other words, alcohol use is less of a factor for crime when there are lower levels of opportunities for crime. When individuals have restricted access to criminal opportunities, the effects of alcohol on crime are minimal. This perspective also supports research in life-course criminology. As individuals age and move into adult roles, they tend to limit their exposure to peers and leisure time (e.g., Laub & Sampson, 2003; Osgood & Lee, 1993). The findings suggest that while alcohol is an important factor for crime its impact depends on the opportunities available for crime that are found in the social context in which the drinking takes place.

The findings also have larger implications for the conceptualization of the social context in the relation between alcohol use and crime in two important ways. First, most discussions of how the social context could influence the relation between alcohol use and crime primarily examine specific drinking locations, such as bars and the barroom environment (Fox & Sobel, 2000; Homel & Clark, 1994; Wells et al., 2008), or differences between wet and dry cultures (Room, 2001, 2007; Felson et al., 2011). The current study proposes that the effects of alcohol depend on

the routine activities in which an individual is engaged while they are drinking. The routine activities act as a social context that frequently includes alcohol use and is strongly related to criminal behavior. The activities occur in a context where there are many suitable targets, low levels of guardianship, and low social control (Osgood et al., 1996).

Second, much of the literature examines the relationship between alcohol use and violence, which produces explanations that focus on the circumstances in which aggression is more or less likely during alcohol use (e.g., McClelland et al., 1972; Fagan, 1990). However, the current study finds that the social context of alcohol consumption also mediates and moderates the relationship between alcohol use and property crime. While research finds that alcohol has stronger effects for violent crime compared to property crime (Felson & Staff, 2010; Karberg & James, 2005), alcohol still plays a significant role in the commission of property crime. Explanations for alcohol effects would benefit from an expanded view that includes non-violent crime.

### **Limitations and Directions for Future Research**

The use of a within-individual design eliminates the effects of all time-stable characteristics, so the findings from this study cannot be attributed to stable individual differences. However, the statistical approach used in the analyses can be influenced by time-varying factors. Although the analyses included controls for employment, relationships, living circumstances, and drugs use, there may be other time-varying factors that could influence both alcohol use and crime. Relatedly, the statistical approach used in the analyses precluded the investigation of the effects of individual differences. It may be that the relationship between alcohol use and crime varies across individuals with certain traits. For example, the effects of alcohol use on crime may be stronger for individuals with low self-control, or for individuals with a proclivity towards

violence (Giancola, 2002). The design utilized in the current study also does not explicitly examine alcoholism. Previous research suggests that offenders have higher rates of daily drinking, heavy drinking, and alcohol abuse compared to the general population (Greenfeld & Henneberg, 2001). Chronic drinkers may be more likely to commit crime than non-drinkers (Phillips, Matusko, & Tomasovic, 2007), but these effects might not be readily apparent in the current research. If an individual reports consistently high levels of drinking every month, they would not contribute to the results as they do not report any “change” in their alcohol use.

Another limitation of the current research can be found in the design of the study. Retrospective data sometimes suffers from recall issues, and it may have been difficult for some respondents to accurately recall their various life circumstances and frequency of routine activities at monthly intervals that stretch back three years. This may be particularly true for individuals with chronic alcohol use. However, this issue is not restricted to the life-event calendar and is found in most survey techniques. The use of month recall periods may pose additional challenges for individuals, especially if they were drinking heavily. However, limited research suggests that the data gathered from the life-event calendar is at least as good as other techniques in terms of quality, and usually outperforms other methods (Roberts & Horney, 2010).

Future research would benefit from more refined measures of alcohol use and routine activities. In the current study, alcohol use was measured as the frequency and amount of drinking every month, regardless of where it took place. Future studies would benefit from measures that asks specifically about alcohol use during routine activities. Still, the use of monthly measurements of alcohol use is a vast improvement over yearly measures as many respondents reported changing their frequency of drinking alcohol on a monthly basis. Similarly,

the routine activities used in the scale (e.g., hanging out with friends, going out at night) did not ask specifically about guardianship and structure. For example, hanging out with friends obviously includes the presence of peers, but it is unclear if the activities lacked structure or occurred away from capable guardians (for an example, see Hoeben & Weerman, 2016).

Finally, although the use of a within-individual analysis makes for a stronger causal claim, the use of causal language should be used with caution. While the analyses rule out all time-stable factors that could influence the results, making causal claims with observational data can be problematic (Winship & Morgan, 1999). The main predictors and dependent variables were recorded in the same month. Thus, the analyses cannot rule out the possibility that routine activities are the first step in the causal chain. It could be that alcohol use mediates and moderates the relationship between routine activities and crime, instead of the other way around. From this perspective, a mediating effect of alcohol use suggests that the criminal opportunities produced by routine activities are partially explained by the use of alcohol. In other words, routine activities create opportunities for both alcohol use and crime. Research does support this perspective as routine activities have been consistently linked to alcohol use (Osgood et al., 1996; Hoeben et al., 2016; Hoeben & Weerman, 2016). Theoretically the pathway tested here and a pathway with alcohol use as a mediator could both be correct. Individuals tend to drink alcohol when they are out with friends socializing, and they often go out with friends in order to drink alcohol. Still, it is noteworthy that individuals commonly drink alcohol while engaged in certain activities. Sometimes the opportunities for crime are due to alcohol use, while other times they are due to the activities in which individuals are engaged. The use of lagged variables could address this issue with estimates of alcohol use that preceded routine activities. However, the use of lagged variables is only recommended when they are based on a theoretical reason for a lag

and are lagged to the appropriate time (Ousey, Wilcox, & Fisher, 2011). Since the effects of alcohol use and routine activities on crime are contemporaneous, using a month-lag may misestimate the relationship.

Another way of interpreting the interaction would be that alcohol use conditions the effects of routine activities on crime. A moderating effect of alcohol use suggests a similar finding to the one proposed here; individuals who are intoxicated are more likely to act on criminal opportunities. Statistically, the estimates in the results would be identical.

The use of an inmate sample can be seen as a strength and a limitation of the current research. An inmate sample might limit the ability of researchers to generalize the results to the general population. Inmates tend to have higher rates of alcohol use than the general population, however, serious crimes may be too infrequent to analyze in a general population sample. The use of an inmate sample allowed for the examination of more serious crimes. As mentioned above offenders have higher rates of alcohol use than non-offenders, however, the use of a within-individual design eliminated the effects of consistently heavy drinkers. Still, offenders may have different drinking patterns than non-offenders, so future research would benefit from comparisons between offender and non-offender samples in drinking patterns as well as drinking contexts.

In sum, the evidence from the current research suggests that routine activities play an important role in the alcohol-crime relationship. For both property and violent crime, routine activities mediate a substantial portion of the effects of alcohol on crime. This suggests that while alcohol intoxication leads to crime, some of this relationship can be attributed to opportunities produced by specific routine activities that are associated with alcohol use. The effects of alcohol use on crime were also conditioned by routine activities. Higher levels of

alcohol use had stronger effects on crime when they were accompanied by high levels of opportunity for crime. The situational effects of alcohol intoxication were significantly stronger when there were more opportunities for crime.

## References

- Agnew, R., & Petersen, D. M. (1989). Leisure and delinquency. *Social Problems, 36*, 332-350.
- Allison, P. D. (2009). *Fixed effects regression models*. SAGE Publications.
- Anderson, A. L., & Hughes, L. A. (2009). Exposure to situations conducive to delinquent behavior: The effects of time use, income, and transportation. *Journal of Research in Crime and Delinquency, 46*, 5-34.
- Apel, R., & Horney, J. (2017). How and why does work matter? Employment conditions, routine activities, and crime among adult male offenders. *Criminology, 55*, 307-343.
- Archer, J., Holloway, R., & McLoughlin, K. (1995). Self-reported physical aggression among young men. *Aggressive Behavior, 21*, 325-342.
- Auerhahn, K. & Parker, R. N. (1999). Drugs, alcohol, and homicide. In M. D. Smith & M. A. Zahn (Eds.), *Studying and preventing homicide: Issues and challenges* (pp. 97-114). Thousand Oaks, CA: Sage.
- Augustyn, M. B., & McGloin, J. M. (2013). The risk of informal socializing with peers: Considering gender differences across predatory delinquency and substance use. *Justice Quarterly, 30*, 117-43.
- Barnes, G. M., Hoffman, J. H., Welte, J. W., Farrell, M. P., & Dintcheff, B. A. (2007). Adolescents' time use: Effects on substance use, delinquency and sexual activity. *Journal of Youth and Adolescence, 36*, 697-710.
- Belli, R. F. (1998) The structure of autobiographical memory and the event history calendar: potential improvements in the quality of retrospective reports in surveys. *Memory, 6*, 383-406.



- Belli, R. F., Shay, W. L., & Stafford, F. P. (2001). Event history calendars and question list surveys: A direct comparison of interviewing methods. *Public Opinion Quarterly*, *65*, 45-74.
- Bernasco, W., Ruiters, S., Bruinsma, G. J. N., Pauwels, L., & Weerman, F. M. (2013). Situational causes of offending: A fixed effects analysis of space-time budget data. *Criminology*, *51*, 895-926.
- Boles, S. M. & Miotto, K. (2003). Substance abuse and violence: A review of the literature. *Aggression and Violent Behavior*, *8*, 155-174.
- Bonomo, Y., Coffey, C., Wolfe, R., Lynskey, M., Bowes, G., & Patton, G. (2001) Adverse outcomes of alcohol use in adolescents. *Addiction*, *96*, 1485-1496.
- Bradburn, N. M., Rips, L. J., & Shevell, S. K. (1987). The impact of memory and inference on surveys. *Science, New Series*, *236*, 157-161.
- Breen, R., Karlson, K. B., & Holm, A. (2013). Total, direct, and indirect effects in logit and probit models. *Sociological Methods & Research*, *42*, 164-191.
- Briar, S., & Piliavin, I. (1965). Delinquency, situational inducements, and commitment to conformity. *Social Problems*, *13*, 35-45.
- Burns, T. F. (1980). Getting rowdy with the boys. *Journal of Drug Issues*, *10*, 273-286.
- Bushman, B. J. (1997). Effects of alcohol on human aggression: Validity of proposed explanations. In M. Galanter (Ed.), *Recent developments in alcoholism: Alcohol and violence- Epidemiology, neurobiology, psychology, family issues* (pp. 227-243). New York, NY: Plenum Press.
- Bushman, B. J., & Cooper, H. M. (1990). Effects of alcohol and human aggression: An integrative research review. *Psychological Bulletin*, *107*, 341-54.

- Caspi, A., Moffitt, T. E., Thornton, A., Freedman, D., Amell, J. W., Harrington, H., Smeijers, J., & Silva, P. A. (1996). The life history calendar: A research and clinical assessment method for collecting retrospective event-history data. *International Journal of Methods in Psychiatric Research*, 6, 101-114.
- Chermack, S. T., & Blow, F. C. (2002). Violence among individuals in substance abuse treatment: The role of alcohol and cocaine consumption. *Drug and Alcohol Dependence*, 66, 29-37.
- Chermack, S. T., & Giancola, P. R. (1997) The relation between alcohol and aggression: An integrated biopsychosocial conceptualization. *Clinical Psychology Review*, 17, 621-649.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588-608.
- Collins, J. J. (1981). Alcohol careers and criminal careers. In J. J. Collins (Ed.), *Drinking and crime* (pp. 152-206). New York, NY: Guilford Press.
- Collins, J. J. (1986). The relationship of problem drinking to individual offending sequences. In A. Blumstein, J. Cohen, J. A. Roth, and C. A. Visher (Eds.), *Criminal careers and "career criminals,"* (pp. 89-120). Washington, D.C.: National Academy Press.
- Collins, J. J., & Messerschmidt, P. M. (1993). Epidemiology of alcohol-related violence. *Alcohol Health & Research World*, 17, 93-100.
- Demers, A., Kairouz, S., Adlaf, E., Gliksman, L., Newton-Taylor, B., & Marchand, A. (2002) Multilevel analysis of situational drinking among Canadian undergraduates. *Social Science & Medicine*, 55, 415-424.
- Dermen, K. H., & George, W. H. (1989). Alcohol expectancy and the relationship between drinking and physical aggression. *Journal of Psychology* 123, 153-61.

- Diamond, A. (2013). Executive functions. *Annual Review of Psychology*, *64*, 135-168.
- Eck, J., & Weisburd, D. (1995). Crime places in crime theory. *Crime Prevention Studies*, *4*, 1-33.
- Exum, M. L. (2006). Alcohol and aggression: An integration of findings from experimental studies. *Journal of Criminal Justice*, *34*, 131-45.
- Fagan J. (1990). Intoxication and aggression in drugs and crime. In M. Tonry & J. Q. Wilson (Eds.) *Crime and justice: A review of research*, (pp. 241-320). Chicago: Univ. Chicago Press.
- Fagan, J. (1993). Set and setting revisited: Influence of alcohol and illicit drugs on the social context of violent events. In S. E. Martin (Ed.), *Alcohol and interpersonal violence: Fostering multidisciplinary perspectives* (pp. 161-191). Rockville, MD: National Institute of Health.
- Fals-Stewart, W. (2003). The occurrence of partner physical aggression on days of alcohol consumption: A longitudinal diary study. *Journal of Consulting and Clinical Psychology*, *71*, 41-52.
- Farrington, D. P., Loeber, R., Yin, Y., & Anderson, S. J. (2002). Are within-individual causes of delinquency the same as between-individual causes? *Criminal Behaviour and Mental Health* *12*, 53-68.
- Felson, M. (2003). The process of co-offending. *Crime Prevention Studies*, *16*, 149-168.
- Felson, M., & Boba, R. (2010). *Crime and everyday life*. Thousand Oaks, CA: SAGE Publications Ltd.
- Felson, R. B. (1997). Routine activities and involvement in violence as actor, witness, or target. *Violence and Victims*, *12*, 209-221.

- Felson, R. B., Baumer, E. P., & Messner, S. F. (2000). Acquaintance robbery. *Journal of Research in Crime and Delinquency*, 37, 284-305.
- Felson, R. B. & Burchfield, K. B. (2004). Alcohol and the risk of physical and sexual assault victimization. *Criminology*, 42, 837-859.
- Felson, R. B., Burchfield, K. B., & Teasdale, B. (2007). The impact of alcohol on different types of violent incidents. *Criminal Justice and Behavior*, 34, 1057-1068.
- Felson, R. B., Osgood, D. W., Horney, J., & Wiernik, C. (2012). Having a bad month: General versus specific effects of stress on crime. *Journal of Quantitative Criminology*, 28, 347–363.
- Felson, R. B., Savolainen, J., Aaltonen, M., & Moustgaard, H. (2008a). Is the association between alcohol use and delinquency causal or spurious? *Criminology*, 46, 785-808.
- Felson, R. B., Savolainen, J., Bjarnason, T., Anderson, A. L., & Zhora, I. T. (2011). The cultural context of adolescent drinking and violence in 30 European countries. *Criminology*, 49, 699-728.
- Felson, R. B., & Staff, J. (2010). The effects of alcohol intoxication on violent versus other offending. *Criminal Justice and Behavior*, 37, 1343-1360.
- Felson, R. B., Teasdale, B., & Burchfield, K. B. (2008b). The influence of being under the influence alcohol effects on adolescent violence. *Journal of Research in Crime and Delinquency*, 45, 119-141.
- Firebaugh, G. (2008). *Seven rules for social research*. New Jersey: Princeton University Press.
- Firebaugh, G., Warner, C., & Massoglia, M. (2013). Fixed effects, random effects, and hybrid models for causal analysis. In S. L. Morgan (Ed.), *Handbook of causal analysis for social research* (pp. 113-132). Netherlands: Springer Netherlands.

- Fox, J. G., & Sobel, J. J. (2000). Drinking patterns, social interaction, and barroom behavior: A routine activities approach. *Deviant Behavior, 21*, 429-450.
- Giancola, P. R. (2002). Alcohol-related aggression during the college years: Theories, risk factors, and policy implications. *Journal of Studies on Alcohol, Suppl. 14 Mar*, 129-139.
- Gold, M. (1970). *Delinquent behavior in an American city*. Belmont, CA: Brooks/Cole.
- Goldstein, P. J. (1985). The drugs/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues, 15*, 493-506
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. CA: Stanford University Press.
- Graham, K. West, P., & Wells, S. (2000). Evaluating theories of alcohol-related aggression using observations of young adults in bars. *Addiction, 95*, 847-863.
- Graham, K., Leonard, K. E., Room, R., Wild, T. C., Pihl, R., Bois, C., & Single, E. (1998). Current directions in research on understanding and preventing intoxicated aggression. *Addiction, 93*, 659-676.
- Greenfeld, L. A. (1998). *Alcohol and crime*. Washington, D.C.: U.S. Department of Justice. NCJ Publication No. 168632.
- Greenfeld, L. A., Henneberg, M. A. (2001). Victim and offender self-reports of alcohol involvement in crime. *Alcohol Research & Health, 25*, 20-31.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance use prevention. *Psychological Bulletin, 112*, 64-105.
- Haynie, D. L., & Osgood, D. W. (2005). Reconsidering peers and delinquency: How do peers matter? *Social Forces, 84*, 1109-1130.

- Hoaken, P. S., & Stewart, S. H. (2003). Drugs of abuse and the elicitation of human aggressive behavior. *Addictive Behaviors*, 28, 1533-1554.
- Hoeben, E. M., & Weerman, F. M. (2016). Why is involvement in unstructured socializing related to adolescent delinquency? *Criminology*, 54, 242-281.
- Hoeben, E. M., Meldrum, R. C., Walker, D. & Young, J. T. N. (2016). The role of peer delinquency and unstructured socializing in explaining delinquency and substance use: A state-of-the-art review. *Journal of Criminal Justice*, 47, 108-122.
- Homel, R., & Clark, J. (1994) The prediction and prevention of violence in pubs and clubs. *Crime Prevention Studies*, 3, 1-46.
- Horney, J. (2001). Criminal events and criminal careers: An integrative approach to the study of violence. In R. L. Meier & V. Sacco (Eds.), *The process and structure of crime: Criminal events and crime analysis* (pp. 141-167). New Brunswick, N.J.: Transaction Publishers.
- Horney, J., Osgood, D. W., & Marshall, I. H. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review*, 60, 655-673.
- Ito, T. A., Miller, N., & Pollock, V. E. (1996). Alcohol and aggression: a meta-analysis on the moderating effects of inhibitory cues, triggering events, and self-focused attention. *Psychological Bulletin*, 120, 60-82.
- Karberg, J. C., & James, D. J. (2005). *Substance dependence, abuse, and treatment of jail inmates, 2002*. Washington, D.C.: U. S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Leonard, K. E. (2005). Alcohol and intimate partner violence: When can we say that heavy drinking is a contributing cause of violence? *Addiction*, 100, 422-25.

- Leonard, K. E., (2008). The role of drinking patterns and acute intoxication in violent interpersonal behaviors. In *Alcohol and violence: Exploring patterns and responses* (pp. 29-55). Washington, D.C.: International Center for Alcohol Policies.
- Leonard, K. E., Quigley, B. M., & Collins, R. L. (2002) Physical aggression in the lives of young adults: prevalence, location, and severity among college and community samples. *Journal of Interpersonal Violence, 17*, 533–550
- Lemert, E. M. (1962). Alcohol, values and social control. In J. Pittman & C. Snyder (Eds.), *Society, Culture, and Drinking Patterns*. New York: Wiley.
- Levinson, D. (1983). Social setting, cultural factors, and alcohol-related aggression. In E. Gottheil, K. A. Druley, T. E. Skoloda, & H. M. Waxman (Eds.), *Alcohol, drug abuse and aggression*. Springfield, IL: Thomas.
- Laub, J. H., & Sampson, R. J. (2003). *Shared beginnings, divergent lives: Delinquent boys to age 70*. Boston: Harvard University Press.
- Lipsey, M. W., Wilson, D. B., Cohen, M. A., & Derzon, J. H. (1997). Is there a causal relationship between alcohol use and violence? In M. Galanter (Ed.), *Recent developments in alcoholism: Alcohol and violence- Epidemiology, neurobiology, psychology, family issues* (pp. 245-282). New York, NY: Plenum Press.
- Lotz, R., & Lee, L. (1999). Sociability, school experience, and delinquency. *Youth & Society, 31*, 199–223.
- MacAndrew, C., & Edgerton, R. B. (1969). *Drunken comportment: A social explanation*. Chicago: Aldine.
- Maimon, D., & Browning, C. R. (2010). Unstructured socializing, collective efficacy, and violent behavior among urban youth. *Criminology, 48*, 443-474.

- Mayer, R. R., Forster, J. L., Murray, D. M., & Wagenaar, A. C. (1998). Social settings and situations of underage drinking. *Journal of Studies of Alcohol*, *59*, 207–215.
- McClelland, G. M. & Teplin, L. A. (2001). Alcohol intoxication and violent crime: Implications for public health policy. *American Journal on Addictions*, *10*, 70- 100.
- McGloin, J. M., & Piquero, A. R. (2009). I wasn't alone: Collective behaviour and violent delinquency. *Australian and New Zealand Journal of Criminology*, *42*, 336-353.
- Meldrum, R. C., & Clark, J. (2015). Adolescent virtual time spent socializing with peers, substance use, and delinquency. *Crime and Delinquency*, *61*, 1104–1126.
- Meier, R. F., & Miethe, T. D. (1993). Understanding theories of criminal victimization. *Crime and Justice: An Annual Review of Research*, *17*, 459-499.
- Miethe, T. D., Stafford, M. C., & Long, J. S. (1987). Social differentiation in criminal victimization: A test of routine activities/lifestyle theories. *American Sociological Review*, *52*, 184-194.
- Miller, J. (2013). Individual offending, routine activities, and activity settings: Revisiting the routine activity theory of general deviance. *Journal of Research in Crime and Delinquency*, *50*, 390-416.
- Mustaine, E. E. & Tewksbury, R. (1998). Specifying the role of alcohol in predatory victimization. *Deviant Behavior*, *19*, 173-199.
- Osgood, D. W. (2010). Statistical models of life events and criminal behavior. In A.R. Piquero and D. Weisburd (Eds.), *Handbook of Quantitative Criminology* (pp. 375– 396). New York: Springer.
- Osgood, D. W., & Anderson, A. L. (2004). Unstructured socializing and rates of a delinquency. *Criminology*, *42*, 519-550.



- Osgood, D. W., & Lee, H. (1993). Leisure activities, age, and adult roles across the lifespan. *Society and Leisure, 16*, 181-207.
- Osgood, D. W., Wilson, J. K., O'Malley, P. M., Backman, J. G., & Johnston, L. D. (1996). Routine activities and individual deviant behavior. *American Sociological Review, 61*, 635-655.
- Ousey, G. C., Wilcox, P., & Fisher, B. S. (2011). Something old, something new: Revisiting competing hypotheses of the victimization-offending relationship among adolescents. *Journal of Quantitative Criminology, 27*, 53-84.
- Parker, R. N., & Rebhun, L. A. (1995). *Alcohol and homicide. A deadly combination of two American traditions*. Albany: State Univ. NY Press
- Phillips, S., Matusko, J., & Tomasovic, E. (2007). Reconsidering the relationship between alcohol and lethal violence. *Journal of Interpersonal Violence, 22*, 66- 84.
- Pernanen, K. (1991). *Alcohol in human aggression*. New York, NY: Guilford.
- Pihl, R. O., Petersen, J. B., & Lau, M. A. (1993). A biosocial model of the alcohol-aggression relationship. *Journal of Studies on Alcohol, Suppl. 11 Sep*, 128-139.
- Potter, L. B., Sacks, J. J., Kresnow, M. J., & Mercy, J. (1999). Non-fatal physical violence, United States, 1994. *Public Health Reports, 114*, 343-352.
- Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology, 38*, 931-964.
- Quigley, B. M., & Leonard, K. E. (2006). Alcohol expectancies and intoxicated aggression. *Aggression and Violent Behavior, 11*, 484-96.
- Rand, M. R., Sabol, W. J., Sinclair, M. M., & Snyder, H. N. (2010). *Alcohol and Crime: Data from 2002 to 2008*. Washington, D.C.: Bureau of Justice Statistics.

- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods, Second Edition*. Newbury Park, CA: Sage.
- Raudenbush, S. W., Bryk, A. S., & Congdon, R. (2013). HLM 7.01 for Windows [Computer software]. Skokie, IL: Scientific Software International, Inc.
- Roberts, J., & Horney, J. (2010). The life event calendar method in criminological research. In A. R. Piquero & D. Weisburd (Eds.), *Handbook of quantitative criminology* (pp. 289-312). New York: Springer.
- Roberts, J., & Wells, W. (2009) The validity of criminal justice contacts reported by inmates: a comparison of self-reported data with official prison records, unpublished manuscript.
- Roizen, J. (1997). Epidemiological issues in alcohol-related violence. In M. Galanter (Ed.), *Recent developments in alcoholism: Alcohol and violence- Epidemiology, neurobiology, psychology, family issues* (pp.7- 40). New York, NY: Plenum.
- Room, R. (2001). Intoxication and bad behaviour: Understanding cultural differences in the link. *Social Science and Medicine*, 53, 189–98.
- Room, R. (2007). Understanding cultural differences in young people’s drinking. In M. Järvinen & R. Room (Eds.), *Youth drinking cultures: European experiences*, (pp. 17-40). Burlington, VT: Ashgate.
- Room, R., & Bullock, S. L. (2002). Can alcohol expectancies and attributions explain Western Europe’s north-south gradient in alcohol’s role in violence? *Contemporary Drug Problems*, 69, 619–48.
- Rossow, I. (1996). Alcohol-related violence: The impact of drinking pattern and drinking context. *Addiction*, 91, 1651-1661.

- Rossow, L., Pape, H., & Wichstrom, L. (1999). Young, wet and wild? Associations between alcohol intoxication and violent behaviour in adolescence. *Addiction, 94*, 1017-1031.
- Schmutte, G. T., & Taylor, S. P. (1980). Physical aggression as a function of alcohol and pain feedback. *Journal of Social Psychology, 110*, 235-244.
- Scully, D., & Marolla, J. (1984). Convicted rapists' vocabulary of motive: Excuses and justifications. *Social Problems, 31*, 530-544.
- Sellers, C. (1999). Self-control and intimate violence: An examination of the scope and specification of the general theory of crime. *Criminology, 37*, 375-404.
- Slocum, L. A., Simpson, S. S., & Smith, D. A. (2005). Strained lives and crime: Examining intra-individual variations in strain and offending in a sample of incarcerated women. *Criminology, 43*, 1067-1110.
- Staff, J., Osgood, D. W., Schulenberg, J. E., Bachman, J. G., & Messersmith, E. E. (2010). Explaining the relationship between employment and juvenile delinquency. *Criminology, 48*, 1101-1131.
- Steele, C. M., & Josephs, R. A. (1990). Alcohol myopia: Its prized and dangerous effects. *American Psychologist, 45*, 921-933.
- Stoduto, G., Adlaf, E., & Mann, R. E. (1998). Adolescents, bush parties, and drinking-driving. *Journal of Studies on Alcoholism, 59*, 544-548.
- Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. *American Sociological Review, 22*, 664-670.
- Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. American Psychological Association.

- Testa, M. (2002). The impact of men's alcohol consumption on perpetration of sexual aggression. *Clinical Psychology Review, 22*, 1239-1263.
- Thompson, M. P., & Kingree, J. B. (2006). The roles of victim and perpetrator alcohol use in intimate partner violence outcomes. *Journal of Interpersonal Violence, 21*, 1649-1664.
- Treno, A. J., Alaniz, M. L., & Gruenewald, P. J. (2000). The use of drinking places by gender, age, and ethnic groups: An analysis of routine drinking activities. *Addiction, 95*, 537-551.
- Uggen, C., & Thompson, M. (2003). The socioeconomic determinants of ill-gotten gains: Within-person changes in drug use and illegal earnings. *American Journal of Sociology, 109*, 146-185.
- Ullman, S. E., Karabastos, G., & Koss, M. P. (1999). Alcohol and sexual assault in a national sample of college women. *Journal of Interpersonal Violence, 14*, 603-625.
- Warr, M. (2002). *Companions in crime: The social aspects of criminal conduct*. Cambridge University Press.
- Weisman, A. M., & Taylor, S. P. (1994). Effect of alcohol and risk of physical harm on human physical aggression. *The Journal of General Psychology, 121*, 67-76.
- Wells, S., Mihic, L., Tremblay, P. F., Graham, K., & Demers, A. (2008). Where, with whom, and how much alcohol is consumed on drinking events involving aggression? Event-level associations in a Canadian national survey of university students. *Alcoholism: Clinical and Experimental Research, 32*, 522-533.
- White, H. R. (1990). The drug use-delinquency connection in adolescence. In R. A. Weisheit (Ed.), *Drugs, crime and the criminal justice system* (pp. 215-256). Cincinnati, OH: Anderson Publishing Co.

- White, H. R., Brick, J., & Hansell, S. (1993). A longitudinal investigation of alcohol use and aggression in adolescence. *Journal of Studies on Alcohol, Suppl. 11*, 62-77.
- White, H. R., Johnson, V., & Garrison, C. (1985). The drug-crime nexus among adolescents and their peers. *Deviant Behavior, 6*, 183-204.
- Wikström, P. O. H., & Treiber, K. H. (2009). Violence as situational action. *International Journal of Conflict and Violence, 3*, 75-96.
- Winship, C., & Morgan, S. L. (1999). The estimation of causal effects from observational data. *Annual Review of Sociology, 25*, 659–706.
- Wolfgang, M. E., & Strohm, R. B. (1956). The relationship between alcohol and criminal homicide. *Quarterly Journal of Studies on Alcohol, 17*, 411-425.
- Yacoubian, G. S. (2000) Assessing the efficacy of the calendar method with Oklahoma City arrestees. *Journal of Crime & Justice, 26*, 117–131.
- Yacoubian, G. S. (2003). Does the calendar method enhance drug use reporting among Portland arrestees? *Journal of Substance Use, 8*, 27-32.
- Zeichner, A., & Pihl, R. O. (1979). Effects of alcohol and behavior contingencies on human aggression. *Journal of Abnormal Psychology, 88*, 153-160.
- Zhang, L., Welte, J. W., & Wieczorek, W. W. (2002). The role of aggression-related alcohol expectancies in explaining the link between alcohol and violent behavior. *Substance Use & Misuse, 37*, 457-471.

**Table 2.1. Descriptive Statistics**

Variables	Min, Max	Mean (SD)	% Change
<i>Measures of Crime</i>			
Property crime	0, 1	.13	43.1
Violent crime	0, 1	.10	77.0
Alcohol use	0, 2	0.82 (0.90)	30.3
Routine activities	0, 3	1.56 (0.73)	55.5
<i>Legitimate Activities</i>			
Attending school	0, 1	.12	24.5
Organized sports	0, 3	0.36 (0.86)	23.3
Pickup sports	0, 3	0.73 (1.06)	20.6
Hours worked per week	0, 7	3.34 (2.52)	63.0
<i>Life Circumstances</i>			
Live with wife	0, 1	.16	13.4
Live with sig. other	0, 1	.26	30.5
Live with child	0, 1	.20	12.5
Live with relatives	0, 1	.34	35.4
<i>Other Controls</i>			
On probation	0, 1	.17	37.3
Community corrections	0, 1	.03	32.1
Gang member	0, 1	.09	0.4
Gambling	0, 1	0.60 (0.96)	18.2
Marijuana use	0, 4	1.86 (1.83)	27.4
Hard drug use	0, 4	1.05 (1.57)	45.1
No. of respondents =	710		
No. of person months =	21,558		

**Table 2.2. Property Crime Hierarchical Logistic Regression Estimates**

Variables	Model 1			Model 2			Model 3		
	Coef.	S.E.	O.R.	Coef.	S.E.	O.R.	Coef.	S.E.	O.R.
Alcohol use	0.41**	0.15	1.51	0.31*	0.15	1.36	0.31*	0.15	1.36
Routine activities	.	.	.	1.00***	0.24	2.72	1.00***	0.23	2.70
Alcohol use *									
Routine activities	.	.	.	.	.	.	0.18*	0.08	1.19
<i>Legitimate Activities</i>									
Attending school	-0.10	0.24	0.90	-0.05	0.25	0.95	-0.05	0.25	0.84
Organized sports	0.07	0.10	1.07	0.07	0.10	1.07	0.07	0.10	1.08
Pickup sports	0.18	0.13	1.20	0.18	0.13	1.20	0.18	0.13	1.19
Hours worked per week	-0.12**	0.05	0.88	-0.12*	0.05	0.89	-0.12*	0.05	0.89
<i>Life Circumstances</i>									
Live with wife	0.39	0.53	1.48	0.58	0.49	1.78	0.57	0.49	1.76
Live with sig. other	0.50	0.35	1.64	0.53	0.35	1.69	0.52	0.35	1.68
Live with child	-0.80	0.51	0.45	-0.70	0.50	0.50	-0.70	0.50	0.50
Live with relatives	-0.13	0.26	0.88	-0.15	0.25	0.86	-0.16	0.25	0.86
<i>Other Controls</i>									
Community corrections	-1.17**	0.32	0.31	-1.06**	0.32	0.35	-1.05**	0.32	0.35
On probation	0.05	0.20	1.05	0.09	0.20	1.09	0.08	0.20	1.09
Gang member	-0.15	0.90	0.86	-0.26	0.84	0.77	-0.24	0.84	0.79
Gambling	0.14	0.20	1.15	0.09	0.19	1.09	0.09	0.19	1.09
Marijuana use	0.24*	0.09	1.27	0.19^	0.10	1.20	0.19^	0.10	1.21
Hard drug use	0.43***	0.09	1.53	0.38***	0.08	1.46	0.38***	0.08	1.46

Note: NT = 21,558 and N = 710. Although not shown, all models include a time trend, a dummy variable representing the last month in the reference time frame, and the mean of each predictor across all months. All level-1 predictors are person-mean centered. All models include robust standard errors.

^  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed test).

**Table 2.3. Violent Crime Hierarchical Logistic Regression Estimates**

Variables	Model 1			Model 2			Model 3		
	Coef.	S.E.	O.R.	Coef.	S.E.	O.R.	Coef.	S.E.	O.R.
Alcohol use	0.25**	0.09	1.28	0.17*	0.09	1.19	0.18*	0.09	1.19
Routine activities	.	.	.	0.56**	0.16	1.76	0.56**	0.16	1.75
Alcohol use *									
Routine activities	.	.	.	.	.	.	0.14**	0.04	1.15
<i>Legitimate Activities</i>									
Attending school	-0.02	0.20	0.97	0.03	0.19	1.03	0.02	0.19	1.02
Organized sports	0.10	0.08	1.11	0.10	0.08	1.11	0.11	0.08	1.11
Pickup sports	0.07	0.08	1.07	0.07	0.08	1.08	0.07	0.08	1.07
Hours worked per week	-0.01	0.03	0.99	-0.01	0.03	0.99	-0.01	0.03	0.99
<i>Life Circumstances</i>									
Live with wife	0.29	0.33	1.33	0.39	0.34	1.47	0.39	0.33	1.48
Live with sig. other	-0.00	0.18	1.00	0.01	0.18	1.01	0.01	0.18	1.01
Live with child	-0.17	0.30	0.85	-0.12	0.30	0.89	-0.12	0.30	0.89
Live with relatives	-0.22	0.17	0.80	-0.23	0.17	0.80	-0.23	0.17	0.79
<i>Other Controls</i>									
Community corrections	0.07	0.26	1.07	0.11	0.25	1.12	0.11	0.25	1.12
On probation	0.08	0.14	1.08	0.08	0.14	1.09	0.08	0.14	1.08
Gang member	1.63*	0.66	5.08	1.53*	0.64	4.63	1.55*	0.64	4.71
Gambling	0.16	0.10	1.18	0.15	0.11	1.16	0.15	0.11	1.16
Marijuana use	0.15*	0.07	1.16	0.12^	0.07	1.13	0.12^	0.07	1.13
Hard drug use	0.25***	0.09	1.31	0.24***	0.05	1.28	0.25***	0.05	1.28

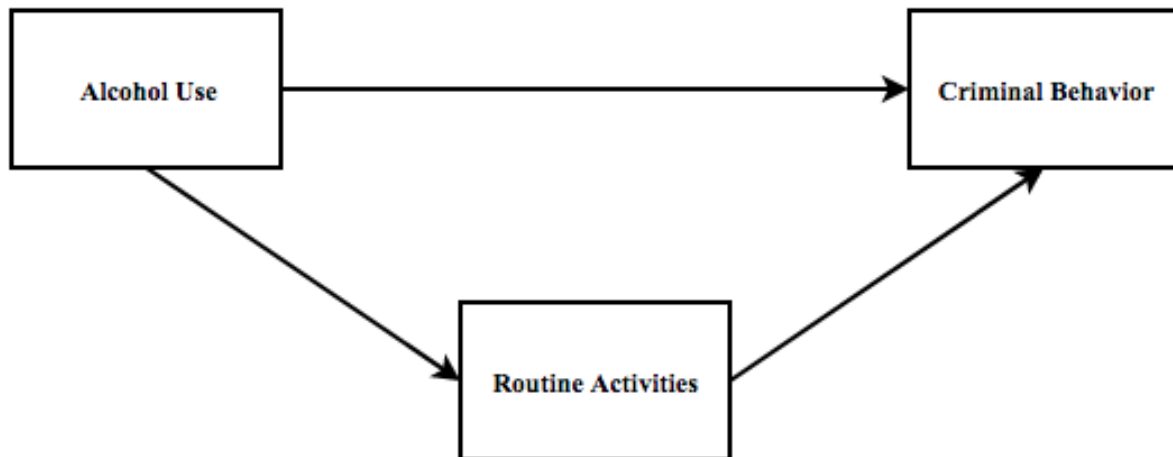
Note: NT = 21,558 and N = 710. Although not shown, all models include a time trend, a dummy variable representing the last month in the reference time frame, and the mean of each predictor across all months. All level-1 predictors are person-mean centered. All models include robust standard errors.

^  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed test).

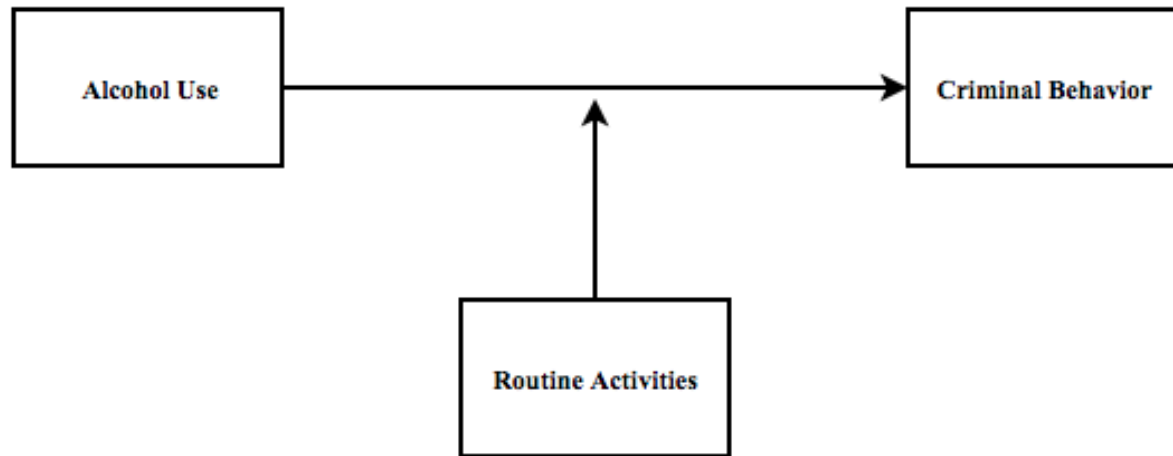


**Figure 2.1. Theoretical Diagrams of the Relationship between Alcohol Use and Routine Activities**

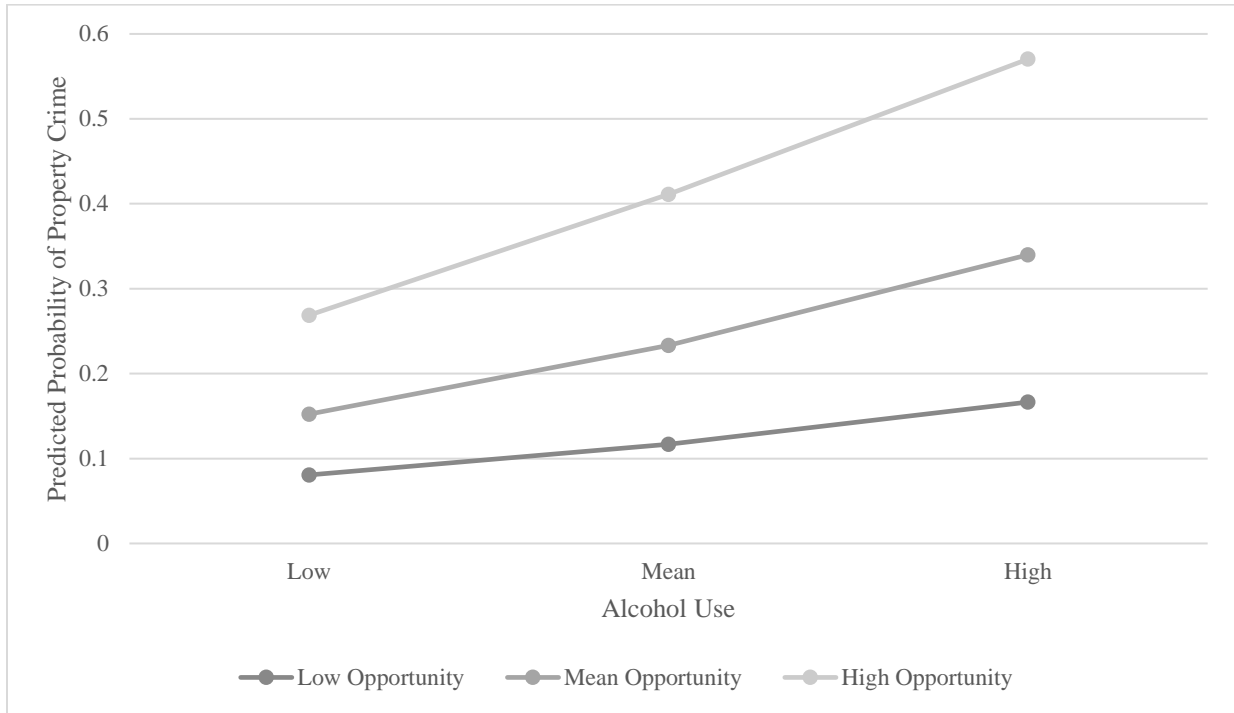
A) Routine Activities mediates the relationship between alcohol use and crime.



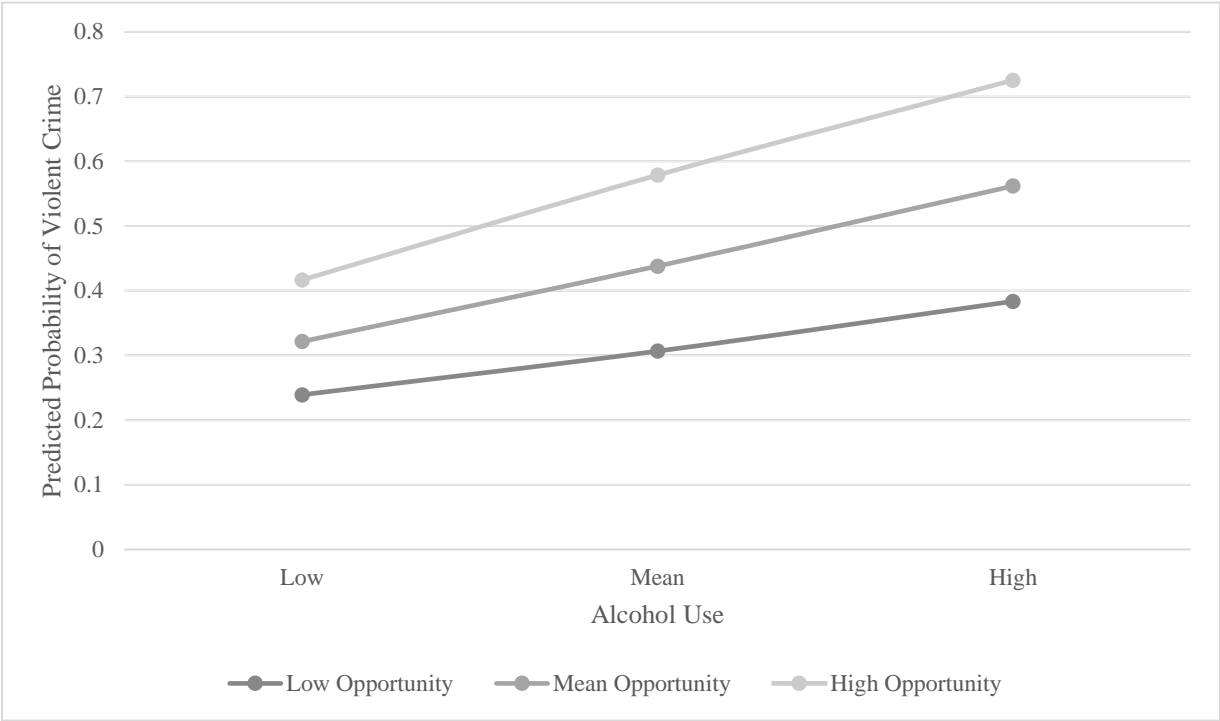
B) Routine Activities moderates the relationship between alcohol use and crime.



**Figure 2.2. Alcohol Use and Routine Activities Interaction for Property Crime**



**Figure 2.3. Alcohol Use and Routine Activities Interaction for Violent Crime**



### **CHAPTER 3: SITUATIONAL FACTORS OF INTERPERSONAL CONFLICT: WHAT CONTRIBUTES TO THE ESCALATION OF VIOLENCE IN DISPUTES?**

Research into violent crime has generally examined individual-level factors associated with engaging in violence. These studies focus on personal traits of individuals that increase the likelihood that they will engage in violence, such as low self-control and negative emotionality (Gottfredson & Hirschi, 1990; Agnew, Brezina, Wright, & Cullen, 2002). As other scholars have noted, individual-level factors are not a sufficient cause of violence (Collins, 2008; Katz, 1988; Wikström, 2006). Even the most serious offenders do not engage in violence most of the time.

In contrast to individual-level explanations of violence, situational examinations of violence assert that causes of crime are found in the immediate social context in which the violent act takes place (Sutherland, 1947). Situational theories of violence suggest that situations turn violent, in part, due to characteristics of the immediate settings and social contexts in which the situations are embedded, including the presence of peers, the physical environment, the use of alcohol and drugs, and characteristics of adversaries (Bernasco, Ruiters, Bruinsma, Pauwels, & Weerman, 2013; Felson & Steadman, 1983). Unlike property crime, the occurrence of violent crime requires social interaction between at least two persons (Felson, 1993; Cohen & Felson, 1979). A violent incident is often a dynamic interpersonal process and research suggests that the social context surrounding an event helps shape the outcome of the interaction (Luckenbill, 1977; Meier, Kennedy, & Sacco, 2001; Miethe & Meier, 1994; Horney, 2006; Weaver, Clifford-Wittekind, Huff-Corzine, Corzine, Petee, & Jarvic, 2004).

Many situational analyses of violence focus on more serious forms of violence. For example, some examine the situational factors associated with aggravated assaults and homicides (e.g.,

Weaver et al., 2004). The most frequent type of violent crime, assault, does not usually end with a serious injury (U.S. Department of Justice [USDOJ], Federal Bureau of Investigation, [FBI], 2016). Assaults are most likely to arise from disputes that occur during social interactions. Compared to predatory violence, violence stemming from disputes is more common and attributable to interpersonal conflict (Tedeschi & Felson, 1994; Felson, 1993). Disputes, however, are frequent and rarely lead to violence. Few studies have examined the characteristics of disputes that do not end in violence (see Wells & Horney, 2002; Felson, 1996 for exceptions). This omission limits the ability of researchers to discern which situational factors determine whether a dispute becomes violent or not. The comparison of non-violent and violent situations may provide information about factors of disputes that contribute to the escalation of violence (Sampson & Lauritsen, 1994; Horney, 2001).

The current research is an exploratory analysis of the situational factors that affect whether a dispute escalates to an assault. I examine whether disputes are more likely to be violent if one of the participants is intoxicated, whether the relationship between the participants plays a role in the outcome of a dispute, and the role of weapons in producing violent outcomes. The data used in the study come from a sample of newly incarcerated inmates imprisoned in Nebraska. Each of the respondents were asked to describe incidents of disputes. Some of the incidents did not result in an assault or only resulted in minor forms of physical and verbal aggression, such as receiving threats or being pushed. Others ended in assaults, and in some cases, serious injury. I begin this study with a summary of the main theoretical perspectives covering disputes and violent incidents. I then examine the literature research regarding alcohol use, relational distance, and the presence of weapons.

## **Dispute-Related Violence**

Generally, interpersonal violence can be categorized as dispute-related violence or predatory violence based on the aggressor's attitude toward harming the opponent (Felson, 1993; Felson, 2005; Felson, 2015). Predatory-violence refers to violence committed against another person without provocation. To the aggressor, harm is not the goal, rather, violence is used to achieve some other desired goal (Felson, 2005). Dispute-related violence, however, stems from grievances with other people. The aggressor has a particular target: the other person in the dispute. Most homicides and assaults are based on grievances and disputes (Black, 1983; Felson, 2005). Violence can be used as a way to punish the other person for violating a norm, in order to save face, to restore justice, or as a deterrent and a way to prevent future attacks (Felson, 1984; Tedeschi & Felson, 1994). Dispute-related violence is instrumental and situationally induced (Felson, 2015).

The roots of many modern situational explanations of violence can be traced back to symbolic interactionism. This perspective highlights the role that situational identities play in social interaction (e.g., Becker, 1962; Goffman, 1967; Felson, 1978; Athens, 1977; Luckenbill, 1977; Katz, 1988). Luckenbill's (1977) seminal study of criminal homicide epitomizes this approach. Luckenbill reviewed official documents involving fatal incidents that occurred in a California county between the years 1963 and 1972. His work emphasized that most homicides were the result of interchanges between the offender and victim that resembled "character contests" in which opponents attempted to establish or maintain "face" at the expense of the opponent (Luckenbill, 1977; Goffman, 1967). The disputants were engaged in a "face game" focused on demonstrating character (Lyman & Scott, 1970). Disputants developed "lines of action" that were shaped in part by the actions of the other party and the audience (Goffman,

1967). Luckenbill called these interchanges “situated transactions” because the participants in the dispute interacted within a common physical territory. Luckenbill (1977) also stressed that disputants developed a working agreement, either implicitly or explicitly, that violence was a useful tool for resolving questions of face and character.

This line of work was further developed by Felson and colleagues with impression management theory (Felson, 1978, 1982, 1993, 1996; Felson & Steadman, 1983; Tedeschi & Felson, 1994; Felson, Ribner, & Siegel, 1984). According to this perspective, aggression is used for maintaining a favorable social identity during social conflicts. Following the work of Goffman (1967), social encounters are seen as being governed by a “working consensus” among individuals that obligates them to maintain politeness. Situations may arise when individuals feel insulted by others’ real or perceived impoliteness (Felson, 1978). Individuals who feel they have been wronged in some way feel that their situational identity has been challenged and they have been characterized as weak, incompetent, or as a coward. This “altercasts” the individuals, or places an unfavorable social identity onto them (Felson, 1978; Weinstein & Deutschberger, 1963; Deibert & Miethe, 2003).

Once the individual has an unfavorable social identity placed onto them, they may retaliate in order to regain face. Luckenbill (1977) describes homicides as a six-stage process that involves a back-and-forth character contest that escalates until one of the victims is dead. Similarly, Felson and Steadman (1983) describe homicides and assaults as a three-stage process in which verbal conflicts that involve identity attacks escalate to threats, which ultimately lead to a physical attack by the offender. Felson and Steadman (1983) also suggest that a physical attack may be used to save a person’s well-being. Physical attacks and retaliation, then, serve a variety of purposes. Attacks can be face-saving techniques meant to regain a favorable social identity, as a

form of punishment for the norm violator and retribution for the aggrieved individual, and they may be used when a serious threat of violence presents itself in order to protect the individual from physical harm.

Most violence research compares incidents of violence to other incidents of violence. These studies typically examine the factors that differ across types of violence, the level of injury the victim sustains, or whether weapons increase lethality. Some studies compare assaults to homicides. For example, Felson and Steadman (1983) sampled from a population of males incarcerated in prison who were convicted of felony assault, manslaughter, or murder. The researchers coded the presentencing reports based on a coding scheme derived from the work of Luckenbill (1977) and Wolfgang (1958) in order to compare assaults to homicides. A similar approach was used by Ganpat, van der Leun, and Nieuwbeerta (2013, 2017) to compare 126 incidents of homicide and 141 incidents of non-lethal violence using police data from the Netherlands. Studies have also combined data from multiple sources to compare assaults to homicides. Felson and Messner (1996) combined data from the National Crime Victimization Survey (NCVS) and the FBI's Supplementary Homicide Reports (SHR) from the years 1987-1991. The same approach was used by Apel, Dugan, and Powers (2013) who combined data from the NCVS and the SHR from the years 1992-2008, which resulted in over 35,00 simple and aggravated assaults and 97,000 homicides (see also Kleck & McElrath, 1991). Similarly, Weaver et al. (2004) compared aggravated assaults to homicides using the National Incident Based Reporting System (NIBRS) from the years 1995-2000.

A similar approach to the study of violence involves comparing multiple forms of violent victimization to each other. Rennison, Jascques, & Berg (2011) examined violent victimizations using data from the National Crime Victimization Survey (NCVS) from the years 1993-2004,



which resulted in over 8,000 incidents of violent victimization. The same approach was utilized by Rennison, Jascques, & Allen (2016) to examine the types of injuries sustained by the victim using data from the NCVS from the years 1993-2011.

Some studies have only focused on a single type of violent crime, such as assault or homicide. For example, Powers and Apel (2015) examined all non-sexual assault incidents from the NCVS for the years 1992-2008, which resulted in over 35,000 incidents of threatened, attempted, or completed non-sexual assault. Research conducted by Griffiths, Yule, and Gartner (2011) analyzed 203 incidents of violent altercations experienced by women in prison. While Luckenbill's (1977) classic study only included homicides (see also Silverman & Kennedy, 1987).

Disputes and conflict, however, are common and do not always end in violence (Gould, 2003). The comparison of non-violent and violent situations can help illuminate factors that contribute to the initial decision to use violence (Sampson & Lauritsen, 1994; Horney, 2001). Despite the need for these comparisons, research typically does not include incidents that did not escalate to assault. There are a few exceptions to this in the literature. These studies typically compare descriptions of disputes given by the respondents. In these studies, respondents first describe a dispute that ended in a violent confrontation with another person or persons. After giving details of the incident, respondents are then asked to describe a similar incident or dispute that did not end in violence. After the data is coded, researchers then compare the two incidents to each other in order to determine which factors increase the likelihood of violence stemming from disputes.

This approach was utilized in research conducted by Felson (1996) that examined whether physical size was an important factor in determining whether disputes became violent. Felson

sampled from three populations: the general population, ex-offenders, and ex-patients from a mental hospital. Respondents were asked to recall the last dispute in which they were involved where a gun or weapon was drawn or used. Then they were then asked to describe a similar dispute in which no weapon was drawn or used. Findings from the study suggested that the physical power of a person is an important factor in violent disputes. Specifically, physically bigger and stronger adversaries are more likely to engage in unarmed attacks against smaller, weaker opponents (Felson, 1996).

In a series of studies, Phillips and colleagues examined descriptions of disputes given by incarcerated inmates (Phillips, 2003; Phillips & Cooney, 2005; Phillips & Maume, 2007; Phillips, Matusko, & Tomasovic, 2007). Face-to-face interviews were conducted with 100 men imprisoned for aggravated assault or homicide stemming from an interpersonal conflict. Each inmate was asked to describe a matched pair of incidents: the violent incident that resulted in their imprisonment and a similar dispute that did not end in serious violence and occurred within the past two years. Findings from these studies suggested that firearms, alcohol use, and bystanders all play important roles in the escalation of violence.

Research conducted by Wells & Horney (2002) also compared violent incidents to non-violent incidents. The data used in the study is the same data set used for the current investigation. Wells & Horney (2002) discussed the roles of weapons and the intentions of offenders in over 2,000 violent and potentially violent incidents. The researchers were interested in whether the mere presence of a weapon increased the risk of injury during violent altercations. Among other results, the researchers found that incidents that did not involve a gun produced more injury than when an assailant attacked with a firearm.

The current study builds on previous research by comparing disputes in order to determine which characteristics contribute to the escalation of violence. As described above, most of the previous research compares assaults to homicides, or violent crime to each other, in order to determine the differences across incidents. Similar to the work of Felson (1996), Phillips and colleagues (Phillips, 2003; Phillips & Cooney, 2005; Phillips et al., 2007; Phillips & Maume, 2007), and Wells & Horney (2002), the current research compares descriptions of assaults to descriptions of avoided assaults with an expanded focus on situational factors related to violence.

### **Situational Characteristics of Violence**

An underlying assumption in studies of violent incidents is the notion that characteristics of the situation have their own effects on the outcome of a conflict. Beyond the theoretical explanations of interpersonal conflict, research has identified the prominent situational factors associated with violence. These factors include who is involved in the incident, where the incident took place, and the nature of the actions involved (Pervin, 1978; Birbeck & LaFree, 1993; Miethe & Meier, 1994). In the next section I briefly review the most important situational correlates of violence: alcohol use, relationship between opponents, and the presence of weapons.

#### **Alcohol Use**

There has been extensive research on the relationship between alcohol use and violence. A large percentage of violent offenders and victims report being intoxicated or using alcohol prior to a violent incident (Greenfeld, 1998; Roizen, 1997; McClelland & Teplin, 2001; Pernanen, 1991; Wolfgang & Strohm, 1956). Research has found that alcohol use is strongly related to different types of violent crime, including sexual assaults (Felson & Burchfield, 2004; Ullman, Karabastos, & Koss, 1999; Testa, 2002), domestic violence (Thompson & Kingree, 2006),

physical assaults (Mustaine, & Tewksbury, 1998), robberies (Karberg & James, 2005), and homicides (Auherhahn & Parker, 1999; Parker & Rebhun, 1995).

When individuals have been drinking alcohol, they tend to be more aggressive and most experiments suggest a causal effect of alcohol use on aggression and violent behavior (Bushman, 1997; Exum, 2006; Chermack & Giancola, 1997). These models emphasize the effects of alcohol use on cognition and decision-making. Alcohol intoxication can lead to disinhibition and decreased anxiety, distortions of cognition and perception, deficits in attention to situational cues and self-attention, and reductions in intellectual functioning including poor judgement (Goldstein, 1985; Collins, 1981; Fagan, 1990; Bushman, 1997; Leonard, 2008).

It is reasonable to assume that when an intoxicated person gets into a dispute, he or she would respond to the provocation with aggression. Alcohol use can impair cognitive processes and influence the cost-benefit analysis of individuals when deciding to engage in violence. Alcohol can disrupt an individual's ability to allocate attention to multiple aspects in a given situation leading them to focus more on salient cues and ignore less salient cues. This alcohol-induced myopia is similar to "tunnel vision," where individuals focus on what is right in front of them and ignore distal factors and long-term costs associated with behavior (Steele & Josephs, 1990). The use of alcohol can also affect assessments of risk. Alcohol has anxiolytic effects that can lead to reductions in fear and can interfere with the recognition of a threat (Pihl, Petersen, & Lau, 1993; Hoaken & Stewart, 2003). Intoxicated individuals often fail to respond to negative feedback and will continue to act in an aggressive manner even though it has resulted in punishment (Weisman & Taylor, 1994; Zeichner & Pihl, 1979; Schmutte & Taylor, 1980). Experimental research finds the effects of alcohol use on violence are particularly strong when a participant has been provoked (Chermack & Giancola, 1997; Bushman & Cooper, 1990; Exum,

2006). Provocations leading to disputes may be intentional or unintentional (Felson & Steadman, 1983). However, once provoked, someone who has been drinking should be more likely to engage in violence.

An intoxicated person is also more likely to become a target of violence. Intoxicated individuals are more likely to be aggressive and violate social norms (Felson & Burchfield, 2004; Graham, West, & Wells, 2000; Steele & Josephs, 1990). Poor social behavior can produce grievances and interpersonal conflict if it offends other people. When conflict does arise, individuals who are intoxicated may have impaired interpersonal communication skills and may not be able to solve problems before a physical altercation occurs. Alcohol use may also interfere with the ability to perceive and guard against potential threats (Graham et al., 2000), which can increase the vulnerability of intoxicated individuals. For example, Felson and Burchfield (2004) found that the frequency and amount of alcohol that people regularly consume is strongly related to their risk of victimization while drinking, but not related to their risk of victimization while sober. Additionally, Ganpat et al. (2015) compared lethal events to non-lethal events and found that alcohol use by the victim significantly increased the odds of homicide victimization.

Not all studies that have examined the situational effects of alcohol have found a significant relationship. Studies by Phillips et al. (2007) and Phillips and Cooney (2005) surveyed 100 newly incarcerated inmates that were arrested for aggravated assault and homicide. The researchers used a matched-pair design to determine which situational factors increased lethality stemming from disputes. They found that the offender's alcohol consumption did not have a direct impact on whether a dispute ended in lethal violence in the sample (see also Griffiths et al., 2011). However, their focus was on lethal or almost lethal outcomes of disputes and they were unable to discern if both parties had been drinking.

Furthermore, some studies have used a within-person design and examined whether alcohol use is related to violence. Comparing individuals to themselves portions out the effects of any unmeasured, preexisting stable differences that might be related to both alcohol use and violence (Allison, 2009). Research conducted by Horney, Osgood, and Marshall (1995) found that increases in alcohol use were significantly related to a higher probability of property crime in a given month but were unrelated to assaults. Similarly, research conducted by Felson, Osgood, Horney, and Wiernik (2012) used the same approach and found that monthly increases in alcohol use were unrelated to assaults.

### **Relationship between Opponents**

The interpersonal relationship between disputants may play a role in the outcome of disputes. A prior relationship between actors can affect the manner in which the actors behave towards each other and can influence what each actor expects the other will say and do before, during, and after the event (Meier et al., 1996). Violent crime is often committed by someone close to the victim. Estimates from the National Crime Victimization Survey (NCVS) indicate that victims are more likely to be attacked by someone the victim knows compared to a stranger (U.S. Department of Justice [USDOJ], Bureau of Justice Statistics [BJS], 2015).

According to Black (1976, 1990) individuals resort to violence in disputes and conflicts as a form of social control. Black (1976, p. 40) defines relational distance as “the degree to which [individuals] participate in one another’s lives.” Relational distance can be defined by the nature of family ties or personal associations. Many researchers view relational distance between two or more disputants as a continuum, ranging from intimate partners to strangers (e.g., Apel et al., 2013; Phillips, 2003). Black (1976, 1990) suggests that the social distance between the disputants is a contributing factor to a dispute-related violence. In particular, he argues that violence should

be more common and serious if the disputants are closer in relational distance. According to the theory, individuals who are closer in relational distance are motivated to resort to “self-help” as way of setting disputes since formal, legal avenues of social control are largely unavailable. Individuals with close ties may have many prior, long-standing grievances and may have a stronger motivation for control (see Felson & Messner, 2000).

Consistent with Black’s (1976, 1990) self-help theory, most studies find that that intimates, family members, and friends are more likely to injure an opponent during a dispute than a stranger (Felson & Messner, 1996; Weaver et al., 2004; Bachman, Saltzman, Thompson, & Carmody, 2002; Zimring, 1972). In Phillips et al.’s (2007) interview with inmates, the researchers found that the closer the two opponents were in a dispute, in terms of relationship status, the more likely an incident would become lethal. Using NIBRS data from 1995-2000, Weaver et al. (2004) also found that disputes involving acquaintance and stranger opponents were less likely to become lethal than those involving family members. The greater likelihood of violence stemming from disputes between people who know each other is consistent with research in domestic and family violence.

Not all research, however, supports this perspective. A key factor in determining whether relationally closer individuals are more likely to get into violent altercations is the opportunity for disputes. Individuals spend more time with family members than they do acquaintances and strangers. The increased exposure and contact between individuals should create opportunities for grievances, and thus, more opportunities for violence (Decker, 1993). However, the risk of victimization is higher in public areas than at home controlling for the amount of time people spend in each setting (Cohen & Felson, 1979).

As other researchers have noted (e.g., Powers & Apel, 2015), relational distance can act as an insulator against physical aggression. From this perspective, as intimacy increases, the likelihood of violence between disputants decreases (e.g., Felson, 1993; Tedeschi & Nesler, 1993). From a rational choice perspective, the social costs of attacking someone close might outweigh the potential the benefits of using violence as a form of conflict management. Research conducted by Felson, Ackerman, and Yeon (2003) analyzed interviews with over 700 respondents to compare the amount of verbal and physical aggression between family members and non-family members. The results indicated that while verbal aggression was higher between family members, especially between parents and children and between spouses, physical aggression was more frequent with strangers. Verbal aggression usually precedes physical aggression (Felson, 1984; Luckenbill, 1977), which suggests that there are strong inhibitions about getting into physical altercations with people that are relationally close. Similarly, research conducted by Rennison et al. (2011) found that further relational distance (i.e. strangers) actually increases the likelihood of violence. Analyzing data from the National Crime Victimization Survey, the researchers found that violent events involving strangers had more potential for a lethal outcome compared to violent events with individuals known to the offender. It is important to note that most research in this literature generally includes a dichotomous measure that indicates if the victim knew the offender or not.

In sum, there is conflicting evidence regarding the effects of relationship status and violent disputes. On the one hand, research tends to find that closer relational distance increases injury and lethality in violent incidents. Long-standing grievances can lead to self-help and violence. However, research also finds that there are strong inhibitions and costs associated with attacking members of groups close to the individual. As a whole, the research suggests that the relationship



between intimacy and violence is complicated: as intimacy increases, so do the social costs associated with violence, however, intimacy and exposure also breed long-standing grievances (Pruitt & Rubin, 1986; Powers & Apel, 2015). Disputes between relationally close individuals are common and infrequently violent, but when they do escalate to violence, they may carry additional physical costs to the victim.

## **Weapons**

Weapons, especially firearms, are used in a significant number of violent incidents in the United States (Brennan & Moore, 2009) and may influence the outcome of interpersonal conflict. Most research finds a negative relationship between the presence of firearms and risk of injury, and a positive relationship between firearms and severity of injury sustained by the victim (Wells & Horney, 2002; Felson & Messner, 1996; Kleck & McElrath, 1991; Phillips & Maume, 2007). That is, when firearms are present, they reduce the likelihood that a dispute will escalate to violence, but when an actor decides to use the firearm, the risk of serious injury or death is high.

A firearm is a prominent factor in the escalation of violence stemming from disputes. Disputants considering violence are likely to pay attention to the characteristics of their adversaries (Katz, 1988; Felson & Paré, 2010). When individuals are engaged in a dispute that does not include a firearm, they consider the physical strength of their opponents before engaging in violence. Research generally finds that those who are bigger and stronger are more likely to initiate violence due to their coercive power relative to their opponent (Archer & Thanzami, 2007; Felson, 1996; Kipnis, 1976). The presence of weapons can alter the distribution of coercive power between individuals. Weapons, especially firearms, allow for weaker individuals to have an advantage over stronger opponents. Cook (1982) stressed that firearms

require little physical effort to use and observed that they are more likely to be used in homicides that involve older attackers and younger victims, as well as female attackers and their male partners.

It is important to study the effects of firearms at all stages of a dispute (Kleck & McElrath, 1991). Before a dispute becomes violent, a disputant may brandish a weapon in order to demonstrate to the opponent that they are a powerful individual that deserves respect (Fagan & Wilkinson, 1998). When faced with an armed opponent, an unarmed disputant may reduce resistance and give into the demands of the armed opponent. He may not want to engage in a fight with someone that has a lethal weapon and more physical power than he does. The firearm also provides a socially acceptable reason for withdrawing from the conflict. Retreating from a conflict is seen as an act of cowardice, however, retreating from an armed opponent may be seen as a wiser decision when faced with such an imbalance of power (Kleck & McElrath, 1991). Since the unarmed disputant is temporarily relieved from face-saving concerns, they will refrain from challenging the offender and the chance of the dispute escalating to violence is reduced. Research finds that individuals avoid engaging in violence with opponents that are seen as more dangerous (Felson, 1996; Archer & Thanzami, 2007), and a firearm is a signifier of danger. Kleck & McElrath (1991) found that the presence of a firearm made attacks less likely to occur and the situation was more likely to end with only a verbal threat.

However, if the unarmed disputant continues to challenge, the armed opponent might consider this a continued attack on their identity and could attempt to save face by using the weapon and seriously injuring or killing their unarmed opponent. As mentioned above, firearms require little effort to use and are rather impersonal, which allows some attackers to overcome inhibitions regarding close contact with their victims (Kleck, 1997). The mere presence of a

firearm could also increase the likelihood that the dispute could escalate. In the literature, this effect is referred to as the “weapon instrumentality effect” (Cook, 1991) whereby the presence of a weapon contributes independently to the outcome of a potentially violent situation. A weapon effect proposes that some attacks will occur that would not have otherwise occurred if the weapon was not present. Individuals who might have refrained from a physical altercation may be more confident and more willing to attack if a gun was available. The firearm could embolden the armed opponent. Research conducted by Wells & Horney (2001) found that the presence of a weapon increased the likelihood of attack by the armed opponent. Furthermore, social psychological research suggests that a “priming effect” could illicit aggressive behavior if a weapon is present (e.g., Berkowitz & LePage, 1967), however, this phenomenon has not been generalized to real-world scenarios outside out of a laboratory.

When disputants both have firearms, the unfolding of events becomes more complicated. After a disputant lets the other know they have a gun, the other disputant may also reveal they are armed. Violence is likely to occur if one of the armed disputants decides to shoot or attack before the other gets the chance to do so. The attacker is aware of the danger associated with the weapon and decides to attack first (Felson & Messner, 1996). One of the armed opponents could preemptively strike assuming that the other person is willing to use their firearm. However, two armed disputants may also decrease the likelihood of violence occurring. With both disputants facing a life-threatening situation, they may decide collectively to walk away or “turn the other cheek.” They may continue to posture in order to save face but avoid further escalation due to the increased costs associated with firearm violence.

## **The Current Study**

The current research examines retrospective accounts of disputes provided by newly incarcerated inmates in order to determine the situational characteristics of disputes that contribute to assault. Data for the study comes from in-depth interviews with inmates and contain descriptions of recent disputes. Respondents were asked to describe recent disputes that ended in one of the disputants assaulting the other disputant. Respondents were then asked to describe recent disputes in which no violence occurred, or only minor pushing and shoving occurred. These disputes could have ended with both parties walking away, and they could include times when a dispute made the respondent so angry he could have hurt someone but did not. In contrast to most previous research, the current study examines the factors that lead to assaults. Research has compared verbal aggression to physical aggression (e.g., Felson et al., 2003), but most situational research does not predict escalation of disputes. Most research compares types of violent crime to each other but does not include a comparison of a similar incident that did not result in physical violence. The goal of the current investigation is to expand the scope of the previous studies by analyzing the effects of situational factors related to assault. Although there has been extensive research comparing assaults to homicides, it remains unclear how situational factors influence either an avoided assault or assault outcome stemming from a dispute.

### **Hypotheses**

**Hypothesis 1:** Alcohol use will significantly impact whether a dispute escalates to violence. Specifically, disputes that ended in an assault will be more likely to contain alcohol use by either the respondent or the opponent compared to disputes that ended without an assault. The strong causal effects of alcohol use on violent offending and violent victimization suggests that

alcohol use by the respondent or the opponent would contribute to the escalation violence in disputes, although the effect may be particularly strong when both parties have been drinking.

**Hypothesis 2:** Based on previous research, it is hypothesized that the relationship between the disputants will significantly affect the outcome. Specifically, disputes that involve friends, family members, and intimate partners, will be more likely to end in an assault than disputes involving strangers. Disputes with intimates and family members should be particularly likely to end in an assault since the disputes are likely tied to previous, long-standing grievances and are likely to be emotionally charged (Powers & Apel, 2015). Disputants that know each other may be unwilling to take legal action for a trivial dispute and instead engage in self-help (Black, 1976, 1990).

**Hypothesis 3:** It is also hypothesized that firearms will play a significant role in whether a dispute becomes violent or does not escalate. If one of the disputants has a firearm, this should shift the coercive power to the armed disputant. Research finds that individuals generally do not engage in violence with someone that has more coercive power (Felson, 1996; Archer & Thanzami, 2007), so the unarmed disputant should be less likely to attack. However, the imbalance of coercive power should embolden the armed individual and make them more likely to attack the unarmed individual. The weapon instrumentality effect should increase the likelihood of attack in potentially violent situations (Wells & Horney, 2001). The predictions regarding disputes in which both individuals have a firearm are less clear. Although one disputant may fire first in order to avoid being seriously injured or killed, it is also likely that the disputants would avoid escalation and not risk death.

## **Methods**

### **Data**

The data used in the study comes from the Second Nebraska Inmate Study (Horney, 2001). Respondents for the original data collection were randomly sampled from an all-male intake cohort admitted to the diagnostic and evaluation unit of the Nebraska Department of Corrections. Data collection spanned a 14-month period beginning in November 1997 and ending in December 1998. Interviewers met face-to-face with respondents in private visiting rooms where they read survey questions and entered responses into a laptop computer. The original study gathered information about the respondent's background and personality characteristics including their criminal history, personality measures, and family history. The response rate for the invited respondents was roughly 90%, resulting in a total sample of 717 inmates who completed the original interview. Seven respondents were dropped after the original data collection because they were missing information about their criminal behavior. The final sample consisted of 710 respondents.

### **Incident Reports**

With the aid of interviewers, each respondent completed a life-event calendar. The computerized calendar collected information about the lives of the respondents for the three years leading up to their current incarceration. For each month in the three-year span, respondents provided information about their relationships, employment, substance use, routine activities, and criminal behavior.

Respondents were also asked if they had experienced three types of incidents during the reference period, two of which were termed "incidents of violence" and the other was referred to as "incidents of avoided violence" (Horney, 2001; see also Wells & Horney, 2002). If the

respondent had experienced one of these events, they were asked to provide detailed descriptions of their most recent experiences and were allowed to provide up to 10 descriptions for each type of incident. Respondents were asked about the setting in which the incident took place, the characteristics of the parties present, and the outcome of the incident. Information was gathered on various situational characteristics of each incident, including the presence of weapons, substance use, and the actions of the respondents and any other person present.

The first two categories of incidents the respondents were asked about involved violence. Respondents were asked if they were involved in any physical confrontations in which they attacked another person. They were instructed to include incidents that involved family members and intimate partners, as well as any fights that might have occurred at a bar or in the street. Respondents described incidents in which they attacked someone with a weapon, and any incidents in which they punched, slapped, choked, or kicked someone, as well as incidents in which they threw something at another person. They were also instructed to exclude incidents in which only minor pushing or shoving occurred. Respondents then were asked about incidents in which they were attacked by another person in any of the ways previously described.

The last category of incidents the respondents were asked about involved incidents in which there was a high risk of violence, but serious violence was avoided. These incidents did not include an attack by either the respondent or an opponent. The incidents could include times in which the respondent pushed, grabbed, or threatened someone, or someone acted in those ways toward the respondent. They could also include times in which the respondent witnessed a physical attack, or someone being pushed, grabbed, or threatened and they believed they could have become involved. The incidents also included times in which another person encouraged the respondent to get involved in violence during a conflict, or times in which the respondent

was so angry at someone he could have hurt them but did not. Finally, the incidents could include any other time that the respondent subjectively felt there was a high risk of violence but violence did not occur.

In addition to providing descriptions of incidents that did not escalate to violence, the data used in the study contain other advantages. For the violent incidents, the survey administrators followed the redesign of the NCVS in order to capture incidents that the respondents may not have considered a crime (see Bachman & Taylor, 1994). Many of the incidents were not reported to the police and would not have been available in official records. Furthermore, the researchers asked the respondents about assaults committed on them and assaults committed by them separately, with the same coding scheme. In many cases of assault, it can be difficult to determine whether a person was the offender or the victim (see also Savitz, Kumar & Zahn, 1991; Luckenbill, 1977). In order to avoid the issue of assigning roles to the participants, I examine whether either disputant engaged in an assault. Finally, respondents were able to describe the incidents of minor violence with similar levels of detail as the more serious incidents of violence allowing for comparison of situations with different outcomes (Wells & Horney, 2002).

## **Measures**

**Dependent Variable.** The dependent variable used in the analyses indicates whether an incident escalated to an assault. As described above, an incident is coded as an assault if someone was punched, slapped, choked, kicked, or had something thrown at them. For the purpose of the current research, it did not matter whether the respondent or the opponent made the first physical attack, as long as one of the participants physically attacked the other person. All other incidents are coded as avoided assault. It should be noted that instances of avoided



assault could include times in which someone was pushed or shoved, and could include verbal aggression, even though it could be argued that pushing and shoving is simply a minor form of violence. Also note that I make no distinction between who initiated the dispute. The analyses are incident-based, so the dependent variable only indicates whether or not a dispute escalated to an assault. In the analyses, incidents are coded with a “1” if it ended in an assault and a “0” if it did not end in an assault.

**Independent Variables.** The focal independent variables used in the analyses are characteristics of the incidents described by the respondents. An alcohol use variable was created from two measures. First, respondent alcohol use was captured in the survey as the number of alcoholic drinks the respondent reported having prior to the incident. Possible responses included none, 1-3, 4-6, 7-12, 13-20, and 21 or more. The opponent’s alcohol use was also captured but with a yes and no response. The final alcohol use measure was coded as “no alcohol use by either person,” “one of the persons had been drinking,” or “both persons had been drinking.” No alcohol use is the reference category in the analyses.

Respondents also described the relationship between themselves and the opponent for each incident. Relationship is treated as a dummy variable and responses could be stranger, acquaintance, friend, relative, intimate partner, or a mix of relationships if there was more than one opponent and the group was made up of persons with various relationships to the respondent. The stranger category serves as the reference in the analyses.

The presence of weapons for each incident was also recorded. Respondents reported if they had a gun and if the opponent had a gun. This measure is treated as a dummy variable with categories including no firearm, one person had a firearm, and both persons had a firearm. The no firearm category serves as the reference category in the analyses.

**Control Variables.** In addition to the independent variables, control variables were added to the models. Respondents reported if they or the opponent had a non-gun weapon during the incident. Non-gun weapons could include a knife, another sharp object, a bottle, or any other type of blunt instrument. Overall, there were few instances where non-gun weapons were used and very few that had only one person with a non-gun weapon and the other did not. The non-gun variable was coded with a “1” if one person or both persons had a non-gun weapon and “0” if neither had a non-gun weapon. There are two variables that capture third parties. The presence of third parties includes whether there were bystanders present and whether there were any allies with the respondent or with the opponent during each incident. The presence of bystanders is included as a dichotomous measure with “1” indicating that bystanders were present and “0” if no bystanders were present. Allies with the persons involved in the incident was treated as a dummy variable and coded as no allies present, unequal allies between the persons involved, and an equal number of allies between the persons involved. No allies present serves as the reference category.

Some of the opponent characteristics were included as control variables. The race of the opponent was treated as a dummy variable and coded as black, white, Hispanic or Latino, or any other race or ethnicity. If there were multiple opponents and multiple race or ethnicities, they were included in the other category. The age of the opponent was also treated as a dummy variable and coded as under the age of 18, between the ages of 18 and 20, between the ages of 21 and 29, or 30-years and older. The sex of the opponent was not included as a control variable. Preliminary analyses revealed a high correlation between opponent sex and the relationship variable. Since all of the respondents were male, virtually all of the intimate partners were

female. Also, most of the disputes with strangers involved male opponents. Excluding the sex of the opponent in the analyses did not alter the results.

The time of each incident is coded as 6am-noon, noon-6pm, 6pm-12am, and 12am-6am. The location of the incident is coded as a home, bar or club, and a public place. Public places included any commercial place, workplace, school, street, around a car, or parking lots and garages. I also include a measure that captures whether there was more than one opponent in the dispute.

**Analyses.** The dependent variable in the analyses are dichotomous, so the use of standard ordinary least squares regression would be inappropriate. For the analyses, I employ logistic regression. Additionally, descriptions of avoided assault and assault by the same respondent are not independent observations. Respondents were allowed to give multiple accounts of the two types of incidents. Non-independent observations could produce correlated error terms, which could lead to biased standard errors that could affect significance tests (see McClendon, 1994; Long, 1997). In order to address potential autocorrelation, robust standard errors are used and are adjusted by clustering the incidents by the respondent.

The analyses are based off the descriptions of the incidents by the respondents, however, respondents were allowed to provide multiple accounts for each type of incident. If each respondent described both types of incidents, a within-person analysis could be used and would eliminate the time-stable characteristics of the respondent. For example, the respondent would have the same level of low self-control for both incidents. In order to maximize sample size, I did not restrict the analyses to those respondents that provided both types of incidents.

Limitations of this approach are discussed after the results. A small number of incidents were

excluded from the analyses, such as incidents that occurred in prison or were descriptions of a robbery.

## Results

The analysis contained 705 incidents of avoided assaults and 1,663 incidents of assault. Descriptive statistics for the data are presented in Table 3.1. The descriptive statistics show that alcohol use by at least one of the respondents was more common in disputes that ended in an assault (55.39%) than disputes that did not end in violence (47.21%). Alcohol use by both persons was also more common in assaults (31.07%) compared to incidents of avoided violence (23.61%). The table also shows that disputes with acquaintances were more common in disputes that ended in an assault (40.24%) than those that did not end in violence (32.62%). The vast majority of avoided assaults (80.71%) and assaults (83.52%) did not include a firearm.

The results of the logistic regression predicting assaults are presented in Table 3.2. The results indicate that alcohol use significantly increases the likelihood that an incident becomes violent. An assault was more likely to occur when either the respondent or the opponent was drinking ( $b = .338, SE = .137, p < .05$ ). Violence was also significantly more likely to occur when both individuals had been drinking ( $b = .599, SE = .157, p < .001$ ). These findings support the hypothesis that the situational effects of alcohol use increase the likelihood of a dispute becoming violent.

The relationship between opponents had little effect on the outcome of a dispute. Compared to incidents that involved strangers, incidents that involved acquaintances ( $b = .284, SE = .155, p < .10$ ) and intimate partners ( $b = .362, SE = .217, p < .10$ ) were more likely to end in violence, although both effects were of borderline significance. These findings suggest mixed support for Black's (1976, 1990) theory of relational distance and self-help. While incidents involving

acquaintances and intimate partners were somewhat more likely to escalate to an assault than incidents involving strangers, the effects for incidents involving friends and relatives were insignificant and in the opposite direction than predicted.

The presence of firearms played an interesting role in the outcome of disputes and the results provided mixed support for the hypotheses. Compared to incidents that did not involve a firearm, incidents in which only one disputant had a firearm were not significantly more likely to result in an assault ( $b = .077$ ,  $SE = .160$ ,  $p > .05$ ). This finding does not support the third hypothesis.

Unlike previous research, the presence of a firearm did not embolden the armed disputant to attack an unarmed disputant (e.g., Wells & Horney, 2001). However, compared to incidents that did not involve a firearm, incidents in which both persons had a firearm were less likely to escalate to violence ( $b = -.625$ ,  $SE = .297$ ,  $p < .05$ ). When no firearms are present, disputes can turn violent depending on the characteristics of the adversaries (Felson & Paré, 2010). However, from these results, it appears that when both parties are armed assaults are much less likely to occur. It may be that both individuals were able to save face by displaying a willingness to use a firearm, which allowed them to withdraw from the conflict. It may also be that threat of death deterred both individuals.

Table 3.2 also revealed some interesting results for some of the control variables. Contrary to the previous research bystanders did not play a role in whether or not a dispute ended with an assault or without violence ( $b = -.016$ ,  $SE = .108$ ,  $p > .05$ ). In analyses not presented, I also examined whether the number of bystanders would influence the outcome and the effect remained insignificant. This finding does not support previous research that suggests bystanders play a prominent role in the escalation of disputes. It may be the actions of the bystanders have the largest impact in disputes, not just their presence (e.g., Phillips & Cooney, 2005).

The presence of allies, however, did have a significant effect on the outcomes of disputes. Compared to incidents that involved no allies with either person, incidents that involved an equal number of allies between the disputants were more likely to result in an assault ( $b = .475$ ,  $SE = .199$ ,  $p < .05$ ). Both disputants could have felt they had support if the conflict did turn violent, so they were more likely to escalate the dispute. The disputants could have tried to save face in front of their peers, or the allies could have verbally supported the use of violence. There was no effect found when there was an unequal number of peers between disputants ( $p > .05$ ).

The time of the incident also played a large role in the outcome. Compared to disputes that occurred during 6am and noon, disputes that occurred during 12am and 6am were significantly more likely result in an assault ( $b = .611$ ,  $SE = .223$ ,  $p < .01$ ). Most research on the effects of nighttime activities and violence suggest that guardianship is a key factor in the relationship between time of day and violence. However, the significant effect of 12am - 6am was found even when controlling for the location of the incident, the presence of bystanders, and whether the respondent had friends with them. Other forms of guardianship were not available in the data set, such as whether an intimate partner was present, or the levels of formal guardianship, such as police officers. This result supports previous research that finds nighttime activities have a causal effect on violence due to the risky activities involved with this time frame (Felson, Savolainen, Berg, & Ellonen, 2013). There could also be something unique about the types of persons and disputes that occur during the hours of midnight to early morning as many people are not out during that time period.

### **Conclusion and Discussion**

In this research, I attempted an exploratory study of the situational factors associated with the escalation of violence in disputes involving offenders. Situational analyses of violence differ

from individual-level explanations in that they focus on the immediate settings, actors, and social context of crime instead of the personal characteristics of the offender. There have been few studies of violence that have examined the situational context of disputes. Disputes contribute to the most frequent type of violent crime but are rarely examined at the incident-level. Most datasets contain minimal information on the characteristics of violent incidents and very few contain information on disputes that do escalate to violence. The current study contributes to the literature by comparing disputes that ended in assault to those that ended without an assault. In general, the above results suggest that some of the situational factors that contribute more lethal forms of violence also contribute to the assaults stemming from disputes, while others did not affect the outcome.

The results revealed strong support for the hypothesis that disputes are more likely to become violent when alcohol is involved. This finding is consistent with previous alcohol research that suggests the use of alcohol plays a causal role in violence (e.g., Felson, Savolainen, Aaltonen, & Moustgaard, 2008). Alcohol use can significantly affect the decision-making of an individual and increase the likelihood of committing an assault. When individuals have been drinking, they become myopic and focused on the most salient factors right in front of them, while ignoring distal factors, such as the long-term costs of engaging in violence (Steele & Josephs, 1990). When they are provided with an opportunity to commit violence, such as being provoked or engaged in a dispute with another person, they resort to violence more readily than others who have not been drinking. This finding is also consistent with experimental research that finds the effects of alcohol use on violence are particularly strong when a participant has been provoked (Chermack & Giancola, 1997; Bushman & Cooper, 1990). The significant effects of alcohol use

are also in line with research that finds alcohol use significantly increases the odds of being a victim of violence (e.g., Felson & Burchfield, 2004).

The predictions regarding alcohol use were based on the vast literature regarding alcohol use and violence. However, the findings also have implications for the impression management theory and violence research as a whole. From an impression management perspective, alcohol use may influence the way that individuals respond to provocations and character contests. Intoxicated individuals may act in a way that violates social norms (Graham et al., 2000; Steele & Josephs, 1990), which can produce interpersonal conflict and grievances. The intoxicated individual may view any verbal aggression from an offended party as an insult. They might feel challenged, which altercasts them into an unfavorable social identity. Since they have been drinking, they may respond to smaller provocations that they would not necessarily respond to if they had not been drinking. They may also start off as the aggressor. Alcohol use may increase aggression and they may go “looking for a fight.” When both disputants have been drinking, the increase in violence is likely due to an additive effect of alcohol use: individuals are both overly sensitive to slight provocations and respond with violence more quickly than they would have if they had not been drinking. It is less likely that peace-keeping strategies will be utilized due to impaired interpersonal communication skills resulting from alcohol intoxication. Much of the alcohol literature suggests that the effects of alcohol use depend on the social context of drinking (e.g., Fagan, 1990). Therefore, there may be interactions between alcohol use and other situational factors that are important for the escalation of disputes and violence. For example, the effects of alcohol might be stronger when there is an audience, when there is a firearm, and may be related to the relationship between the two disputants.



The results generally do not support to Black's (1976; 1990) theory of relational distance and self-help. Disputes that involved friends and relatives were not more likely to lead to an assault than disputes with strangers. This finding does not support previous research that finds an inverse relationship between relational distance and violence. However, disputes that involved acquaintances and intimate partners were more likely to escalate to violence than those involving strangers, although the effects were of borderline significance. Regarding intimate partners, note that the sample consisted entirely of male offenders, and the vast majority of intimate partners were women. The effect for intimate partners could be due to men having more relative coercive power compared to their partners and the willingness to use violence (Archer, 2000). Also recall that the dependent variable did not distinguish between the aggressor and the victim. Male offenders tend to drink heavily and research suggests that men with alcohol problems are more likely to be victimized by their partners (Caetano, Vaeth, & Ramisetty-Mikler, 2008).

Although the effects were insignificant, disputes with friends and family members were less likely to result in assaults than strangers. Caution must be taken when discussing insignificant effects, however, this is consistent with research that suggests intimacy can act as an insulator from violence. There are high social costs associated with attacking someone close, as well as the strong inhibitions about violence against family members. However, the high levels of exposure and contact between these individuals creates opportunities for disputes and verbal aggression (Felson et al., 2003).

Mixed support was found for the effects of firearms in disputes. Incidents in which only one disputant was armed were not significantly more likely to result in assault than those in which no firearms were present. Recall that violent incidents included times when either the respondent or the opponent assaulted the other person without any distinction between who made the first

physical attack. It is unclear from these analyses, then, whether the person with the firearm or without the firearm were responsible for the escalation of violence. Previous research suggests that the individual without the firearm would be less likely to continue the dispute because their withdrawal would not be a loss of face due to the possibility of severe bodily injury and death (Kleck & McElrath, 1991). The armed disputant could have attacked the unarmed opponent, with or without the use of a gun. They may have attacked the opponent knowing the opponent would not retaliate due to their advantage in coercive and physical power. Using the same data set as the one used in the current study, Wells & Horney (2002) found that respondents with a firearm were more likely to attack their opponents. It is important to note that their research only examined whether the respondent attacked the opponent, while in the current research no distinction was made regarding who made a physical attack. Since the focus of their research was on gun possession and intent to injure an opponent, intentions were only available for the respondent. Using data from the NCS and the SHR, Kleck & McElrath (1991) found that handguns significantly decrease the odds of attack, however, the researchers only included whether the “offender” had a firearm. In the current analyses, no labels of victim or offender were applied to a disputant and information regarding both disputants’ firearm possession was available.

The findings also revealed that disputes in which both persons had a firearm were less likely to escalate. Unlike previous research regarding a weapon instrumentality effect (Wells & Horney, 2002; Kleck & McElrath, 1991; Cook 1991), the current study examined whether two armed opponents affected the likelihood of violence. The negative effect of dual firearms could suggest that the dispute could have escalated to a point in which both parties showed their weapon, and in doing so, their willingness to use their weapon. At this point, impression

management could have played a lesser role in the outcome. Instead, the threat of serious injury or death could have been considered by both parties and resulted in them walking away from the dispute. Qualitative research is needed to address why opponents behave a certain way during the escalation of a dispute. This effect should not be considered an endorsement of arming citizens in an attempt to reduce violence. The majority of studies, including the citations above, show that firearms are strongly associated with lethal outcomes (see Brennan & Moore, 2009, for a review). The mere presence of a firearm could be considered a form of assault as the threat of death is very serious. Furthermore, the sample consisted of newly incarcerated inmates, which may act differently in response to disputes and in the presence of firearms than the general population.

### **Limitations**

The major limitation of the current research is its use of retrospective descriptions of disputes. Individuals may have a difficult time remembering all of the details from these events, especially the ones that were not violent. Limited research has addressed this issue, however research finds that offenders are able to recall non-violent events with a high level of accuracy (Roberts & Horney, 2010; Wells & Horney, 2002; Horney, 2001). Another potential problem stems from the reliance on incarcerated offenders is they might differ from offenders who were not caught and imprisoned. However, the use of a prison sample is useful when examining violent situations as violence is rare in general samples of the population.

Most importantly, the incident-level analysis leaves open the possibility that the findings are influenced by an omitted situational variable. A more conservative approach would be to use a within-person analysis in order to eliminate the effects of all time-stable characteristics (e.g., Wells & Horney, 2002). In the current study, respondents were allowed to describe multiple

disputes that ended without violence or in an assault. Additionally, a matched-pairs design could address this issue (e.g., Phillips et al., 2007). A matched pair design would only allow one type of incident per respondent. Since the current investigation was exploratory in nature, I thought it was prudent to include analyze all possible descriptions of incidents by the respondent. However, there are likely situational characteristics that were not included that could influence the results.

While I included controls for location and time of the incidents, future research would benefit from including characteristics of neighborhoods into impression management theory and studies of violence escalation. Research has found that the nature of violence varies across neighborhoods. For example, Baumer, Horney, Felson, and Lauritsen (2003) found that victims of assault in disadvantaged neighborhoods are more likely to resist than victims in more advantaged neighborhoods. Furthermore, assault offenders from disadvantaged neighborhoods were also more likely to be armed than assault offenders from more advantaged neighborhoods. It would follow then that the types of disputes that occur, as well as responses to these disputes, would also vary across neighborhoods.

In sum, the current research increases the understanding of the situational factors that lead to assault in offender disputes. Alcohol use, by either actor in a dispute, significantly contributes to a violent outcome. This is consistent with research that suggests alcohol use has a causal relationship with violent offending and violent victimization. The effects of alcohol were strongest when both parties had been drinking. Relationship status also played a role in disputes becoming violent. Disputes with acquaintances and intimate partners were somewhat more likely to become violent than those with strangers. The presence of firearms played a significant role in the escalation of violence. When both parties had a firearm, disputes were least likely to escalate.

## References

- Agnew, R., Brezina, T., Wright, J. P., & Cullen, F. (2002). Strain, personality traits, and delinquency: Extending general strain theory.” *Criminology*, *40*, 43-72.
- Allison, P. D. (2009). *Fixed effects regression models*. SAGE publications.
- Apel, R., Dugan, L., & Powers, R. (2013). Gender and injury risk in incidents of assaultive violence. *Justice Quarterly*, *30*, 561-593.
- Archer, J. (2000). Sex differences in aggression between heterosexual partners: A meta-analytic review. *Psychological Bulletin*, *126*, 651-680.
- Archer, J., & Thanzami, V. (2007). The relation between physical aggression, size and strength, among a sample of young Indian men. *Personality and Individual Differences*, *43*, 627-633.
- Athens, L. (1977). Violent crime: A symbolic interactionist study. *Symbolic Interactionist*, *1*, 56-70.
- Auerhahn, K., & Parker, R. N. (1999). Drugs, alcohol, and homicide. In M. D. Smith & M. A. Zahn (Eds.), *Studying and preventing homicide: Issues and challenges* (pp. 97-114). Thousand Oaks, CA: Sage.
- Bachman, R., Saltzman, L. E., Thompson, M. P., & Carmody, D. C. (2002). Disentangling the effects of self-protective behaviors on the risk of injury in assaults against women. *Journal of Quantitative Criminology*, *18*, 135-157.
- Bachman, R., & Taylor, B. (1994). The measurement of family violence and rape by the redesigned national crime victimization survey. *Justice Quarterly*, *11*, 701-714.
- Baumer, E., Horney, J., Felson, R., & Lauritsen, J. L. (2003). Neighborhood disadvantage and he nature of violence. *Criminology*, *41*, 39-72.
- Becker, E. (1962). Anthropological notes on the concept of aggression. *Psychiatry*, *25*, 328-338.

- Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology*, 7, 202–207.
- Bernasco, W., Ruiter, S., Bruinsma, G. J. N., Pauwels, L., & Weerman, F. M. (2013). Situational causes of offending: A fixed effects analysis of space-time budget data. *Criminology*, 51, 895-926.
- Birbeck, C., & LaFree, G. (1993). The situational analysis of crime and deviance. *Annual Review of Sociology*, 19, 113-37.
- Black, D. J. (1976). *The behavior of law*. San Diego, CA: Academic Press.
- Black, D. J. (1983). Crime as social control. *American Sociological Review*, 48, 34-45.
- Black, D. J. (1990). The elementary forms of conflict management. In School of Justice Studies, Arizona State University (Ed.), *New directions in the study of justice, law, and social control* (pp. 43-69). New York, NY: Plenum Press.
- Brennan, I. R., & Moore, S. C. (2009). Weapons and violence: A review of theory and research. *Aggression and Violent Behavior*, 14, 215-225.
- Bushman, B. J. (1997). Effects of alcohol on human aggression: Validity of proposed explanations. In M. Galanter (Ed.), *Recent developments in alcoholism: Alcohol and violence- Epidemiology, neurobiology, psychology, family issues* (pp. 227-243). New York, NY: Plenum Press.
- Bushman, B. J., & Cooper, H. M. (1990). Effects of alcohol and human aggression: An integrative research review. *Psychological Bulletin*, 107, 341–54.
- Caetano, R., Vaeth, P. A., & Ramisetty-Mikler, S. (2008). Intimate partner violence victim and perpetrator characteristics among couples in the United States. *Journal of Family Violence*, 23, 507-518.

- Chermack, S. T., & Giancola, P. R. (1997) The relation between alcohol and aggression: An integrated biopsychosocial conceptualization. *Clinical Psychology Review, 17*, 621-649.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review, 44*, 588-608.
- Collins, J. J. (1981). Alcohol careers and criminal careers. In J. J. Collins (Ed.), *Drinking and crime* (pp. 152-206). New York, NY: Guilford Press.
- Collins, R. (2008). *Violence: A micro-sociological theory*. Princeton, NJ: Princeton University Press.
- Cook, P. J. (1982). The role of firearms in violent crime: An interpretive review of the literature. In M. E. Wolfgang & N. A. Weiner (Eds.), *Criminal violence* (pp. 236-291). Chicago: University of Chicago Press.
- Cook, P. J. (1991). The technology of personal violence. In M. Tonry (Ed.), *Crime and justice: A review of research* (pp. 1-71). Chicago: University of Chicago Press.
- Decker, S. H. (1993). Deviant homicide: A new look at the role of motives and victim-offender relationships. *Journal of Research in Crime and Delinquency, 33*, 427-449.
- Deibert, G. R., & Miethe, T. D. (2003). Character contests and dispute-related offenses. *Deviant Behavior, 24*, 245-267.
- Exum, M. L. (2006). Alcohol and aggression: An integration of findings from experimental studies. *Journal of Criminal Justice, 34*, 131-45.
- Fagan J. (1990). Intoxication and aggression in drugs and crime. In M. Tonry & J. Q. Wilson (Eds.), *Crime and justice: A review of research* (pp. 241-320). Chicago: Univ. Chicago Press.

- Fagan, J., & Wilkinson, D. L. (1998). Guns, youth violence, and social identity in inner cities. In M. Tonry & M. H. Moore (Eds.), *Crime and justice: A review of research* (vol. 24, pp. 105-88). Chicago: University of Chicago Press.
- Felson, R. B. (1978). Aggression as impression management. *Social Psychology*, *41*, 205-13.
- Felson, R. B. (1982). Impression management and the escalation of violence. *Social Psychology Quarterly*, *45*, 245-254.
- Felson, R. B. (1983). Aggression and violence among siblings. *Social Psychology Quarterly*, *46*, 271-285.
- Felson, R. B. (1984). Patterns of Aggressive Social Interaction. In A. Mummendey (Ed.), *Social psychology of aggression: From individual behavior to social interaction*, (pp. 107-126). New York: Springer-Verlag.
- Felson, R. B. (1993). Predatory and dispute-related violence: A social interactionist approach. In R. V. G. Clarke & M. Felson (Eds.), *Routine activity and rational choice: Advances in criminological theory* (pp. 103-126). New Brunswick, NJ: Transaction Publishers.
- Felson, R. B. (1996). Big people hit little people: Sex differences in physical power and interpersonal violence. *Criminology*, *34*, 433-452.
- Felson, R. B. (2005). Violence as instrumental behavior. In K. Kelloway, J. Barling, & J. Hurrell (Eds.), *Handbook of workplace violence* (pp. 7-28). Thousand Oaks, CA: Sage Publications, Inc.
- Felson, R. B. (2015) Opportunities for dispute-related violence. In: Andresen M. A., Farrell G. (Eds.), *The Criminal Act: The role and influence of routine activity theory*. London: Palgrave Macmillan.



- Felson, R. B., Ackerman, J., & Yeon, S.J. (2003). The infrequency of family violence. *Journal of Marriage and Family*, 65, 622-634.
- Felson, R. B., & Burchfield, K. B. (2004). Alcohol and the risk of physical and sexual assault victimization. *Criminology*, 42, 837-859.
- Felson, R. B., & Messner, S. F. (1996). To kill or not to kill? Lethal outcomes in injurious attacks. *Criminology*, 34, 519-545.
- Felson, R. B., & Messner, S. F. (2000). The control motive in intimate partner violence. *Social Psychology Quarterly*, 63, 86-94.
- Felson, R. B., Osgood, D. W., Horney, J., & Wiernik, C. (2012). Having a bad month: General versus specific effects of stress on crime. *Journal of Quantitative Criminology*, 28, 347-363.
- Felson, R. B., & Paré, P. P. (2010). Firearms, and fisticuffs: Region, race, and adversary effects on homicide and assault. *Social Science Research*, 39, 272-284.
- Felson, R. B., Ribner, S. A., & Siegel, M. S. (1984). Age and the effect of third parties during criminal violence. *Sociology and Social Research*, 68, 452-62.
- Felson, R., Savolainen, J., Aaltonen, M., & Moustgaard, H. (2008). Is the association between alcohol use and delinquency causal or spurious?. *Criminology*, 46, 785-808.
- Felson, R. B., Savolainen, J., Berg, M. T., & Ellonen, N. (2013). Does spending time in public settings contribute to the adolescent risk of violent victimization? *Journal of Quantitative Criminology*, 29, 273-293.
- Felson, R. B., & Steadman, H. J. (1983). Situational factors in disputes leading to criminal violence. *Criminology*, 21, 59-74.

- Ganpat, S. M., van der Leun, J., & Nieuwbeerta, P. (2013). The influence of event characteristics and actors' behaviour on the outcome of violent events: Comparing lethal with non-lethal events. *The British Journal of Criminology*, *53*, 685-704.
- Ganpat, S. M., van der Leun, J., & Nieuwbeerta, P. (2017). The relationship between a person's criminal history, immediate situational factors, and lethal versus non-lethal events. *Journal of Interpersonal Violence*, *32*, 2535-2565.
- Goffman, E. (1967). *Interaction ritual: Essays on face-to-face behavior*. Garden City, NY: Doubleday.
- Goldstein, P. J. (1985). The drugs/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues*, *15*, 493-506.
- Gould, R. (2003). *Collision of wills: How ambiguity about social tank breeds conflict*. Chicago, IL: University of Chicago Press.
- Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Graham, K., West, P., & Wells, S. (2000). Evaluating theories of alcohol-related aggression using observations of young adults in bars. *Addiction*, *95*, 847-863.
- Greenfeld, L. A. (1998). *Alcohol and crime*. Washington, D.C.: U.S. Department of Justice. NCJ Publication No. 168632.
- Griffiths, E., Yule, C., & Gartner, R. (2011). Fighting over trivial things: Explaining the issue of contention in violent altercations. *Criminology*, *49*, 61-94.
- Hoaken, P. S., & Stewart, S. H. (2003). Drugs of abuse and the elicitation of human aggressive behavior. *Addictive Behaviors*, *28*, 1533-1554.

- Horney, J. (2001). Criminal events and criminal careers: An integrative approach to the study of violence. In R. L. Meier and V. Sacco (Eds.), *The process and structure of crime: Criminal events and crime analysis* (pp. 141-167). New Brunswick, N.J.: Transaction Publishers.
- Horney, J. (2006). An alternative psychology of criminal behavior. *Criminology*, *44*, 1-16.
- Horney, J., Osgood, D. W., & Marshall, I. H. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review*, *60*, 655-673.
- Katz, J. (1988). *Seductions of crime*. New York, NY: Basic Books, Inc.
- Karberg, J. C., & James, D. J. (2005). *Substance dependence, abuse, and treatment of jail inmates, 2002*. Washington, DC: U. S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Kipnis, D. (1976). *The powerholders*. Chicago: University of Chicago Press.
- Kleck, G. (1997). *Targeting guns: Firearms and their control*. New York: Transaction Publishers.
- Kleck, G., & McElrath, K. (1991). The effects of weaponry on human violence. *Social Forces*, *69*, 669-92.
- Leonard, K. E. (2008). The role of drinking patterns and acute intoxication in violent interpersonal behaviors. In *Alcohol and violence: Exploring patterns and responses* (pp. 29-55). Washington, D.C.: International Center for Alcohol Policies.
- Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage Publications.
- Luckenbill, D. F. (1977). Criminal homicide as a situated transaction. *Social Problems*, *25*, 176-186.

- Lyman, S. M., & Scott, M. B. (1970). *A sociology of the absurd*. New York: Meredith.
- McClelland, G. M., & Teplin, L. A. (2001). Alcohol intoxication and violent crime: Implications for public health policy. *American Journal on Addictions, 10*, 70-100.
- McClendon, M. J. (1994). *Multiple regression and causal analysis*. Itasca, IL: F.E. Peacock Publishers.
- Meier, R. F., Kennedy, L. W., & Sacco, V. F. (Eds.). (2001). *The process and structure of crime: criminal events and crime analysis* (Vol. 9). Transaction Publishers.
- Miethe, T. D., & Meier, R. F. (1994). *Crime and its social context: Toward an integrated theory of offenders, victims, and situations*. Albany, NY: State University of New York Press.
- Mustaine, E. E., & Tewksbury, R. (1998). Specifying the role of alcohol in predatory victimization. *Deviant Behavior, 19*, 173-199.
- Parker, R. N., & Rebhun, L. A. (1995). *Alcohol and homicide. A deadly combination of two American traditions*. Albany: State Univ. NY Press.
- Pernanen, K. (1991). *Alcohol in human aggression*. New York, NY: Guilford.
- Pervin, L. A. (1978). Definitions, measurements, and classifications of stimuli, situations, and environments. *Human Ecology, 6*, 71-105.
- Phillips, S. (2003). The social structure of vengeance: A test of Black's model. *Criminology, 41*, 673-708.
- Phillips, S., & Cooney, M. (2005). Aiding peace, abetting violence: Third parties and the management of conflict. *American Sociological Review, 70*, 334-354.
- Phillips, S., Matusko, J., & Tomasovic, E. (2007). Reconsidering the relationship between alcohol and lethal violence. *Journal of Interpersonal Violence, 22*, 66-84.

- Phillips, S., & Maume, M. O. (2007). Have gun will shoot? Weapon instrumentality, intent, and the violent escalation of conflict. *Homicide Studies, 11*, 272-294.
- Pihl, R. O., Petersen, J. B., & Lau, M. A. (1993). A biosocial model of the alcohol-aggression relationship. *Journal of Studies on Alcohol, Suppl. 11 Sep*, 128-139.
- Powers, R. A., & Apel, R. (2015). The impact of situational context on assault completion: the moderating role of relational distance. *Journal of Crime and Justice, 39*, 473-489.
- Pruitt, D. G., & Rubin, J. Z. (1986). *Social conflict: Escalation, stalemate, and settlement*. New York: Random House.
- Rennison, C. M., Jascques, S., & Allen, A. (2016). Victim injury and social distance: A national test of a general principle of conflict. *Violence and Victims, 31*, 726-750.
- Rennison, C. M., Jacques, S., & Berg, M. T. (2011). Weapon lethality and social distance: A national test of a social structural theory. *Justice Quarterly, 28*, 576-605.
- Roberts, J., & Horney, J. (2010). The life event calendar method in criminological research. In A. R. Piquero & D. Weisburd (Eds.), *Handbook of quantitative criminology* (pp. 289-312). New York: Springer.
- Roizen, J. (1997). Epidemiological issues in alcohol-related violence. In M. Galanter (Ed.), *Recent developments in alcoholism: Alcohol and violence- Epidemiology, neurobiology, psychology, family issues* (pp.7- 40). New York, NY: Plenum.
- Sampson, R. J., & Lauritsen, J. L. (1994). Violent victimization and offending: Individual-, situational-, and community-level risk factors. In A. J. Reiss & J. A. Roth (Eds.), *Understanding and Preventing Violence, Vol. 3: Social Influences* (pp. 1-114). Washington, DC: The National Academies Press.

- Savitz, L. D., Kumar, K. S., & Zahn, M. A. (1991). Quantifying Luckenbill. *Deviant Behavior*, *12*, 19-29.
- Schmutte, G. T., & Taylor, S. P. (1980). Physical aggression as a function of alcohol and pain feedback. *Journal of Social Psychology*, *110*, 235-244.
- Silverman, R. A., & Kennedy, L. W. (1987). Relational distance and homicide: The role of the stranger. *The Journal of Criminal Law & Criminology*, *78*, 272-308.
- Steele, C. M., & Josephs, R. A. (1990). Alcohol myopia: Its prized and dangerous effects. *American Psychologist*, *45*, 921-933.
- Sutherland, E. H. (1947). *Principles of criminology*. Chicago: Lippincott.
- Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. American Psychological Association.
- Tedeschi, J. T., & Nesler, M. S. (1993). Grievances: Development and reactions. In R. B. Felson & J. T. Tedeschi (Eds.), *Aggression and violence: Social interactionist perspectives* (pp. 13–46). Washington, DC: American Psychological Association.
- Testa, M. (2002). The impact of men's alcohol consumption on perpetration of sexual aggression. *Clinical Psychology Review*, *22*, 1239-1263.
- Thompson, M. P., & Kingree, J. B. (2006). The roles of victim and perpetrator alcohol use in intimate partner violence outcomes. *Journal of Interpersonal Violence*, *21*, 163-177.
- Ullman, S. E., Karabastos, G., & Koss, M. P. (1999). Alcohol and sexual assault in a national sample of college women. *Journal of Interpersonal Violence*, *14*, 603-625.
- United States Department of Justice, Bureau of Justice Statistics. (October 2015). *Criminal victimization in the United States, 2015*.

- United States Department of Justice, Federal Bureau of Investigation. (September 2016). *Crime in the United States, 2015*.
- Weaver, G. S., Clifford-Wittekind, J. E., Huff-Corzine, L., Corzine, J., Petee, T. A., & Jarvic, J. P. (2004). Violent encounters: A criminal event analysis of lethal and nonlethal outcomes. *Journal of Contemporary Criminal Justice, 20*, 348-368.
- Weinstein, E. A., Deutschberger, P. (1963). Some dimensions of altercasting. *Social Psychology, 26*, 454-66.
- Weisman, A. M., & Taylor, S. P. (1994). Effect of alcohol and risk of physical harm on human physical aggression. *The Journal of General Psychology, 121*, 67-76.
- Wells, W., & Horney, J. (2002). Weapon effects and individual intent to do harm: Influences on the escalation of violence. *Criminology, 40*, 265-296.
- Wikström, P. O. (2006). Individuals, settings, and acts of crime: Situational mechanisms and the explanation of crime. In P. O. Wikström, & R. J. Sampson (Eds.), *The explanation of crime* (pp. 61–107). New York: Cambridge University Press.
- Wolfgang, M. E. (1958). *Patterns in criminal homicide*. Philadelphia: University of Pennsylvania Press.
- Wolfgang, M. E., & Strohm, R. B. (1956). The relationship between alcohol and criminal homicide. *Quarterly Journal of Studies on Alcohol, 17*, 411-425.
- Zeichner, A., & Pihl, R. O. (1979). Effects of alcohol and behavior contingencies on human aggression. *Journal of Abnormal Psychology, 88*, 153-160.
- 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.

**Table 3.1. Descriptive Statistics of Incidents by Outcome**

<i>Incident Characteristics</i>	Outcome of Incident	
	Avoided Assault ( <i>N</i> = 705) %	Assault ( <i>N</i> = 1,663) %
<i>Alcohol Use</i>		
None	52.79%	44.61%
One Person	23.61%	24.33%
Both Persons	23.61%	31.07%
<i>Relationship</i>		
Strangers	26.78%	25.72%
Acquaintances	32.62%	40.34%
Friends	15.24%	10.69%
Relatives	7.26%	5.19%
Intimate Partners	12.39%	13.71%
Mixed	5.70%	4.35%
<i>Firearms</i>		
None	80.71%	83.52%
One Person	14.89%	14.49%
Both Persons	4.40%	1.98%
<i>Non-Gun Weapons</i>		
Neither Person	93.62%	94.77%
One or Both Persons	6.38%	5.23%
Bystanders	56.85%	59.67%
<i>Peers</i>		
No Peers	47.09%	42.09%
Unequal # of Peers	9.93%	12.21%
Equal # of Peers	42.98%	45.70%
<i>Opponent Race/Ethnicity</i>		
Black	26.01%	21.96%
White	52.30%	51.98%
Hispanic	64.96%	64.10%
Other	11.35%	14.89%
<i>Opponent Age</i>		
Under 18	8.13%	10.86%
18-20	16.84%	18.01%
21-29	36.28%	39.79%
30+	38.75%	31.34%
Multiple Opponents	28.37%	24.77%
<i>Time of Incident</i>		
6am - 12pm	12.55%	9.85%
12pm - 6pm	32.90%	30.03%
6pm - 12am	43.87%	43.16%
12am - 6am	10.68%	16.96%
<i>Location of Incident</i>		
Home	52.31%	49.25%
Bar/Club	11.69%	15.83%
Public Place	36.00%	34.92%



**Table 3.2. Logistic Regression Estimates Predicting Assault (Versus Avoided Assault) <sup>1</sup>**

<i>Incident-level variables</i>	Assault		
	b	SE	Odds Ratio
<b>Alcohol Use</b>			
One Person	.338*	.137	1.402
Both Persons	.599***	.157	1.820
<b>Relationship</b>			
Acquaintances	.284 <sup>^</sup>	.155	1.328
Friends	-.298	.201	0.742
Relatives	-.154	.263	0.857
Intimate Partners	.362 <sup>^</sup>	.217	1.436
Mixed	.054	.255	1.055
<b>Firearms</b>			
One Person	.077	.160	1.081
Both Persons	-.625*	.297	0.535
<b>Non-Gun Weapons</b>			
Bystanders	-.016	.108	0.984
<b>Peers</b>			
Unequal # of Peers	.118	.127	1.124
Equal # of Peers	.428*	.194	1.535
<b>Opponent Race/Ethnicity</b>			
White	.039	.150	1.040
Hispanic	.085	.211	1.089
Other	.544**	.200	1.724
<b>Opponent Age</b>			
18-20	-.103	.229	0.902
21-29	-.250	.224	0.778
30+	-.593*	.218	0.553
Multiple opponents	-.355*	.151	0.701
<b>Time of Incident</b>			
12pm-6pm	.190	.169	1.210
6pm-12am	.181	.175	1.199
12am-6am	.611**	.223	1.842
<b>Location of Incident</b>			
Bar/club	.185	.200	1.203
Public place	.098	.123	1.103

*Note.* Reference categories are as follows: for alcohol use, neither person; for relationship, stranger; for firearms, neither person; for non-gun weapon, none; for peers, none; for race/ethnicity, black; for opponent age, under 18; for time of incident, 6am-12pm; for location, inside a home.

<sup>1</sup> All models include robust standard errors clustered by respondent.

<sup>^</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed test).

## CHRISTOPHER C. PALMORE

### Condensed Vita

#### ACADEMIC POSITIONS

---

- 2017-2018 Visiting Assistant Professor  
Department of Criminal Justice  
University of Louisiana at Lafayette
- 2017-2018 Visiting Instructor  
Department of Criminal Justice  
University of Louisiana at Lafayette

#### EDUCATION

---

- 2018 Ph.D., Criminology, The Pennsylvania State University [Expected 2018]  
2015 M.A., Criminology, The Pennsylvania State University  
2009 B.A., Psychology, California State University, Long Beach, CA

#### TEACHING EXPERIENCE

---

##### *University of Louisiana at Lafayette*

- 2018 Introduction to Criminal Justice (CJUS101; online course)  
2018 Introduction to Research Methods (CJUS 301)  
2018 Criminal Behavior (CJUS 305)  
2018 Victimology (501; graduate seminar)  
2017 Introduction to Criminal Justice (CJUS 101; two sections)  
2017 Introduction to Research Methods (CJUS 301)

##### *The Pennsylvania State University*

- 2017 Introduction to Criminal Justice (CRIM 100; online course)  
2016 Juvenile Delinquency and Justice (CRIM 441)  
2016 Intermediate Social Statistics (SOC 470)  
Statistical Software Lab Component  
2015 Introduction to Criminology (CRIM 012)  
2014 Introduction to Criminology (CRIM 012; two sections)  
2012-2013 Research Methods in Criminal Justice (CRIM 250W)  
Writing Lab Component

#### PEER REVIEWED PUBLICATIONS

---

- Felson, R. B., & **Palmore, C.** (2018). Biases in Blaming Victims of Rape and Other Crime. *Psychology of Violence, 8*, 390-399.
- Palmore, C. C.**, Garcia, A. D., Bacon, L. P., Johnson, C. A., & Kelemen, W. L. (2012). Congruity influences memory and judgments of learning during survival processing. *Psychonomic Bulletin & Review, 19*, 119-125.

#### MANUSCRIPTS UNDER REVIEW

---

- Palmore, C.** Strain, self-control, and rational criminal coping.
- Felson, R. B., & **Palmore, C.** Traditionalism and victim blaming.