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Examining the link between self-control and misconduct in a multi-agency sample of police supervisors: A test of two theories

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ABSTRACT

As police personnel carry out their mandates of enforcing the law, maintaining order, and serving the public, they are entrusted to "practice what they preach." They are expected to abide by the rules, laws, and ethical principles that apply to them as they hold private citizens to account for violations of laws. When the police do not live up to this standard by committing police misconduct, it can tarnish not just the individual officer, but the department and jurisdiction as well. Police misconduct is a concern for society as police misbehavior can result in negative outcomes, such as distrust by the citizenry, poor police-community relations, and litigation. Therefore, it is important for academics and police administrators to gain a better understanding of why police personnel engage in occupational deviance.

A sizable literature has identified several individual, organizational, and community-level correlates of police misconduct, but there is a general dearth of knowledge concerning criminological explanations for police misconduct. The purpose of this study was to assess the potential relationship between self-control and police misconduct utilizing two versions of self-control theory. The primary objectives of the dissertation were to: (1) investigate whether self-control predicts police misconduct; and, if so, (2) identify which version of self-control theory best explains police misconduct.

The original version of self-control theory (Gottfredson and Hirschi, 1990) hypothesizes that crime and deviant behavior are the result of low self-control, which is characterized by impulsivity, a preference for simple tasks, a proclivity for risk-seeking activities, self-centeredness, and a quick temper. More than a decade later, Hirschi (2004) revised the theory in an effort to address several shortcomings of the original theoretical model. In this revision, he moved the focus away from the personality trait of

self-control to a rational choice, decision-making conceptualization, which he argued is more consistent with the original intent of the theory. From this new perspective, self-control refers to an internal set of inhibitors that influence the choices people make.

Data were collected through online surveys of 101 police supervisors within three U.S. police agencies. The respondents are part of a larger research project, known as the National Police Research Platform, which is funded by the National Institute of Justice. The data were analyzed using a series of correlational and multiple regression strategies. Based on theory and prior research, it was hypothesized that measures of both theoretical versions would significantly predict police misconduct and that, in a full regression model, both versions would yield significant (and independent) effects.

As predicted by the hypotheses, the results demonstrated that low self-control (as a measure of Gottfredson and Hirschi's theoretical version) and revised self-control (as a measure of Hirschi's revised theoretical version) were both significantly related to past police misconduct and the likelihood of future police misconduct. Furthermore, both measures produced independent effects in full regression models. Lastly, as evinced by standardized regression coefficients, the results suggested that revised self-control is the superior theoretical version within the context of police deviance.

The finding that self-control is related to police misconduct has important policy implications for police administrators. Specifically, it is recommended that administrators 1) bolster their personnel selection and hiring through the use of more judicious background investigations and increased use of psychological testing; 2) increase the use of integrity-testing strategies, such as early warning systems, to detect problematic employees; and 3) utilize quality police training programs with emphases on ethics, consequences of misbehavior, and mechanisms to strengthen employees' levels of self-control. Study strengths and limitations, as well as directions for future research, are presented.

CHAPTER 1:

INTRODUCTION

The police are the most visible component of the criminal justice system and act as the gatekeeper to the system. They are responsible for enforcing laws and maintaining public order, and they are also entrusted to embody order and justice in society. It is important, then, to investigate why some police personnel abuse their power and engage in police deviance. Early police behavior studies (e.g., Black & Reiss, 1970; Sherman, 1980), as well as more recent research (e.g., Girodo, 1991; Kane & White, 2009; Lersch & Kunzman, 2001; Wolfe & Piquero, 2011) yield several individual and organizational correlates of police misconduct. The findings from this line of research help police administrators create and implement policies to deal with problem officers, reduce the prevalence of misconduct, and rebuild police-community relations. While these studies improve the knowledge base in policing research, large gaps remain in our understanding of police deviance. Wolfe and Piquero (2011) suggest that one of the biggest gaps that still remains "concerns the largely atheoretical nature of this line of work" (p. 332). Although some recent research tries to close this gap (e.g., Chappell & Piquero, 2004; Kane, 2002; Pogarsky & Piquero, 2003), the potential link between self-control and police misconduct has been considerably under-studied. The current research attempts to fill this void.

Some scholars contend that police misconduct is best explained by individual-level correlates (e.g., Sherman, 1978), and empirical analyses demonstrate that several of these factors, such as age, race, gender, and education emerge as significant predictors of police misconduct (e.g., Greene, Piquero, Hickman, & Lawton, 2004; Kane

& White, 2009; Lersch & Kunzman, 2001). This line of research, however, largely ignores the individual-level role of self-control in predicting police misconduct despite the fact that self-control has been widely tested on traditional crime outcomes. Similar research suggests that individual personality (Girodo, 1991) and impulsivity (Pogarsky & Piquero, 2003) are related to police deviance, but only one study to date has directly tested Gottfredson and Hirschi's (1990) general theory of crime (see Donner & Jennings, 2013), and no study to date has examined Hirschi's (2004) revised version of self-control theory on police misconduct.

Within traditional crime outcomes, self-control theory has been abundantly tested and findings tend to support the view that individuals with low self-control are more likely to engage in deviant behavior (e.g., Piquero, 2009; Pratt & Cullen, 2000). Within occupations and corporations, there is also some research that suggests that employees with low self-control are more likely to commit employee deviance (e.g., Gibson & Wright, 2001; Langton, Piquero, & Hollinger, 2006). Thus, self-control may offer a useful theoretical framework to achieve a greater understanding of individual-level police misconduct.

After twenty years of promoting and defending social control theory for an explanation as to why individuals *do not* commit crime, Travis Hirschi switched course and collaborated with Michael Gottfredson to co-write *A General Theory of Crime* (1990). Their theory argues that self-control, not social control, prevents one from engaging in deviance. Alternatively stated, they argue that low self-control explains all crime and analogous behavior. This theory has received a vast amount of theoretical and empirical scrutiny, and research, for the most part, supports the link between lack of self-control and deviance (e.g., Piquero, 2009; Pratt & Cullen, 2000). Their theory, however, is not without critics (see e.g., Akers, 1991; Benson & Moore, 1992; Geis, 2000; Marcus, 2004). To address some of the theory's critiques, in 2004 Hirschi proposed a

modification for how self-control is conceptualized and measured; he broadened the definition of self-control and suggested utilizing elements of the social bond to measure it. Empirical assessments of the revised theory have generally come in the form of theory competition (pitting the two versions of self-control theory against each other) to see which version demonstrates greater empirical validity. To date, these investigations yield mixed results; these studies also tend to rely on adolescent and young adult samples, and focus mainly on common forms of crime and deviance (Intravia, Jones, & Piquero, 2012; Jones, Lynam, & Piquero, in press; Morris, Gerber, & Menard, 2011).

Both theories–Gottfredson and Hirschi's (1990) original theory and Hirsch's (2004) revised theory–are "general" in the sense that they claim to explain all forms of antisocial behavior for all populations. The empirical evidence supporting this claim is not overwhelming, but, if true, both versions of self-control theory should be able to predict occupational misconduct among law enforcement personnel – an outcome and population that largely have been ignored within this theoretical context. This omission is surprising considering that police misconduct has been empirically analyzed using other leading criminological perspectives such as social learning (Chappell & Piquero, 2004), control balance (Hickman, Piquero, Lawton, & Greene, 2001), and deterrence (Pogarsky & Piquero, 2003).

To assess the link between self-control and police misconduct, Donner and Jennings (2013) utilized a behavioral measure of low self-control and official measures of misconduct. This dissertation attempts to fill in some of the gaps in the literature by further exploring the relationship between self-control and police misconduct through the use of measures from both versions of self-control theory, as well as self-reported measures of police misconduct. The two objectives of the dissertation are to: (1) investigate whether low self-control is significantly related to police misconduct; and, if so, (2) identify which version of self-control theory best explains police misconduct.

To accomplish these goals, data were collected from police supervisors participating in the National Police Research Platform (hereafter, "Platform"), a federally funded research project aimed at studying police organizations and police personnel over the life-course. A sample of 101 police supervisors out of a population of 485 supervisors, who have already participated in earlier Platform surveys, responded to an online survey distributed through Qualtrics. Among other topics, the survey instrument solicited information from participants about their own involvement in police misconduct, the extent to which they anticipate future misconduct, and their level of self-control. Self-control was measured in two ways. The first method involved examining Gottfredson and Hirsch's (1990) self-control theory; the second method involved examining Hirschi's (2004) revision of self-control. Both measures utilized in this research have been used in previous research. Police misconduct was measured using 10 items from Martin's (1994) set of 34 acts of unethical police behavior. Past behavior, as well as intentions for future behavior, was measured. These same items also have been used in previous research (e.g., Son & Rome, 2004).

The subjects in this research represent an understudied group of personnel. Many police researchers argue that supervision is one of the most crucial responsibilities of police management (Allen, 1982; Alpert & Dunham, 1997; Lynch, 1998). The police supervisor is the basic link in the police organizational structure between front-line patrol officers and police management, and supervisors are expected to direct the activities of officers to produce the desired outcomes of the agency (Alpert & Dunham, 1997; Lynch, 1998; Van Maanen, 1984). While supervision remains a vital aspect of police organization, there is relatively little empirical research in this area. Walker and Katz (2002) report that the supervisory role is one of the least researched areas in criminal justice despite the fact that it is crucial to agency success.

Much of the research on supervisors focuses on differences in management styles (Brehm & Gates, 1993; Engel, 2000; 2001; Van Maanen, 1984) and their ability to influence officer behavior (Allen, 1982; Brown, 1978; Engel, 2005; Engel & Worden, 2003). For example, data from the Project on Policing Neighborhoods (POPN) project indicates that supervisory styles affect some types of subordinate behavior and that active supervisors have the most direct influence over patrol officer behavior (Engel & Worden, 2003). The findings further demonstrate that officers with "active" supervisors have higher rates of arrest and tend to use force more frequently on non-traffic suspects. In a study using data from multiple departments, Brehm and Gates (1993) evaluate levels of "working or shirking," which provide a measure of the degree of compliance that subordinates exhibit. They find that officers work (or shirk) based upon the supervision that they have, and that the degree of rewards and punishment influences work output. The authors argue that conformity among subordinates varies by the capabilities of their leaders; their results suggest that officers who are satisfied with their supervisors shirk their duties 46% less than the average officer, and officers who express dislike for their supervisors shirk 20% more than the average officer (Brehm & Gates, 1993).

With respect to police misconduct, two known studies gather data on police misconduct from police personnel at a supervisory rank. Hunter (1999) examines police officers' attitudes about police misconduct. Two-fifths of the sample serves in a supervisory role. Pogarsky and Piquero (2003) investigate the effect of deterrence on police misconduct. In their sample of 210 personnel, 7% are first-line supervisors. However, neither study disaggregates their results by rank, so the body of knowledge regarding police supervisors and police misconduct is essentially non-existent. Using a sample of police supervisors from across the country, this dissertation strives to fill that void.

In the following chapters, the relevant literature, methodology, results, and implications are described in more detail. In Chapter 2, “Theoretical Framework,” the major propositions of self-control theory are presented. This chapter details the central components of Gottfredson and Hirschi’s version of self-control theory. Here, self-control is defined by the authors, and other subsections include coverage of the acquisition of self-control, the stability and versatility of self-control, the role of opportunity in the theory, the measurement of self-control, and the empirical research on the relationship between self-control and occupational misconduct. The “Theoretical Framework” section also outlines Hirschi’s revision of self-control theory. Here, attention is given to Hirschi’s reasons for revising the theory, the use of social bonds as an indicator of self-control, and the empirical research of the revised theory.

Chapter 3, “Police Misconduct,” presents an overview of police misbehavior. This section includes coverage of the definitions of police misconduct and types of police misconduct. The chapter also includes subsections on the prevalence of police misconduct, individual and organizational correlates of police misconduct, and research using criminological theories to explain police misconduct.

Chapter 4, “Methods,” presents the methodological design for the current study. In this section, detail is given to the Platform project, sample, survey instrument, variables, survey dissemination, and hypotheses. In Chapter 5, “Results,” attention is given to the study’s analytic strategy, and the findings from the analyses are presented. Here, detail is given to sample characteristics, misconduct prevalence, bivariate correlations, and multivariate regression estimates. Chapter 6, “Discussion,” provides a summary of the findings within the context of theory and research, addresses relevant policy implications, discusses the strengths and weaknesses of the study, and outlines directions for future research.

CHAPTER 2:

THEORETICAL FRAMEWORK

The control perspective is one of the oldest and most popular explanations for criminal behavior. The basic premises of control theories date back as far as the work of philosopher Thomas Hobbes during the seventeenth century, but these theories did not gain popularity in criminology until the 1950s (see Nye, 1958; Reckless, 1961; Reiss, 1951; Toby, 1957). In *Causes of Delinquency*, Hirschi integrates many of the ideas of earlier control theorists into his social control theory. Since writing *Causes*, Hirschi has devoted much of his attention to creating (and revising) a theory of general deviance based on one's level of *self-control* (Gottfredson & Hirschi, 1990; Hirschi, 2004). This section presents a detailed review of Gottfredson and Hirschi's (1990) self-control theory, and Hirschi's (2004) revision of self-control theory.

Gottfredson and Hirschi's (1990) General Theory of Crime

In *A General Theory of Crime*, Gottfredson and Hirschi (1990) develop a general theory which purports to explain all types of antisocial behaviors. At the center of their theory is the concept of self-control. Gottfredson and Hirschi argue that "low self-control is…*the* individual-level cause of crime" (p. 232, original emphasis) and that low self-control is capable of "explaining all crime, at all times, and, for that matter, many forms of behavior that are not sanctioned by the state" (p. 117). Their theory has received considerable attention since its inception, with some research supporting the relationship between low self-control and criminal behaviors (Arneklev, Grasmick, Tittle, & Bursik, 1993; Baron, 2003; Brownfield & Sorenson, 1993; Burton, Cullen, Evans, Alarid, & Dunaway, 1998; Burton, Cullen, Evans, & Dunaway, 1994; Burton, Evans, Cullen,

Olivares, & Dunaway, 1999; Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1998; Evans, Cullen, Burton, Dunaway, & Benson, 1997; Gibbs & Giever, 1995; Gibbs, Giever, & Martin, 1998; Gibbs, Giever, & Higgins, 2003; Grasmick, Tittle, Bursik, & Arneklev, 1993; Higgins, 2004; Keane, Maxim, & Teevan, 1993; Longshore, Turner, & Stein, 1996; Longshore & Turner, 1998; Longshore, 1998; Paternoster & Brame, 1998; Piquero & Tibbetts, 1996; Piquero & Rosay, 1998; Polakowski, 1994; Pratt & Cullen, 2000; Sellers, 1999; Tangney, Baumeister, & Boone, 2004; Tittle, Ward, & Grasmick, 2003; Vazsonyi, Pickering, Junger, & Hessing, 2001; Winfree & Bernat, 1998; Wood, Pfefferbaum, & Arneklev, 1993; Wright & Cullen, 2001).

Their theory attempts to explain crime, but it also purports to explain all forms of imprudent behavior, such as poor relationships and employment records, drug and alcohol abuse, and accidents (Hay, 2001). Gottfredson and Hirschi (1990) contend that individuals with low self-control are more likely to "smoke, drink, use drugs, gamble, have children out of wedlock, and engage in illicit sex" (p.90). They refer to this wide range of antisocial behaviors as "crime equivalents" or "acts analogous to crime" (p. 42). The empirical evidence suggests that low self-control is, in fact, related to these types of imprudent behaviors, including substance use/abuse (Arneklev et al., 1993; Baron, 2003; Gibbs & Giever, 1995; Sorenson & Brownfield, 1995; Wood et al., 1993), academic dishonesty (Cochran et al., 1998; Higgins & Ricketts, 2004; Jones & Quisenberry, 2004), cutting classes (Gibbs & Giever, 1995), bullying (Moon, Hwang, & McCluskey, 2011), pathological gambling (Jones & Quisenberry, 2004), sexual promiscuity (Jones & Quisenberry, 2004), drunk dialing (Reisig & Pratt, 2004), public profanity (Reisig & Pratt, 2004), public flatulence (Reisig & Pratt, 2004), software piracy (Higgins, 2004), poor-quality friendships (Boman, Krohn, Gibson, & Stogner, 2012), and risky driving (Forde & Kennedy, 1997). Overall, research consistently demonstrates that

self-control must be acknowledged as a significant predictor of criminal and analogous behaviors (Pratt & Cullen, 2000).

The concept of self-control. Gottfredson and Hirschi (1990) begin their book by lamenting the ability of academic criminology to proffer sound explanations of criminal and deviant behavior. They take issue with many criminologists who attempt to explain the causes of crime without first examining the features of crime. Consequently, Gottfredson and Hirschi examine the nature of crime before attempting to explain it. According to the authors, crime, like all human behavior, is based upon two considerations: benefits and costs. Their theory assumes that people make rational decisions to maximize pleasure and minimize pain. Gottfredson and Hirschi contend that crime does not require any special motivation; it is simply an expression of one's natural predisposition to pursue pleasure and avoid pain (Gottfredson & Hirschi, 1990). Their theory, however, does require an explanation of individual variation in choosing deviant behavior.

According to Gottfredson and Hirschi (1990), individual differences in *self-control* account for individual differences in criminal and delinquent behavior. They contend that those who lack self-control are more likely to pursue the immediate pleasure of criminal behavior when presented with an opportunity to do so. Gottfredson and Hirschi (1990) define self-control as "the differential tendency of people to avoid criminal acts whatever the circumstances in which they find themselves" (p. 87). Individuals with low self-control tend to engage in crime and analogous behavior because they lack the capacity to consider the *long-term* consequences of their behavior. They also argue that the nature of low self-control "can be derived from the nature of criminal acts" (p. 88). They posit that crimes and analogous acts are immediately gratifying, simple, and exciting, and they presume that people involved in these types of behaviors will exhibit similar personal characteristics. Specifically, they argue that those lacking self-control act impulsively,

prefer simple tasks over complex ones, have a proclivity for risk-seeking activities, prefer physical tasks over mental tasks, are self-centered, and easily lose their temper.

Although those with low self-control can easily recognize the immediate benefits of criminal and deviant behavior, they have substantial difficulty calculating the potential long-term costs. Because those with low self-control fail to fully appreciate the potential long-term costs of their behavior, they are more likely to engage in criminal or deviant acts when presented with an opportunity. As previously noted, Gottfredson and Hirschi (1990) propose that those with low self-control are "impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted, and non-verbal" (Gottfredson & Hirschi, 1990, p. 90). They further assert that, "There is considerable tendency for these traits to come together in the same people,…it seems reasonable to consider them as comprising a stable construct useful in the explanation of crime" (Gottfredson & Hirschi, 1990, pp. 90-91). That is, these six elements are considered a single construct and a unidimensional latent trait.

Gottfredson and Hirschi (1990) acknowledge that their conception of self-control is not deterministic: "…crime is not an automatic or necessary consequence of low self-control" (Gottfredson & Hirschi, 1990, pp. 89-90; see also, Hirschi & Gottfredson, 1993). Prior to the publication of their book, Hirschi and Gottfredson defined criminality as "stable differences across individuals in the propensity to commit criminal (or equivalent) acts" (1986, p. 58). However, in their book, they reject the concept of criminality because, in their view, it suggests a deterministic view of the offender (Gottfredson & Hirschi, 1990, p. 88). They argue that while criminality implies that people vary in the extent to which they are compelled to crime, self-control suggests that people vary in the extent to which they are restrained from criminal behavior. In defense of their general theory, Hirschi and Gottfredson (1993) reiterate that, "There may be in our theory an

enduring predisposition to consider the long-term consequences of one's acts, but there is no personality trait predisposing people toward crime" (p. 49).

The authors also acknowledge that self-control is not the only correlate of antisocial behavior; other characteristics of the individual or conditions of the situation can impact the likelihood of engaging in crime or analogous behaviors. For example, Gottfredson and Hirschi (1990) recognize that low self-control cannot be acted on without the opportunity to do so. The role of opportunity in the theory will be more fully reviewed below. The next section details how one acquires self-control.

Acquiring self-control. Gottfredson and Hirschi (1990) suggest that self-control develops through effective and complete socialization (pp. 94-107). Parents, through early childhood socialization, have the primary responsibility of instilling self-control in their children. For self-control to be instilled in children, parents must accomplish effective child rearing through three principal mechanisms. Parents must be able to monitor their children closely. They must be able to effectively recognize antisocial behavior (evidence of a lack of self-control) in their children. Parents must also effectively and consistently punish deviant acts. If these mechanisms are in place, children should not become teenage delinquents or adult criminals. Empirical research consistently finds that parenting techniques, such as monitoring and discipline, have an influence on a child's level of self-control (Cochran et al., 1998; Gibbs et al., 2003; Hay, 2001; Higgins, 2002; Perrone, Sullivan, Pratt, & Margaryan, 2004; Polakowski, 1994; Unnever, Cullen, & Pratt, 2003; Wright & Cullen, 2001).

Gottfredson and Hirschi (1990) credit many of their ideas on effective child rearing to the work of Gerald Patterson. Patterson's (1980) research on parental socialization processes demonstrates that children behave in deviant ways due, in large part, to the inability of parents to effectively manage their children. He argues that monitoring and discipline are the primary elements of parental management and that

affection for the child represents a necessary element for effective parental management to commence. Patterson (1980) suggests that parents who care about their children will monitor them closely, identify antisocial behavior, and correct the deviant behavior if (and when) it occurs. If parents are able to effectively socialize their children in this manner, self-control is likely to be instilled. A study from Wright and Beaver (2005), however, demonstrates that parental influence is impacted by study methodology. Their results suggest that parental influences on self-control acquisition are significant only when parent reports are used; alternatively, parental influences are not significant when teacher reports of child self-control are analyzed.

Gottfredson and Hirschi argue that it is the family in which the most important socialization takes place, but research finds that other social institutions also contribute to a child's socialization and level of self-control. Some of these studies demonstrate that community factors, such as neighborhoods and schools (e.g., Gibson, Sullivan, Jones, & Piquero, 2004; Pratt, Turner, & Piquero, 2004; Turner, Piquero, & Pratt, 2005) and self-control improvement programs (e.g., Piquero, Jennings, & Farrington, 2010) affect variation in levels of self-control. The next section presents a discussion of stability hypothesis proposed by Gottfredson and Hirschi.

Stability of self-control. Gottfredson and Hirschi (1990) argue that, once developed, self-control remains *relatively* stable throughout life and that the socialization to form self-control must take place by late childhood (approx. 8-10 years old) or self-control will not be developed. They posit that self-control is a *relatively* stable trait and allow for normative increases in self-control to occur for the entire population; yet, they argue that individuals will experience these increases at the same rate. Stated alternatively, individuals in a given cohort who originally had the lowest levels of self-control may be able to slightly increase their levels of self-control through natural maturation, but so too will those in the cohort with originally higher levels of self-control.

This means that the lower self-control subgroup will always have lower levels of self-control. Some research corroborates the stability hypothesis (e.g., Arneklev, Cochran, & Gainey, 1998; Beaver & Wright, 2007; Hay & Forrest, 2006; Higgins, Jennings, Tewksbury, & Gibson, 2009; Vazsonyi & Huang, 2010), but other research finds evidence against the stability hypothesis (e.g., Baumeister, Gailliot, DeWall, & Oaten, 2006; Jennings, Higgins, Akers, Khey, & Dobrow, 2013; Mitchell & Mackenzie, 2006; Muraven, 2010; Na & Paternoster, 2012; Turner & Piquero, 2002).

According to the theory, while the propensity to engage in antisocial behavior is relatively stable, criminal offending is not stable. Gottfredson and Hirschi (1990) argue that as people age, they begin to replace their criminal acts with analogous acts. This view allows Gottfredson and Hirschi to proclaim that low self-control is stable over the life-course, and also allows for the fact that research consistently demonstrates that offenders "age out" of crime. According to Gottfredson and Hirschi (1990), declines in offending do not reflect increases in self-control; one's level of self-control stays the same and is manifested in non-criminal (yet still deviant) ways (e.g., difficulties in interpersonal relationships, employment instability). The next section presents the role of opportunity in self-control theory.

Opportunity and self-control. Gottfredson and Hirschi (1990) contend that low self-control is not the only factor that predicts antisocial behavior. They state, "…although we argue that self-control is a general cause of crime, we do not argue that it is the sole cause of crime" (p. 140). Along with self-control, the authors suggest that opportunity also is important for explaining variance in offending. The individual propensity to commit crime is necessary, but it is not a sufficient cause of crime. According to the theory, self-control can only be criminally expressed when there is an "obvious opportunity" for such behavior (Gottfredson & Hirschi, 1990, p. 269). They explain the crucial role of opportunity when they write, "In our theory, crimes have

minimal elements over and above their benefits to the individual: for example, they require goods, services, victims, and *opportunities*, elements that do vary from time to time and place to place" (p. 177, emphasis added).

Opportunity can generally be defined as a situation favorable for the attainment of a desired outcome. But how exactly is opportunity related to self-control? Gottfredson and Hirschi (1990) imply that the relationship between self-control and crime is affected by the role of opportunity, but they do not provide an exact theoretical causal linkage. They write, "criminal acts are problematically related to the self-control of the actor: under some conditions people with low self-control may have few opportunities to commit crimes and under other conditions people with high self-control may have many opportunities to commit them" (p. 219-220). Piquero (2009) argues that when low self-control is combined with available opportunities for crime, Gottfredson and Hirschi's theory of crime hypothesizes that the probability of all types of deviance will increase, and that "this interaction should be a principal ingredient of crime over and above most other traditional correlates of crime" (p. 153).

The role of opportunity is contentious within theoretical and empirical discussions of self-control theory. Some scholars argue that Gottfredson and Hirschi pay too little attention to the role of opportunity (Goode, 2008; Grasmick et al., 1993; Piquero, 2009; Simpson & Geis, 2008; Smith, 2004), and they suggest that opportunity does, in fact, interact with self-control (Cochran et al., 1998; Grasmick et al., 1993; Longshore, 1998). These researchers contend that although the theory does not require opportunity to have an influence on whether a person engages in crime, when opportunities for crime do emerge, a person with low self-control is more likely to succumb to the temptation and immediate benefits of crime.

Gottfredson and Hirschi's response, essentially, has been to nullify these debates by equating self-control and opportunity as manifestations of each other

(Gottfredson & Hirschi, 2003; Hirschi & Gottfredson, 1993; 2008). They argue that opportunity has unnecessarily been given equal status with self-control by other researchers, and they do not share the same enthusiasm that other scholars have for the role of opportunity in the theory. The authors claim this because, in their view, if opportunity plays a role in self-control theory and has an effect on crime, it discredits the main proposition of their theory, which is that low self-control is the general cause of crime (Hirschi & Gottfredson, 2008).

In refuting the empirical findings that measures of opportunities outperform measures of self-control, and therefore weaken the overall appeal of the theory (Grasmick et al., 1993), Gottfredson and Hirschi (2008) equate the two concepts. They offer that Grasmick et al.'s findings are not evidence for the relationship between opportunity and crime, but that the "findings show that the measure of opportunity *is the better measure of self-control*" (p. 220, emphasis added). And since "opportunity" is related to crime, Gottfredson and Hirschi argue that Grasmick et al.'s findings support their theory. They further argue that individuals have stable differences in their ability and tendency to perceive opportunities for crime, and they claim that someone with low self-control will "see" the opportunities for crime, or consistently self-select into opportunities for crime. Marcus (2004) states that opportunities for crime are ubiquitous; the authors of the theory agree: "…self-control can be measured and the theory assessed without undue concern for differences in opportunities to commit criminal, deviant, or reckless acts (Gottfredson & Hirschi, 2003, p. 9).

Measurement of Self-Control

Though Gottfredson and Hirschi (1990) do not explicitly operationalize self-control with a set of measurable items, they suggest that those with low self-control tend to seek immediate gratification, prefer simple tasks, seek adventurous or thrilling activities, do not think long-term, act without much planning, and are self-centered. They

further state that, “There is considerable tendency for these traits to come together in the same people…it seems reasonable to consider them as comprising a stable construct useful in the explanation of crime” (Gottfredson & Hirschi, 1990, pp. 90-91). According to the authors, these six elements coalesce into a unidimensional latent trait.

Researchers utilizing Gottfredson and Hirschi’s description of self-control to measure self-control generally produce two different measurement methods: attitudinal and behavioral. There is considerable difference of opinion regarding which method is best. In fact, Piquero (2009) suggests that measurement of self-control is one of the most widely debated issues in trying to empirically assess the theory. Examinations of self-control theory tend to use (1) attitudinal scales (e.g., Grasmick et al., 1993) similar to personality inventories that more or less measure the six elements of self-control specified by Gottfredson and Hirschi (1990), and/or (2) behavioral indicators (e.g., Keane et al., 1993) designed to capture imprudent acts that reflect a lack of self-control. While many studies utilize attitudinal scales, Hirschi and Gottfredson (1993) argue that behavioral measures of self-control are preferable. Behavioral measures, however, sometimes have led to tautology critiques; essentially, it is tautological to explain low self-control behavior using low self-control behavior as a predictor variable. The discussion of measurement will proceed in two parts: a review of what has become known as the Grasmick et al. scale, which is the most popular measure of self-control in the criminological literature (Marcus, 2004; Tittle et al., 2003), and a review of behavioral measures of imprudent behavior.

The Grasmick et al. (1993) scale. Based on Gottfredson and Hirschi’s (1990) elements of self-control, Grasmick et al.’s (1993) 24-item scale (four items for each of the six dimensions) is designed to capture the latent trait of self-control. They initially considered using the self-control subscale of the California Psychology Inventory (CPI; see Gough, 1975) as a possible measure because many of the items (e.g., “I often act

on the spur of the moment without stopping to think") overlap with Gottfredson and Hirschi's conceptualization of low-self-control. However, the 38-item CPI subscale does not contain any items measuring a preference for simple tasks or a preference for physical activities, which are two of the six elements offered by Gottfredson and Hirschi. Some of the CPI items also lack face validity (e.g., "My home life was always happy"). Grasmick et al. chose, instead, to develop their own items to measure each of the six domains by "following as closely as possible to Gottfredson and Hirschi's descriptions of them" (Grasmick et al., 1993, p. 13). Their factor analyses of the 24 items produced a five-factor solution based on the Kaiser criterion.[1] The authors also utilized a scree discontinuity plot[2] because of the large number of items (see Nunnally, 1967). That test demonstrated that the 24 items coalesced into a single, unidimensional trait with acceptable internal consistency. Using a sample of Oklahoma City adults, results from Grasmick et al. (1993) suggest that low self-control is related to acts of fraud, but not acts of force. Since its inception, the Grasmick et al. (1993) scale has been the most widely used measure of self-control within criminology (DeLisi et al., 2003; Marcus, 2004; Pratt & Cullen, 2000; Tittle et al., 2003).

In response to research from Grasmick et al. (1993) and Keane et al. (1993), Hirschi and Gottfredson (1993) express their thoughts on self-control and its measurement in a commentary article. They criticize Grasmick et al.'s conceptualization of self-control for several reasons (Hirschi & Gottfredson, 1993). They believe that Grasmick et al. should not have translated the concept of self-control into a personality concept: "this feature of the Grasmick et al. work is the most disappointing…there is no

[1] The Kaiser criterion determines the number of factors to extract based on eigenvalues greater than one (Kim & Mueller, 1978).

[2] A scree discontinuity plot is a rule-of-thumb criterion for determining the number of factors to retain based on a graph of eigenvalues (Kim & Mueller, 1978). In a scree plot, a line connects the markers for the factors. Often, there is a point below which factors explain relatively little variance and above which they explain substantially more variance (Cattell, 1966). This point is indicated by an "elbow" in the plot. According to Cattell (1966), researchers should retain factors above the elbow and reject those below it.

personality trait predisposing people toward crime…people [not being specifically predisposed to crime] is the fundamental assumption of control theories" (Hirschi & Gottfredson, 1993, p. 49). Instead, Hirschi and Gottfredson (1993) argue that self-control should be considered a "barrier that stands between the actor and the obvious momentary benefits crime provides" (p. 53).

Hirschi and Gottfredson (1993) also critique Grasmick et al.'s (1993) approach to scale construction. They argue that self-report measures leave room for the possibility (and even inevitability) that one's level of self-control influences self-report survey response. They believe that individuals with low self-control will not have the patience to complete surveys, and this approach may therefore produce unreliable estimates of respondents' attitudes and behavior. Some research has supported this contention (see Piquero, MacIntosh, & Hickman, 2000). Based, in part, on these reasons, Hirschi and Gottfredson (1993) prefer a behavioral measure of self-control.

The dimensionality of the Grasmick scale has also come under scrutiny. While some research supports the unidimensionality thesis, other research suggests that self-control is not a unidimensional concept. A number of scholars find empirical support for the unidimensionality thesis (see e.g., Arneklev et al. 1993; Grasmick et al. 1993; Brownfield & Sorenson 1993; Polakowski, 1994; Gibbs & Giever, 1995; Gibbs et al. 1998). For example, Grasmick et al. (1993) conclude that a one-factor solution best encompasses the 24 items of their scale based on a scree discontinuity test. There is, however, some research that challenges the unidimensionality of the self-control construct. Results from Longshore et al.'s (1996) re-assessment of the Grasmick scale suggest evidence for a five-factor solution. Results from Cochran et al. (1998) demonstrate that one dimension, preference for physical tasks, does not conform to the unidimensional hypothesis. DeLisi et al. (2003) use structural equation modeling to assess one-factor, six-factor, and seven-factor solutions. Although the one-factor

solution holds its ground, they find the most support for a six-factor solution. A replication of Longshore et al. (1996), however, by Piquero and Rosay (1998), using the same data but with different model specifications, demonstrates that the one-dimensional scale is the best solution.

Operationalization critiques have also been levied against Grasmick et al.'s measurement of self-control. Marcus (2004) disagrees with Grasmick et al.'s creation of a 24-item scale based on Gottfredson and Hirschi's (1990) "elements of self-control" because it amounts to a "cookbook" for creating a self-control measure. This is an important misunderstanding, according to Marcus (2004), because "self-control has no elements at all" (p. 36). Instead, he believes that Gottfredson and Hirschi (1990) intended for a much broader conceptualization (and operationalization) of self-control.

Although the Grasmick et al. scale has been criticized, it continues to be widely used, and empirical research demonstrates that the scale is a reliable indicator of self-control (Arneklev et al., 1993; Hay, 2001; Higgins, 2004; LaGrange & Silverman, 1999; Longshore, 1998; Piquero & Tibbetts, 1996). Some scholars, however, still contend that researchers over-rely on the Grasmick scale and call for alternative measures to be created and considered (see Cochran et al., 1998; Marcus, 2004; Polakowski, 1994; Sorensen & Brownfield, 1995). Cochran et al. (1998), for example, acknowledge that using previously validated attitudinal scales (e.g., Grasmick et al., 2003; Wood et al., 1993) speaks highly of the reliability of these measures and overcomes tautology concerns; but they also recognize the need for "a little risk-taking by other researchers…to break new ground and develop alternative measures of low self-control" (p. 253). Many of the alternative measures are other attitudinal scales, behavioral indicators, or some combination of both. These alternative strategies are generally valid and reliable predictors of self-control (see Burton et al., 1994; Feldman & Weinberger, 1994; LaGrange & Silverman, 1999; Miller, Jennings, Alvarez-Rivera, & Lanza-Kaduce,

2009; Polakowski, 1994; Tangney et al., 2004; Wright, Caspi, Moffitt, & Silva, 1999). The next section describes behavioral measures of self-control.

Behavioral measures of self-control. Attitudinal scales are typically reliable measures of self-control, and they do not suffer from tautology concerns, but Hirschi and Gottfredson (1993), the architects of the theory, adamantly prefer behavioral measures. Many researchers utilize deviant/imprudent behavior as a dependent variable, but Hirschi and Gottfredson (1993) argue that such behaviors can be used as an independent variable (i.e., as an indicator of low self-control).

Keane et al. (1993) were first to utilize a behavioral measure of self-control. Based on Gottfredson and Hirschi's (1990) contention that those with low self-control lack the ability to consider the long-term consequences of their actions and exhibit impulsiveness, they use three items to tap into risk-taking and shortsightedness (e.g., "Do you wear your seat belt?"). Their findings demonstrate that risk-taking is related to crime (as measured by driving under the influence).

LaGrange and Silverman (1999) apply several attitudinal indicators (e.g., subscale items from the Grasmick scale) and behavioral indicators (e.g., smoking and drinking) of self-control to predict deviance among adolescents. Contrary to Gottfredson and Hirschi's (1990) claim that multiple indicators of self-control coalesce into a singular trait, LaGrange and Silverman (1999) assess their indicators individually. Their findings suggest that the behavioral indicators of smoking and drinking are both related to general delinquency and property offenses. Their results also demonstrate that drinking is related to violent offenses and neither behavioral indicator is related to drug offenses.

Evans et al. (1997) use an 11-item attitudinal scale and 18-item self-report imprudent behavior scale as measures of self-control. While their findings suggest that their behavioral measure is related to crime, this measure of self-control is somewhat problematic. In this measure, they include several items of imprudent behaviors that are

equivalent to criminal behaviors (e.g., drunk driving, public urination, drug use). According to Gottfredson and Hirschi (1990), when analogous behaviors are used as an indicator of self-control, they must be independent of crime. Because several of Evans et al.'s (1997) behavioral-item measures of self-control are crimes themselves, the use of criminal behavior to predict criminal behavior is empirically tautological. Hirschi and Gottfredson (1993), however, claim that tautology can be avoided by using independent indicators of self-control: "…we have proposed such items as whining, pushing, and shoving (as a child); smoking and drinking and excessive television watching and accident frequency (as a teenager); difficulties in interpersonal relationships, employment instability, automobile accidents, and drinking, and smoking (as an adult)…these acts…are logically independent of crime" (Hirschi & Gottfredson, 1993, p. 53).

Adhering more strictly to Hirschi and Gottfredson's (1993) concerns, Tittle et al. (2003) construct a 10-item behavior scale in their attempt to assess whether attitudinal measures are better indicators of self-control than behavioral measures. The items used by Tittle et al. (2003) are independent of crime (e.g., drink alcohol, smoke tobacco, wear seat belt), and their findings demonstrate that the behavioral measure of self-control is related to a host of criminal outcomes including general deviance, assault, theft, tax cheating, and illegal gambling.

Paternoster and Brame (1998) base their 5-item behavioral measure of self-control on the premise that individuals lacking in self-control are impulsive, desiring immediate gratification, and ignoring the long-term consequences of their actions. The items they use are independent of crime, but their measure is slightly different than the behavioral measures used by most other researchers because of the sample being studied–young boys. Based on Hirschi and Gottfredson's (1993) recommendation to use whining, pushing, and shoving as indicators of low self-control in children, Paternoster

and Brame's (1998) 5-item instrument measures behaviors such as acting out, adventurousness, concentration abilities, and difficult to discipline. They find that low self-control in childhood is related to serious criminal activity (e.g., aggravated assault, vehicle theft) and analogous behavior (e.g., heavy drinking, multiple sexual partners) at age 18.

Measurement is an important component of any empirical examination. This is especially true for self-control research because Gottfredson and Hirschi (1990) do not explicitly state how to test their general theory. According to Marcus (2004), it is crucial to be as detailed as possible about the definition of self-control, and it is equally important to carefully measure self-control when empirically testing the theory. He writes that "Both objectives require a rigorous translation of the theoretical concept into an operationally defined personality construct and further transmission into a measure that taps into the trait and not into something else" (p. 34). He further argues that many of the empirical investigations of the general theory have not met these standards.

Marcus (2004) contends that the original architects, Gottfredson and Hirschi, are at fault because their "imprecise construct definition led to inadequate measurement" (p. 34). Hirschi (2004) also criticizes his and Gottfredson's definition of self-control, writing that their original conceptualization was "ill-considered" (p. 548). With that said, findings from Pratt & Cullen (2000) and Tittle et al. (2003) demonstrate that both approaches–those using attitudinal measures and those using behavioral measures–produce reliable and supportive evidence for the theory. Attitudinal scales yield acceptable internal consistency, but they suffer from theoretical limitations (self-control = personality trait; Hirschi & Gottfredson, 1993) and empirical weaknesses (survey response bias; Piquero et al., 2000). Behavioral measures, while they are preferable to Gottfredson and Hirschi, suffer from weak internal consistency estimates (e.g., Paternoster & Brame, 1998; Tittle et al., 2003) and tautological concerns (Evans et al., 1997). The next sections offer brief

reviews of the empirical research of self-control theory on both general deviance and occupational deviance.

Empirical Research of Self-Control Theory on General Deviance

In general, research on the general theory finds mixed support. Much of this research, which uses an array of different conceptualizations and measurements of self-control and different outcomes of crimes and analogous behaviors, demonstrates a significant relationship between self-control and deviance in ways that are anticipated by the theory (see e.g., Gottfredson, 2011; Pratt & Cullen, 2000; Tittle et al., 2003). However, other research indicates that several of its tenets are not fully supported (e.g., Baron, 2003; Forde & Kennedy, 1997; Pratt et al., 2004; Tibbetts & Myers, 1999). For example, Gottfredson and Hirschi (1990) contend that other theoretical explanations (e.g., peer association) for crime are spurious, but several studies measuring both self-control and deviant peer association yield results which demonstrate that self-control is not the sole explanation for crime (e.g., Baron, 2003; Chapple, 2005; Higgins, 2004; Higgins, Fell, & Wilson, 2007; Pratt & Cullen, 2000). Additionally, research finds contradictory evidence regarding the theory's stability hypothesis (e.g., Burt, Simons, & Simons, 2006; Piquero, Farrington, Nagin, & Moffitt, 2010), generality hypothesis (e.g., Simpson & Piquero, 2002; Van Wyk, Benson, & Harris, 2000), and effective parenting as the source of self-control (e.g., Beaver, Wright, DeLisi, & Vaughn, 2008; Pratt et al., 2004; Unnever, Cullen, & Agnew, 2006).

Empirical Research of Self-Control Theory on Occupational Deviance

The empirical status of the general theory is also somewhat mixed with respect to occupational deviance. According to Robin (1974), occupational deviance refers to occupational violations by employees during the course of occupational activity and related to the workers' employment. Barker (1977), however, suggests that this definition is too broad and must also include other forms of misconduct/deviance. He argues that a

conceptualization of occupational deviance should “encompass violations of any or all of the following normative systems: criminal acts which are directly related to employment, violations of occupationally prescribed ethical standards, and violations of work rules and regulations” (p. 356).

The literature is replete with studies examining self-control and occupational misconduct/deviance (e.g., Piquero, Schoepfer, & Langton; 2010; Simpson & Piquero, 2002; Van Wyk et al., 2000). In their book, Gottfredson and Hirschi (1990) devote an entire chapter to occupational (i.e., white-collar) crime and argue that it, too, can be explained by self-control. As already noted, the authors contend that their general theory is capable of “explaining all crime, at all times” (p. 117). Though self-control theory generally receives moderate empirical support, research in this particular area of deviance receives mixed support for the theory.

In a study of nursing home staff, Van Wyk et al. (2000) presented participants with the Grasmick scale. They find that low self-control is correlated with patient abuse, but is not a significant predictor of patient abuse or staff theft. Because Gottfredson and Hirschi (1990) argue that the combination of low self-control and opportunity will lead to crime, Van Wyk et al. also create an interaction term for these two variables; the results indicate that the interaction term is in the hypothesized direction for both outcomes but also does not reach statistical significance.

In accordance with Hirschi and Gottfredson’s (1993) preference for measuring self-control behaviorally, Simpson and Piquero (2002) utilize a behavioral measure of self-control in an effort to explain corporate offending, and they assert that “On balance, if the theory cannot account for the offending patterns of corporate managers, then one of its main claims–that it is a general theory–is challenged” (p. 514). Simpson and Piquero present a sample of MBA students with a hypothetical vignette to assess their intentions to engage in price fixing, bribery, manipulation of sales statistics, and

violations of Environmental Protection Agency emissions standards. Their measure of self-control is respondents' self-reported imprudent behaviors (e.g., number of times divorced, number of sexual partners, and number of vehicle accidents). Their findings suggest that low self-control is not a significant predictor of corporate offending intentions, and thus, they find that one of the key tenets of the general theory is unsupported.

Two studies use both an attitudinal and a behavioral measure of self-control to assess employee offending intentions (Langton et al., 2006; Piquero, Schoepfer, & Langton, 2010). Langton et al. (2006) examine employee theft intentions in a sample of undergraduate students. Their survey contains, among other things, the Grasmick scale, a 4-item behavioral measure (e.g., seatbelt use, use of a fake ID), and hypothetical vignettes of employee theft. In support of self-control theory, their results demonstrate both measures of self-control are significant predictors of employee theft intentions. Piquero et al. (2010) utilize the Grasmick scale and a 7-item behavioral measure of self-control (e.g., speeding, being fired from a job) in an attempt to explain intentions for corporate offending. Their behavioral measure consists of a seven-item count index of imprudent behaviors (e.g., cigarette smoking, drinking alcohol, speeding, and car accidents). Their findings are similar to those of Van Wyk et al. (2000) and Simpson and Piquero (2002) in that neither measure of self-control is significantly related to offending intentions.

Finally, in a study of high school seniors in Tennessee, Gibson and Wright (2001) find mixed support for the general theory. Participants in their study are presented with a 12-item modified Grasmick scale to measure self-control. They use a 9-item employee delinquency scale (e.g., "Put more hours on time card than actually worked," "Drank alcohol or used drugs while on the job") as a dependent variable. Gibson and Wright's results suggest that low self-control is related to employee deviance in an initial model,

but is rendered non-significant when variables from competing theories (e.g., social control, social learning) are entered into a full model. Overall, the above studies provide varied support for utilizing self-control theory to explain occupational deviance.

Conclusion to Gottfredson and Hirschi's (1990) General Theory of Crime

Since the publication of their general theory, Gottfredson and Hirschi continue to defend their theory and clarify its conceptualization and measurement (see e.g., Hirschi & Gottfredson, 1993; 2000). The research reviewed above utilizes several variants of independent and dependent variables, and much confusion over the conceptualization and measurement of self-control remains. Recently, Hirschi (2004) provided a revision of the general theory, particularly with respect to definition and measurement of self-control. The next section will detail his revised version of self-control theory.

Hirschi's (2004) Revision of Self-Control Theory

To address some of the concerns regarding the conceptualization and measurement of self-control, Hirschi, in 2004, proposed a revised version of self-control theory. Hirschi (2004, p. 542) argues that Gottfredson and Hirschi's (1990) list of self-control elements and the measures that have derived from it have been errors, which have "muddied the waters." He pinpoints four key weaknesses directly related to them: (1) the list and subsequent measures suggest variation among individuals in motives for crime, which is contrary to the base assumptions of the theory that motives for crime are irrelevant; (2) the list and subsequent measures support a personality trait-based explanation of crime; (3) they both fail to explain how self-control operates; and (4) they fail to produce measures "in which more is better than less, in which the effects of the individual traits on criminal behavior are cumulative" (p. 542). Regarding this last problem, Hirschi (2004) recognizes the fact that research (e.g., Longshore et al., 1998; Piquero & Rosay, 1998) sometimes finds that single traits, such as impulsivity or risk

taking, fare better at predicting criminal behavior than an inclusive scale, which is contrary to the theory suggesting that the dimensions coalesce into a singular trait.

To remedy these problems, Hirschi (2004) redefines self-control, not as the tendency to consider the *long-term* costs of a behavior, but as the tendency to consider the *full range* of potential costs of a behavior. The new definition retains a focus on one's ability to calculate the likely costs of their actions, but it acknowledges that a larger range of factors exists, which influences one's decision making. The revised definition is now more compatible with the original intent of the theory: "the dimensions of self-control…are factors affecting the calculation of the consequences of one's acts" (Hirschi, 2004, p. 543 quoting Gottfredson & Hirschi, 1990, p. 95). Hirschi (2004) suggests that self-control now refers to an internal set of inhibitions, which are "factors that one takes into account in deciding whether to commit a criminal act" (p. 545). Hirschi (2004) argues that inhibitions are best described in the elements of the social bond because "… social control and self-control are the same thing" (p. 543).

Self-control and the social bond. Initially, Hirschi (1969) put forth an "age-variance" hypothesis in social control theory. Hirschi and Gottfredson (1983), however, reject this hypothesis in favor of an age-invariant thesis. Gottfredson and Hirschi then wrote their general theory (1990), in part, to account for their new-found conclusions regarding age and crime. In order to equate social control and self-control, Hirschi (2004) rectifies the incompatible assumptions of both theories. He considers rejecting the stability assumption put forth by self-control theory, but concedes that he cannot reject what he believes to be true. He then contemplates rejecting the instability assumption of social control theory, and he acknowledges that this assumption rests on unsteady grounds. Hirschi (2004) ultimately concludes by abandoning the instability assumption of social control theory, but argues that the theory can be substantiated by now assuming that differences in social control are, in fact, stable (and presumably

always have been).[3] By equating self-control and social control, Hirschi (2004) essentially subsumes the bonds of social control theory into the concept of self-control. He further indicates that the four elements of the social bond act as inhibiting factors, which work to reduce the likelihood of deciding to engage in antisocial behavior. Alternatively stated, Hirschi (2004) argues that the elements of the bond create an internal value system, which guides one's decision-making.

Borrowing from social control theory, Hirschi (2004) lists several inhibitors that discourage crime (e.g., parent attachment). According to Hirschi (2004), the elements of the bond function as inhibitors because they are factors that one takes into account in deciding whether to engage in criminal or delinquent behavior. Hirschi (2004) emphasizes the importance of attachment and the opinions of others (p. 545), and he contends that "the principal source of control is concern for the opinions of others" (p. 545). This statement is similar to one Hirschi (1969) made in his social control theory: "the essence of internalization of norms…lies in the attachment of individuals to others" (p. 18). The new version of self-control reflects a movement away from a personality-based view of self-control. According to Hirschi, a personality-driven conceptualization searches for the motives of crime, which runs counter to the control perspective; does little to explain variation in crime, and does not demonstrate how self-control operates.

Hirschi (2004) suggests that social bonds are the central inhibitors one considers before engaging in antisocial behavior, and the inhibitors, in turn, influence the cognitive evaluation of all potential costs to committing a deviant act. He argues that these inhibitions (costs) can vary in their *number* and *salience*: the more pro-social bonds one

[3] Hirschi (2004) likens the social bond to self-control (i.e., having a strong social bond is indicative of having self-control). Because he equates these two terms and abandons the instability assumption of social control theory, he is effectively stating that the social bond is time-stable. The specifics of the bond may change over time (e.g., attachment to one's parents as an adolescent and attachment to one's spouse in adulthood), but Hirschi (2004) argues that these (now synonymous) constructs are time-stable. Thus, if one is socially bonded as an adolescent, he/she will be socially bonded as an adult. Essentially, Hirschi argues that an individual has self-control by the presence of a strong social bond (see however, Ward, Boman, & Jones (in press).

has, as well as the importance/strength one ascribes to those bonds, the greater weight one will place on all costs (both immediate and long-term) of offending.

Hirschi (1969) indicates that attachment causally precedes the other elements of the bond, but in his revised version of self-control, Hirschi (2004) does not make this claim. Alternatively, he argues that the elements of the bond represent a global concept (i.e., self-control). Hirschi (2004), however, is not the first to conceptualize the social bond elements as self-control. Prior to Hirsch's (2004) revision, work by Sorensen and Brownfield (1995) and Stylianou (2002) advance arguments utilizing bond elements as self-control.

According to Sorensen and Brownfield (1995, p. 23), Gottfredson and Hirschi's (1990) elements of self-control include, among other things, attachment to others. In their operationalization of self-control, Sorensen and Brownfield (1995) use nine items, many of which came from Hirschi's (1969) social control analyses (e.g., parental attachment is measured by "Would you like to be the kind of person your father is?"; attachment to teachers is measured by "Do you care what teachers think of you?"). According to results from Sorensen and Brownfield, both attachment to one's father and attachment to one's teachers (as bond measures of self-control) are significantly related to drug use among a sample male and female high school students in Seattle.

Stylianou (2002) also argues that self-control can be measured through bond elements. In constructing a 14-item self-control index, he utilizes several measures that are compatible with Hirschi's (1969) analyses. Some of Stylianou's (2002) items reference attachment to others (e.g., "How important is having a good marriage and family life?"), attachment to school (e.g., "How do you feel about going to school?"), and commitment to conventional society (e.g., "How important is being able to find steady work?"). Many of his items act as proxies for the self-control elements of future orientation, long-term commitment, and self-centeredness. Using a nationally

representative sample of high school seniors, his results demonstrate that his self-control index is related to skipping class, traffic tickets, smoking cigarettes, smoking marijuana, and drinking alcohol.

Empirical Investigations of Hirschi's (2004) Revised Self-Control Theory

In their respective studies, Sorenson and Brownfield (1995) and Stylianou (2002) rely on Gottfredson and Hirschi's (1990) definition of self-control and on the fact that no direct link between social control theory and self-control theory previously existed. In an effort to provide an initial test of his revised theory, Hirschi (2004) re-analyzes his Richmond and Fayetteville delinquency data from 1969. However, he examines the influence of self-control with the added benefits of a new definition of self-control and an explicitly stated linkage between the two theories. To operationalize inhibitors, Hirschi (2004) uses items measuring bonds to school, teachers, and mothers (e.g., "Do you like or dislike school?"). Contrary to his social control theory analysis, in which Hirschi used ordinal-scale bond items, Hirschi (2004) measures only whether or not each bond exists, and then produces a summative measure that reflects the number of bonds. He conceptualizes bonds (i.e., inhibitors) as either present or absent, but he does not, in his analysis, provide a measure of the salience of the bonds. Notwithstanding this limitation, and consistent with predictions, the likelihood of delinquency decreases as the number of bonds (i.e., inhibitors) present increases.

Of the several empirical investigations (beyond Hirschi's own analysis) of the new concept of self-control, only Piquero and Bouffard (2007) find strong support for the revised theory.[4] They argue that the new definition of self-control is better than previous ones for a variety of reasons, including that the revised definition provides a way to think about the variability in crime from situation to situation, moves away from defining self-

[4] It is important to note that this empirical support is limited to two specific dependent variables: intentions to commit drunk driving and intentions to commit sexual coercion.

control as a personality characteristic, is broader than previous definitions, and avoids charges of theoretical tautology.

As a measure of the revised concept of self-control, Piquero and Bouffard (2007) use hypothetical vignettes about drunk driving and sexual coercion. In their study, respondents are asked to develop for each offense a list of up to seven "bad things" that could occur if they engage in that particular offense. The authors conceptualize these "bad things" as the number of inhibitors. To gauge salience, participants are asked to rate how important (0 = "Not Important" to 100 = "Very Important") each of their self-reported bad things would be to them when making their decision whether or not to commit each offense.

According to Bouffard (2002), the main advantage of using hypothetical scenarios is that it "allows subjects to simultaneously (or nearly so) consider the consequences of their behavior and the likelihood of engaging in a specific type of misconduct" (p. 748). Additionally, Bouffard (2002) argues that the use of self-generated "bad things" responses is better than researcher-generated responses because those generated by the researcher may not accurately reflect the "real world" decision-making process of respondents (p. 749). Specifically, he suggests that, if subjects are made aware of potential costs that they would not have normally considered on their own, the resulting deterrent effect of this perceived cost could be an artifact of the research design. In support of Hirschi's revised theory, Piquero and Bouffard (2007) find that the significant relationship between 1990 self-control–using Grasmick et al.'s (1993) scale–and intentions to offend (drunk driving and sexual coercion) is rendered non-significant after including their measure of re-conceptualized self-control (inhibitors = number of costs x average salience) in a full regression model.

Research from Bouffard and Rice (2011), examining the likelihood of drunk driving among college students, find support for Hirschi's (2004) re-conceptualized

concept of self-control. Their methodology is similar to Piquero and Bouffard (2007), but they utilize the salience of the costs rather than a multiplicative term (i.e., costs x average salience).[5] Bouffard and Rice prefer this strategy because even if respondents with low self-control fail to report some of the costs that they actually consider (a response bias), the salience of the costs that they report should be lower, on average, among individuals with a weaker social bond, which is what Hirschi (2004) predicts. They also measure "concern for others" with an eight-item scale tapping into one's level of attachment to family, belief in the law, and religious commitment. Bouffard and Rice's (2011) path analysis indicates that self-control is negatively related to drunken driving intentions. Their results also suggest that concern for others is positively related to self-control, but is not directly related to drunken driving intentions.

More consistent with Hirschi's (2004) measurement, Higgins, Wolfe, and Marcum (2008) and Higgins, Mahoney, and Ricketts (2009) use social bonding as a measure of self-control. Higgins et al.'s (2008) 7-item scale captures commitment to school and attachment to parents, while Higgins et al.'s (2009) 8-item scale taps into commitment to school and teachers. The results from Higgins et al. (2008) demonstrate that three measures of self-control (social bonds, Grasmick scale, and Piquero & Bouffard's costs x salience inhibitors) all exert significant and independent effects on digital piracy when analyzed in a full regression model. Their findings further suggest that all three measures play a significant role in explaining the outcome, and that the traditional self-control measure still has predictive utility. The results from Higgins et al. (2009) suggest that revised self-control is related to nonmedical use of prescription drugs.

[5] The authors suggest that using the number of costs as part of the measure could lead to measurement errors. Hirschi (2004) argues that a respondent who produces a shorter "cost list" is evidence of low self-control. Bouffard & Rice (2011), however, argue that participants may report small lists "not only because they considered fewer costs in their decisions (the expected effect—weak bond and little consideration of costs), but also because they failed to report all the costs that they may have actually considered (a response bias)" (p. 144; see also, Piquero et al., 2000).

Recent studies from Dodson (2009) and Ward et al. (in press) find support for Hirschi's revised theory using both a social bond measure of self-control and a consequence measure of self-control, but these studies do not consider Gottfredson and Hirschi's original version of self-control theory. In an analysis of 257 undergraduate students, Dodson's findings demonstrate that her 43-item bonding measure of self-control (e.g., "Grades are important to me," "What my professors think of me matters a lot to me") and her costs-only measure both significantly predict general deviance. To capture social bonds, Ward et al. use a 12-item bonding measure attachment (e.g., closeness to mother, importance of getting a good job, moral duty to follow the law), and the authors suggest that this index is similar to Hirschi's (2004) 9-item measure. To encompass Hirschi's redefinition of self-control focusing on costs and the salience of those costs, the authors use a cost x salience variable. The number of costs (e.g., guilt, negative parental reaction, likelihood of being caught) faced by each participant were summed to create a costs dimension. Salience was captured by asking participants to respond to the following question: "In deciding to use or not to use marijuana, how important ["not very important" to "very important"] is each of the following [e.g., parents, other family members] in helping you decide?" The redefined self-control measure was then calculated by multiplying a participant's number of costs by his/her average salience. Their results demonstrate that both measures of self-control from the revised theory are significantly and independently related to marijuana use among a sample of Midwestern adolescents. Moreover, this particular study has an important theoretical implication: their results find that although social bonds are moderately correlated to Hirschi's revised definition of self-control, social bonds and self-control are not the same construct as evinced by their independent effects on crime.

In contrast to the above studies, results from Morris et al. (2011) and Gunter and Bakken (2012) yield evidence in favor of the original 1990 theory. Morris et al. utilize

measures of six bonds to capture self-control (e.g., attachment to spouse or partner and involvement in community activities). In this study, bond prevalence is indicated by respondent reports of the salience for each factor. Bond salience is measured through questions that addressed the importance of a particular bond that is part of the respondent's life during the previous twelve months (e.g., "During the past year, how important have the things you've done with your spouse/partner been to you?"). Their logistic regression results indicate that the traditional measure of self-control (i.e., Grasmick scale) exerts a significant effect on offending in a full model, whereas their multiplicative bonding measure only exerts a marginally significant effect. Further, their negative binomial regression results indicate that the traditional measure exerts a significant effect on offending and the regression estimate for the new measure does not achieve statistical significance.

Gunter and Bakken's (2012) semi-replication of Piquero and Bouffard's study also provides support for the original version of self-control theory. In this study, the authors utilize the same vignette methodology to capture the likelihood of undergraduate students' intention to drive under the influence. They also use Piquero and Bouffard's costs x salience measure of Hirschi's (2004) version of the theory. In a departure from Piquero and Bouffard's study, Gunter and Bakken use a shortened version of the Grasmick scale to measure Gottfredson and Hirschi's theory. To construct this scale, they use the item with the highest factor loading (in Grasmick et al.'s original study) for each of the six dimensions of self-control. Their results indicate the Piquero and Bouffard's measure, as well as the modified Grasmick scale, exert significant effects on DUI likelihood in separate models. However, in opposition to Hirschi's (2004) hypothesis and Piquero and Bouffard's findings, Gunter and Bakken demonstrate that the Grasmick scale renders the cost x salience measure insignificant in a full model.

Finally, research from Intravia et al. (2012) and Jones et al. (in press) demonstrate mixed evidence for the revised theory. Intravia et al. (2012) measure inhibitors through four mechanisms: maternal attachment (e.g., “Able to talk to mother”), paternal attachment (e.g., “Desire to be like father”), school bonds (e.g., “Importance of getting good grades in school”), and parental monitoring (e.g., “Mother knows who you are with”). They also measure costs in four ways: parental costs (e.g., “Would your parents lose respect if you skipped school?”), peer cost (e.g., “Would your friends respect you if got away with stealing?”), certainty (e.g., Do you think you would get caught by the police if you used marijuana?”), and salience (e.g., “If caught stealing, how big of a problem?”).

To measure the traditional version of self-control, Intravia et al. (2012) construct an 11-item attitudinal self-control scale using items similar to the Grasmick scale (e.g., “Act on the spur of the moment without thinking”). Using a sample of middle and high school students in Florida, they find that three of four inhibitors (maternal attachment, parental monitoring and school bonds) and three measures of cost (certainty, peer cost, and salience) are significant predictors of general delinquency (e.g., damaged property, weapon possession). However, the traditional attitudinal measure of self-control also exerts a significant effect. In the full regression model, all four costs exert a significant effect. In their analyses, the traditional measure of self-control has an independent effect on delinquency, and the effect sizes of the inhibitors are reduced. The effect of parental monitoring is reduced by 31%, and the effect of school bonds is reduced by 44%. Also, the effect of maternal attachment is reduced to non-significance. The authors argue that, even though the attitudinal measure of self-control and the inhibitor measure of self-control have independent effects, the attitudinal measure “occupies an important role in relating to delinquency—perhaps more so than Hirschi had anticipated” (Intravia et al., 2012, p. 13).

Jones et al. (in press) use an analytic technique similar to that used by Intravia et al. to examine the effect of Hirschi's (2004) new version of self-control on substance use. They construct a 7-item inhibitor scale (e.g., "We share similar beliefs and values as a family") to capture family attachment and commitment. Five specific costs (e.g., losing friends) are assessed for each of the substances (cigarettes, alcohol, and marijuana). The traditional version of self-control is measured through two mechanisms: level of processing (i.e., impulsivity; see Eysenck & Eysenck, 1978) and thrill-seeking (see Zuckerman, 1994). Using a sample of young adults in Kentucky, they find mixed support for the new theory. The inhibitors yield significant effects on marijuana, cigarette, and serious substance use. However, inhibitors are not related to alcohol use. The traditional measures of self-control demonstrate consistent effects on all three substances. In the full model, inhibitors are only related to cigarette use, and costs are related to all three substances. Also, in the full model, the traditional measures of self-control demonstrate inconsistent effects; levels of processing is related to cigarette and alcohol use and thrill-seeking is only related to alcohol use.

The above studies represent a good start in empirically examining Hirschi's (2004) revised theory of self-control. However, many questions and unsettled issues remain. Overall, the body of research regarding Hirschi's (2004) revised self-control theory yields three key findings: (1) measurement continues to be an issue as researchers utilize several different methods for capturing a bond/inhibitor influence on self-control; (2) the new version of self-control theory demonstrates inconsistent effects on crime and delinquency; (3) the original version of self-control continues to exert independent effects when examined alongside of the revised version.

Conclusion of Theoretical Framework

The most striking differences between the two self-control theories are with respect to definition and measurement. With regard to definition, the 1990 version

defines self-control as the ability to avoid behaviors whose *long-term* costs exceed their immediate rewards. The 2004 version defines self-control as the tendency to consider the *full range* of potential costs of a behavior. This is an important distinction because the 2004 theory provides a broader definition. Hirschi writes, "With this new definition, we need not impute knowledge of distant outcomes to persons in no position to possess such information" (2004, p. 543). To support this claim, Hirschi argues that people need not know the negative implications of reckless behavior so long as these implications are known to those whose opinion they value. He continues, "…people add up in an imprecise way the negative consequences of deviant acts and behave accordingly" (2004, p. 546). The new description of self-control allows any set of consequences to be inhibitors and signifies that individuals constantly consider the consequences of a behavior in any given situation. Antisocial behavior, therefore, will result when there is an absence of inhibitions or when individuals choose to disregard potential consequences.

The theories also differ with regard to measurement. The original (1990) theory does not explicitly state how to operationalize and measure self-control. Researchers subsequently measure it attitudinally or behaviorally. Hirschi and Gottfredson (1993) argue that behavioral measures are better for a variety of reasons (e.g., to avoid a connection being made between personality traits and self-control). Unlike Gottfredson and Hirschi (1990), Hirschi (2004) does produce a measure of his construct; he constructs a nine-item self-control scale based on converted (dichotomized) items from in his 1969 social control analyses.

Another difference between the two theories pertains to the tautology issue. According to Piquero and Bouffard (2007), one reason why the re-conceptualized self-control theory is better is that it avoids the issue of theoretical and empirical tautology; the new concept is not equated to criminal inclination. Akers and Sellers (2009) concur; they state that the new version of self-control "renders the theory non-tautological

because, unlike the 1990 concept, the new concept does not make self-control synonymous with criminal propensity or criminal behavior" (pp.143-144). They report that the new measure of self-control (e.g., inhibitors), is not based on "indicators of the dependent variable converted to measures of the independent variable" (p. 144).

Finally, the two versions of self-control theory differ with regard to the level of empirical support each has received. Consistent with some of the studies referenced above, Pratt and Cullen's (2000) meta-analysis of the 1990 self-control theory suggests "fairly impressive empirical support" for the theory (p. 951). Although the 1990 self-control theory is not without its own critics (e.g., Akers, 1991; Geis, 2000), the meta-analysis concludes that self-control as conceptualized in the 1990 theory was a consistent predictor of offending across self-control measures, model specifications, sample characteristics, and dependent variables. Of the 20 studies in their meta-analysis that use attitudinal measures, more than half (11) utilize the Grasmick scale. Of those 11 studies (which produced 41 effect sizes), Pratt and Cullen's results yield a mean effect size of .255 ($p<.01$). More recently, De Ridder et al. (2012) conducted a meta-analysis on three widely used attitudinal self-control scales. With respect to the Grasmick scale, they find mean effect sizes of .25 for addictive behavior and .15 for deviant behavior (both $p<.001$). The same empirical robustness has not been shown for the 2004 version of self-control. Beyond Hirschi's own analysis, only Piquero and Bouffard's (2007) study demonstrates strong support for the theory, although many of these early investigations find independent effects for measures of *both* theories.

The original (1990) self-control theory has been tested in almost every imaginable way. It has been assessed cross-nationally (e.g., Vazsonyi et al., 2001), among various populations (e.g., Miller et al., 2009; Paternoster & Brame, 1998; Piquero & Tibbetts, 1996; Polakowski, 1994; Sellers, 1999), using different measures and methodological designs (e.g., Grasmick et al., 1993; Keane et al., 1993) and with diverse

outcomes (Cochran et al., 1998; Jones & Quisenberry, 2004; Langton et al., 2006; Pratt & Reisig, 2011). The newer version (2004) of self-control theory is still in its infancy; here, researchers have mainly utilized adolescent and young adult samples and have evaluated the effect of self-control primarily on minor forms of crime (e.g., Higgins et al., 2008; Hirschi, 2004; Jones et al., in press). Across all of these varying methodological and model specifications, empirical assessments generally support this perspective's prominence in criminology (e.g., Gottfredson, 2011; Piquero & Bouffard, 2007; Pratt & Cullen, 2000; Tittle et al., 2003). One population, however, that has been neglected in the self-control literature is law enforcement personnel; subsequently, one outcome that has largely been overlooked is police misconduct. This is surprising considering that police misconduct has been researched through the lens of other leading theories and conceptual perspectives.

This dissertation seeks to explain police misconduct through a self-control perspective. It also will test which of the two versions of self-control theory is more empirically validated. The specific research questions being addressed are: (1) is low self-control related to police misconduct, and, if so, (2) which of the two versions of self-control theory better predicts police misconduct? Gottfredson and Hirsch's (1990) version of self-control theory has been used to assess occupational misconduct and only one study has examined police misconduct. Hirschi's (2004) revision of self-control, to date, has not addressed any form of occupational misconduct. Before outlining the design of the study, it is important to first consider the importance of police deviance and review the key research.

CHAPTER 3:

POLICE MISCONDUCT

Police deviance is a complex phenomenon. The law, which constrains the behavior of people in society, also applies to those who enforce it. As enforcers of the law, it is somewhat ironic that police personnel sometimes act outside of the law and, by doing do, abuse the trust that society has bestowed upon them. It is no secret that some police personnel lie, steal, accept bribes, rob drug dealers, sell drugs, use alcohol/drugs on duty, and turn a blind eye when they see other police personnel engaging in similar behaviors. The consequences of such behavior reach far beyond the individual police officer. Research demonstrates that acts of police deviance can result in the loss of confidence in, and legitimacy of, the police organization (for a review, see Goldsmith, 2005; Lersch, 2002).

Beginning with some of the classic police behavior studies (Black & Reiss, 1970; Reiss, 1971; Sherman, 1980), a large body of research establishes numerous individual, organizational, and community-level correlates of police misconduct (e.g., Fyfe & Kane, 2005; Greene et al., 2004; Haarr, 1977; Ivkovic, 2009; Lersch & Kunzman, 2001; Kane, 2002; Kane & White, 2009; Sechrest & Burns, 1992; Wolfe & Piquero, 2011). While these factors are important in guiding department policy and attempting to implement strategies to reduce the prevalence of police deviance, the empirical research linking police deviance to criminological theory is limited. If police administrators better understood why these predictors of deviance are important, police administrators could make more informed policy decisions. Criminological theories of deviance are not new, but only in the last ten years have researchers begun to examine whether or not

traditional theories can explain police deviance. Before discussing the prevalence of police deviance and the state of police deviance literature, it is first important to understand the concept of police deviance. This term is murky and plagued with definitional and conceptual problems.

Definitions of Police Deviance

According to Wolfe and Piquero (2011), one of the primary failures of theory testing with respect to police deviance is the ambiguity surrounding what police deviance entails. Generally speaking, acts of police deviance occur when law enforcement personnel violate the law or behave in ways that discredit their position. Police deviance is labeled and defined in a number of different ways in the literature. Common labels include police deviance, police misconduct, and corruption. These labels are used to categorize or differentiate types of police deviance, but many of the deviant behaviors share a common theme: the violation of legislatively-enacted laws or departmental policies. One general definition of police misconduct is "…any inappropriate behavior on the part of any law enforcement officer that is either illegal or immoral or both" (Champion, 2001, p. 2). Barker and Carter (1986) define police deviance as "a generic description of police officer activities which are inconsistent with the officers' legal authority, organizational authority, and standards of ethical conduct" (pp. 1-2). Examples of deviance/misconduct include, but are not limited to the following: accessing police records for personal use, abusing sick leave, lying to supervisors, perjuring on reports and in court, committing a crime, falsifying overtime reports, using excessive force, accepting gratuities, failing to report misconduct of a fellow officer, sleeping on duty, and sexually harassing or engaging in other such improprieties.

Barker and Carter (1986) dichotomize police deviance into two overlapping categories: (1) occupational deviance and (2) abuse of authority. They define occupational deviance as deviant behavior (both criminal and noncriminal), which is

committed during the course of normal work activities or under the guise of the employee's authority. Abuse of authority refers to any action by a police officer without regard to motive, intent, or malice that tends to injure, insult, trespass upon human dignity, and/or violate an inherent legal right of a member of the public (see also Carter, 1984). Abuse of authority can be inflicted through physical abuse, psychological abuse, and/or legal abuse. Physical abuse refers to an officer who uses more force than necessary. Psychological abuse occurs when an officer verbally ridicules, assails, discriminates, or harasses a member of the public. Finally, legal abuse refers to behaviors in which an officer violates one's constitutional, federal, or state rights.

Kappeler, Sluder, and Alpert (1998) identify four types of non-mutually exclusive police deviance: (1) police crime, (2) occupational deviance, (3) corruption, and (4) abuse of authority. They refer to police crime as any behavior in which an officer uses his or her authority to facilitate the commission of a crime, and can include any crime that is committed by members of the public (e.g., theft, burglary, homicide). Their conceptualization of occupational deviance encompasses any inappropriate, work-related activities in which police may participate (see also Barker & Carter, 1986). This type of deviance is made possible because of the position held by the officer (e.g., failing to arrest family member, unauthorized records check).

The third type, corruption, refers to any economically-based, job-related act which is driven by personal gain (e.g., taking bribes). Other definitions of corruption come from Goldstein (1977) and Sherman (1978). Goldstein (1977) defines corruption as "… the misuse of authority by a police officer in a manner to produce personal gain for the officer" (p. 188), and Sherman (1978) defines it as "an illegal use of organizational power for personal gain" (p. 30). According to Barker and Roebuck (1973), deviant acts fall into one of seven conceptual categories of police corruption: (1) acceptance of free or discount meals and services, (2) acceptance of kickbacks for

referrals for services, (3) opportunistic theft, (4) shakedowns, (5) protection of illegal activities, (6) accepting money to fix cases, and (7) planned theft.

The fourth type of police deviance, as outlined by Kappeler et al. (1998), is abuse of authority. They follow Barker and Carter's (1986) characterization in that it can include behaviors of physical, psychological, or legal abuses (e.g., perjury, illegal stop and frisk). However, many acts of misconduct could fit into multiple types of police deviance based on these typology systems. Thus, these types are not necessarily mutually-exclusive, and researchers should look to more global definitions when considering how to properly define police misconduct (such as Barker and Carter's or Champion's). Regardless of definition or typology, police deviance is a real concern and one that needs further examination. The next section examines the prevalence of police misconduct.

Prevalence of Police Misconduct

Estimates of the prevalence of police misconduct tend to vary widely because of variation in definitions and difficulties in producing reliable measures. Some researchers suggest that acts of police deviance are abundant (e.g., Kappeler et al., 1998), while others find that incidents are relatively rare (e.g., Lersch & Mieczkowski, 2000). According to Son and Rome (2004), deviance estimates depend upon the conceptualization of the behavior, as well as the source of the data. In their survey research, they find that the general citizenry defines misconduct more broadly than police officers do and are more likely to report an act as being deviant (see also Lersch & Mieczkowski, 2000).

The empirical research addressing the prevalence of police misconduct generally uses one of two measures: (1) internal and external (i.e., citizen) complaints and (2) indirect self-report estimates from law enforcement personnel. With respect to complaint statistics, for example, results from Lersch and Mieczkowski (2000) demonstrate that personnel in a southeastern U.S. police department received a total of 854 complaints of

misconduct over a three-year period, and 80% of the complaints were citizen-generated. Chappell and Piquero (2004), however, note that complaints are often not the best measure of police misconduct because of under- and over-reporting problems, and because only a small fraction of complaints are eventually sustained.

Direct self-report measures ask respondents to report on *their own* behavior, but this method is not generally used in this line of research. One common way to gauge the prevalence of police misconduct has been through indirect self-report estimates (Martin, 1994; Knowles, 1996; Son & Rome, 2006). According to Klockars, Ivkovic, Harver, and Haberfeld (1997), answering questions regarding the behavior of others is less threatening; thus, officers may be more willing to answer questions regarding whether they are willing to report others for misconduct. Martin (1994) uses a 34-item list of unethical police behaviors to assess the prevalence and seriousness of police misconduct. She administered a survey to Illinois police officers, asking them to report, among other things, if they had witnessed *other officers* engaging in acts of police misconduct ("In the past 12 months, have you personally observed a police officer…"). Utilizing a similar methodological strategy as Martin (1994), Knowles (1996) asks Ohio officers if they had witnessed *other officers* engaging in acts of misconduct. In a more recent study, Son and Rome (2004) ask Ohio police officers to report their *fellow officers'* incidences of misconduct. Table 1 presents a summary of findings of selected misconduct behaviors from these three studies.

Researchers of police misconduct tend to utilize the indirect approach because they are skeptical that officers will not be willing to disclose *their own* on-duty deviance (see Klockars et al., 1997). There is, however, one study that indicates that officers do, in fact, report their own malfeasance (Kaariainen, Lintonen, Laitinen, & Pollock, 2008). Of the 116 Finnish police participants, 82% report at least one act of misconduct engaged in by an officer they knew, and 43% report at least one act of *self*-misconduct.

Although the results demonstrate that police personnel are much more likely to report other officer misconduct, the study breaks new ground in police misconduct research

Table 1: *Prevalence of police misconduct*

Item/Study	Martin (1994)*	Knowles (1996)*	Son & Rome (2006)*
Speed when there is no emergency	77.3%	63.1%	68.5%
Display a badge to avoid a traffic ticket	46.6%	33.5%	36.1%
Sleep while on duty	35.0%	27.8%	31.1%
Illegally search a suspect	24.8%	11.3%	13.8%
Use more force than necessary	20.4%	12.9%	15.3%
Fail to respond to call for service	14.3%	12.2%	13.9%
Fail to report excessive force incident	8.3%	6.4%	7.4%
Falsify arrest report	6.7%	3.4%	4.7%
Fail to arrest a friend/relative	1.1%	1.4%	1.3%

*Percent of officers reporting they saw similar behavior in past year

and provides encouragement to those who wish to seek direct prevalence estimates. The next section reviews the research that examines the individual and organizational correlates of police deviance.

Individual and Organizational Explanations for Police Misconduct

The research seeking to explain police misconduct centers on individual and organizational explanations. Individual-level research focuses on the "rotten apple" explanation (e.g., Sherman, 1978). The rotten apple perspective focuses on characteristics of the officer. Research demonstrates that demographic characteristics, such as age (Brandl, Stroshine, & Frank, 2001; Fyfe & Kane, 2005; Greene et al., 2004; Kane & White, 2012), biological sex (Brandl et al., 2001; Greene et al., 2004), race (Fyfe & Kane, 2005; Greene et al., 2004; Kane & White, 2009), education (Fyfe & Kane, 2005; Kane & White, 2009; Lersch & Kunzman, 2001), length of service (Donner & Jennings, 2013; Hickman, Piquero, & Piquero, 2004; Fyfe & Kane, 2005; Manis, Archbold, & Hassell, 2008), rank (Hickman et al., 2004; Kane & White, 2012), prior employment problems (Donner & Jennings, 2013; Greene et al., 2004; Kane & White, 2009), criminal history (Fyfe & Kane, 2005; Greene et al., 2004; Kane & White, 2009), procedural justice (Wolfe & Piquero, 2011), organizational commitment (Haarr, 1997), cynicism (Hickman et al., 2004; Regoli, 1977) and personality (Girodo, 1991), are all individual-level correlates of police misconduct.

For example, Greene et al.'s (2004) study of the Philadelphia Police Department suggests that female officers are 38% less likely to be involved in misconduct than their male counterparts. Their results also demonstrate that officers younger than 26 at the time of their application are 47% more likely to receive a departmental disciplinary action and non-white officers are 31% more likely to be disciplined by the department. Findings from Lersch and Kunzman's (2001) study of a southern sheriff's department show

significant differences in mean-level sustained complaints between deputies with a high school education (.60) and those with a two-year college degree (.16).

Kane and White's (2009; 2012) comprehensive study of career-ending misconduct among 1,543 New York City officers from 1975-1996 lend support to previous research findings. Specifically, they find that Black and Latino officers are more likely to engage in misconduct and officers with prior employment problems are more likely to engage in misconduct. Their results also demonstrate that older officers at time of appointment, officers with longer lengths of service, and officers with some college, a two-year degree, or a four-year degree are all less likely to engage in misconduct.

Within individual-level correlates, some research also uses the frameworks of procedural justice, organizational commitment, and cynicism in an effort to explain police misconduct. At the individual level, such studies look to an employee's perception of, or attitude toward, his or her department. For example, Wolfe and Piquero's (2011) study of Philadelphia police officers find that officer perceptions of the department's equity and fairness (i.e., procedural justice) is positively related to an officer being in the "low frequency citizen complaint" group. Haarr's (1997) qualitative analysis of the effects of organizational commitment (one's emotional attachment to his or her organization) on police misconduct suggests that organizational commitment is negatively associated with the outcome. Specifically, officers with lower levels of organizational commitment are more likely to engage in work avoidance, manipulation tactics, and deviant activities. Finally, results from Hickman et al. (2004) suggest that officers who have more cynical attitudes about their department are more likely to engage in police misconduct.

Prior research also examines the link between personality and police deviance (Girodo, 1991; Sarchione, Cuttler, Muchinsky, & Nelson-Gray, 1998; Weiss, Rostow, Davis, & DeCoster-Martin, 2004; Weiss, Zehner, Davis, Rostow, & DeCoster-Martin, 2005). Using a sample of 271 federal undercover drug agents, Girodo (1991) finds that

certain personality traits influence misconduct. He measures misconduct through two items, a history of departmental discipline and a history of on-the-job drug/alcohol abuse. Personality traits are measured through a battery of personality inventories. Results from Girodo (1991) demonstrate that three personality traits (high extraversion, high neuroticism, and disinhibition) are significant predictors of misconduct. Research from Weiss et al. (2004) and Weiss et al. (2005) similarly demonstrates that officers with certain personality characteristics (as measured by the Personality Assessment Inventory) are prone to occupational misbehaviors. Findings from these studies, which both rely on a sample of 800 southern police officers, indicate that egocentricity and stimulation-seeking tendencies are significantly correlated with insubordination, neglect of duty, and having an excessive number of citizen complaints.

Utilizing three subscales from the California Personality Inventory (CPI; Responsibility, Socialization, and Self-Control) among a sample of 109 police officers who had been formally disciplined (e.g., reprimand, suspension) and 109 officers who had not been formally disciplined, Sarchione et al. (1998) evaluate the association between personality and dysfunctional law enforcement personnel. Their results suggest that officers in the formal discipline group scored significantly lower on all three subscales. However, Tangney et al. (2004) contend that the CPI Self-Control subscale is a weak measure of self-control because several of its items do not accurately reflect the concept of self-control. For example, Tangney et al. argue that some of the items are irrelevant (e.g., “I would like to wear expensive clothes” and “I would like to be an actor on the stage or in the movies”) and some of the items tap into interpersonal issues that are not directly indicative of self-control (e.g., “My home life was always happy”).

Some research, however, indicates that police misconduct goes beyond the correlates of individual officers (i.e., rotten apples) to incorporate problems within police departments (i.e., “rotten barrels”) and/or units within the agency (i.e., “rotten orchards”).

Police organizations, just as organizations in any field, exert some influence over the behavior (including deviant behavior) of their employees (e.g., Herbert, 1998; Lundman, 1979; Crank, 1990; Brooks, 2005; Punch, 2000). This influence may be exercised directly (through policies and supervision) or indirectly (through values and culture). According to Skogan and Frydl (2004), "Police behavior is affected by broad forces, including features of the organizations that hire, train, and supervise police, as well as the environment in which they work" (p. 155). Studies of organizational explanations of police misconduct examine the influence of recruitment and selection (Sechrest & Burns, 1992), police leadership (Goldstein, 1975), organizational response to police deviance (Sherman, 1978), and police culture and socialization (Herbert, 1998; Skolnick and Fyfe, 1993; Van Maanen, 1978; Weisburd, Greenspan, Hamilton, Williams, & Bryant, 2000; Westmarland, 2005).

For example, research from Weisburd et al. (2000) demonstrates that organizational culture has an important influence on officer behavior. They use a nationally representative telephone survey of 925 police officers from 121 departments and examine officers' views on the abuse of police authority. Their general findings include the following: officers sometimes use more force than is necessary to make an arrest, it is not unusual for officers to ignore improper conduct by their fellow officers, and a department's administrators and supervisors do play an important part in preventing officers from engaging (or allowing to engage) in abuses of authority. Specifically, Weisburd et al. (2000) find that almost one-quarter of respondents (24.5%) agree that it is sometimes acceptable to use more force than is legally allowable to control someone who physically assaults an officer. Two-fifths (42.9%) of participants agree that always following the rules is not compatible with getting the job done. More than half of respondents (52.4%) agree that it is not unusual for an officer to turn a blind eye to improper conduct by other officers, and three-fifths (61.0%) *disagree* that officers

always report serious criminal violations by fellow officers. The officers in this study further reveal that many of their attitudes stem from the subculture of their agency, the brotherhood of policing (e.g., "the code of silence"), and the socialization process of becoming a police officer (e.g., selection and training) (see also, Van Maanen, 1975; Westmarland, 2005).

Although the knowledge of individual and organizational correlates can guide department policy, Kane and White (2009) argue that the discussion of each factor has rarely been explained in a theoretically meaningful manner. Knowing more fully the reasons why these predictors of misconduct are important would allow police administrators to make more informed policies and strategies to reduce the behavior. Wolfe and Piquero (2011) echo this sentiment: "Absent theory, police administrators are left to blindly apply policies that target a 'significant' correlate of misconduct with no idea why the variable has an impact or, perhaps more importantly, whether the variable even has a logical causal relationship with misconduct" (p. 334). Only recently have researchers begun to examine police misconduct using the lens of criminology theory. The next section details the theoretical research attempting to explain police misconduct.

Criminological Explanations of Police Misconduct

Criminological theories are abundantly tested in an effort to explain "traditional crime." With the exception of a few recent studies (e.g., Chappell and Piquero, 2004; Pogarsky & Piquero, 2003), however, most of the empirical research on "police crime" fails to use a criminological-theory framework. Kane and White (2009) contend that this void may be due to the persistent difficulty of fully conceptualizing police deviance. While most police misconduct represents "administrative nonconformity" and fits well within organizational theories, they argue that a large portion of police misconduct is illegal and can be explained by traditional criminological theories.

Within criminology, previous examinations of police misconduct use the six theoretical frameworks of social learning theory (Chappell & Piquero, 2004), strain theory (Arter, 2007), control balance theory (Hickman et al., 2001), social disorganization theory (Kane, 2002), deterrence theory (Pogarsky & Piquero, 2003), and self-control theory (Donner & Jennings, 2013) to explain police deviance. Chappell and Piquero (2004) utilize social learning theory to distinguish between police officers who receive citizen complaints and those who do not in a sample of 499 Philadelphia police officers. To measure the social learning concepts of differential association, definitions, and reinforcement, they employ five hypothetical scenarios (e.g., stealing money out of a lost wallet) previously used by Klockars et al. (1997). Their results demonstrate that differential association, definitions, and reinforcement are related to force complaints, but not to complaints for gifts or theft.

Using a general strain framework, Arter (2007) qualitatively examines police misconduct among a sample of 12 undercover officers, 9 former undercover officers, and 11 officers who had never been assigned in an undercover capacity from two southern police departments. To measure strain, Arter classifies stressors into six variables: administrative stressors, criminal justice system stressors, experiential stressors, undercover stressors, family stressors, and social stressors. Consistent with general strain theory, Arter also operationalizes negative emotions and coping strategies as mediating variables. Deviancy is conceptualized as any action that would result in departmental sanctioning, is in violation of departmental policy or procedure, or is a violation of law. Arter (2007) finds that officers reporting higher levels of stress also report more acts of deviance. Arter's results also suggest that as stress is reduced through reassignment from high stress duties, reported deviance decreases. The results further reveal that anger and frustration are key negative emotions linking stress to misconduct.

Using Tittle's control balance theory as a theoretical framework, Hickman, Piquero, Lawton, and Greene (2001) examine police misconduct among a sample of 499 Philadelphia police officers. This theory asserts that the amount of control one is subjected to, relative to the amount of control one can exercise (the control ratio), influences the probability of deviance and the specific form of deviance. If one is in control balance, then deviance should not occur. To operationalize control balance, they ask participants to rate the amount of influence each of 12 items has over how they do their job. The 12 items represent six normative orders: law (e.g., follow procedural laws), bureaucratic control (e.g., follow department directives), competence (e.g., get good performance evaluations), safety (e.g., maintain officer safety), adventure (e.g., respond quickly to risky calls), and morality (e.g., uphold good morals). Using two hypothetical scenarios (an officer who fails to report a fellow officer's DUI and an officer engaging in excessive force) from Klockars et al. (1997), the dependent variable is an item asking respondents to estimate the likelihood of reporting a fellow officer who was engaged in the behaviors portrayed in the scenarios. Hickman et al. (2001) conceptualize the act of reporting a fellow officer as a rejection of the police cultural norm of silence. While reporting a fellow officer's misconduct would not seem to be, in itself, an act of misconduct, control balance theory contends that this act represents a form of repressive deviance known as defiance. Their results support their hypothesis that control deficits are related to defiance.

Kane (2002) applies social disorganization theory to police misconduct in a retrospective longitudinal research study of New York City between 1975 and 1996. He hypothesizes that changes in the social ecology of police precincts and divisions would influence misconduct rates of the officers working in those precincts and divisions. Kane (2002) designates misconduct as any job-specific malpractice committed under the guise of an officer's employment status. This definition includes both legal and illegal

activities within the categories of corruption, excessive force, miscellaneous crimes, administrative misconduct, and drug test failures. He operationalizes social disorganization through two components: structural disadvantage (e.g., percentages of persons in poverty, households receiving public assistance, male unemployment) and population mobility (e.g., percentages of persons residing at current address less than five years, percentages of foreign-born residents). Kane's (2002) hierarchical linear analyses demonstrate that New York City communities, characterized by structural disadvantage and population mobility, "experienced processes that both attenuated informal social control mechanisms [and provided] a source of conflict necessary to encourage police misconduct" (p. 888).

Pogarsky and Piquero's (2004) research examines the impact of the certainty, severity, and celerity of punishment on police misconduct among a sample of 210 police personnel. In their study, participants are presented with two of Klockars et al.'s (1997) hypothetical scenarios (failing to report a fellow officer's DUI and conducting an unauthorized record check of a new neighbor); and they are asked to rate their likelihood of offending. While not directly assessing the effects of self-control on police misconduct, Pogarsky and Piquero (2004) use the four impulsivity items from the Grasmick scale (e.g., "I don't devote much thought and effort to preparing for the future") to assess whether impulsivity mediates the relationship between deterrence and police misconduct. They find that impulsivity does have a direct effect on police misconduct, and that it does partially mediate the deterrent effect.

Though prior research has assessed personality correlates of police misconduct (Girodo, 1991; Sarchione et al., 1998; Weiss et al., 2004) and Pogarsky and Piquero (2004) utilize one dimension (impulsivity) of Gottfredson and Hirschi's (1990) self-control theory, only one study to date has directly examined Gottfredson and Hirschi's concept of low self-control on police misconduct. Using a sample of Philadelphia police officers,

Donner and Jennings (2013) find that low self-control is significantly related to officer misconduct. In this study, the authors construct a nine-item behavioral measure of low self-control (e.g., ever involved in a vehicle accident, ever dismissed or fired from a job, ever divorced or separated) and utilize official measures of misconduct from the department (e.g., physical abuse citizen complaints). The findings demonstrate that low self-control is positively related to having a history of physical abuse complaints, verbal abuse complaints, internal affair investigations, and general misconduct. These results support Gottfredson and Hirschi's theory, but this study is limited by its measures of both low self-control and misconduct, and it does not address Hirschi's (2004) revised version of self-control theory.

Conclusion

Policing requires law enforcement personnel to exercise authority over the public and engage in a multitude of tasks, which require integrity and exercising good judgment. Because much of this work is outside the direct supervision of management, some officers can be lured into opportunities for deviance. Prevalence estimates generally regard police misconduct as a rare phenomenon (Klockars et al., 1997; Lersch & Mieczkowski, 2000); however, any amount of misconduct is important considering the ramifications it can have on public relations, citizen trust, and lawsuits.

Research on police misconduct identifies several individual (e.g., education level), organizational (e.g., training), community (e.g., structural disadvantage), and theoretical (e.g., strain) correlates. While the above research sheds some light on the prevalence and correlates of police misconduct, more studies are needed to better understand its underlying causes. If self-control theory can be linked to self-reported misconduct, police administrators would have better guidance for purposes of preventing misbehavior on the part of their personnel. The next chapter details the methodology of the current study.

CHAPTER 4:

METHODS

To explore the possible relationship between self-control and police misconduct, 101 police supervisors from around the country completed on-line surveys measuring the key constructs. The survey, administered as part of the National Police Research Platform, incorporated previously-used measures and methods from the self-control and police misconduct literatures. To measure Gottfredson and Hirschi's (1990) version of self-control theory, participants were administered the 24-item Grasmick et al. (1993) scale. To measure Hirschi's (2004) revision of self-control, subjects were presented with a hypothetical act of police misconduct and asked to list potential consequences and the importance of those consequences. This strategy is similar to the one used by Piquero and Bouffard (2007) and Higgins et al. (2008). Police misconduct, both past and inclination for future, were measured using ten items from Martin's (1994) operationalization of unethical police behavior.[6] These acts of misconduct have been used in subsequent research (Knowles, 1996; Son & Rome, 2004).

The sections below describe the sample, the survey dissemination procedures, the response rate, and the measures for the independent, control and dependent variables.

[6] Data to measure misconduct were captured across a long reference period (i.e., since they first became police officers to an indefinite time in the future). Self-control was measured for the "present." This does not pose any theoretical or methodological problems because of the nature of the independent variables in question. The survey instrument measured two versions of self-control, which theoretically, is established prior to adolescence and is relatively time-invariant thereafter (Gottfredson & Hirschi, 1990; Hirschi, 2004). The supervisors in the sample were at least 18 years of age or older (and could not have committed police misconduct before that age), meaning that their levels of self-control have already been established and are, therefore, relatively stable (for empirical research contradicting the stability hypothesis, see e.g., Jennings et al., 2013; Turner & Piquero, 2002).

Sample

The survey data come from a group of 101 subjects participating in the National Police Research Platform. The "Platform," funded by the National Institute of Justice, is a longitudinal project designed to collect systematic data about individual police officers, supervisors, and organizations over time. One component involves a longitudinal study of first-line supervisors. Participating in this component are four large police agencies, one small police agency and one statewide training academy. These reflect a convenience sample of agencies. The population of potential subjects is 485 police personnel with 0.5 to 3.5 years of experience in the role of first-line supervisor. Although 111 participants completed the survey instrument, the sample reflects 101 of the respondents. The 111 participants represented six Platform agencies (including the statewide training academy), but since the vast majority of the 111 participants (n=101) work for three of the agencies (two large police departments and the statewide training academy), the ten respondents from the other three agencies that were not sufficiently represented were dropped.

Supervisor subjects are first approached by the Platform research team on the first day of their training to be supervisors. If a supervisor, after hearing about the project and his or her rights as subjects, decides to participate, he or she takes a 100-question survey (called "T1") tapping into supervisors' views of supervision, department policies and practices, agency priorities, and career goals. The end-of-training instrument (known as "T2") is another lengthy paper/pencil survey. Some of the items from T1 are replicated, and officers are also asked about their just-completed training and their perceived readiness for the job. Starting approximately four weeks after the end of their training, supervisors are asked via email to respond each month to a short "snapshot survey."

The supervisor component of the Platform project is not being refunded by NIJ at this time, so the research team decided to administer one last survey, "T3," to all supervisor subjects who have been participating in the study for at least a year post-T1. T3 was split into two surveys (T3a and T3b)–tapping into a wide array of topics–and administered at the beginning of June and July 2012. The dissertation items were included in the first of the two surveys, "T3a," and included measures of self-control reflecting the 1990 theory, measures of self-control reflecting the 2004 theory, and measures of police misconduct.

Survey Dissemination

Supervisors who responded to the April 2012 snapshot survey[7] received their first communication about T3 as part of a thank you email for completing the snapshot. Thank you emails from Qualtrics were set up to go out automatically when a participant completed a snapshot survey. On May 1, 2012, all subjects–those who responded to their April snapshot and those who did not–received emails customized to their group. In this email, Platform researchers explained that the supervisor component of the study was coming to a close. The researchers thanked them for participating and strongly encouraged them to take two final surveys, "T3a" and "T3b." To be eligible for T3 surveys, Platform participants had to be in a first-line supervisor position for at least one year. In mid-May 2012, all subjects in their respective cohorts received an email from an agency leader (e.g., chief of police) encouraging them to participate in T3. To avoid confidentiality issues, these emails were sent by Platform researchers via Qualtrics over the agency leader's name. The final email notice for T3a was sent out the Friday before T3a was disseminated (i.e., June 1, 2012). T3a was then sent to subjects on June 4, 2012. Once per week, starting on June 11, 2012, a reminder email was sent to non-

[7] The April 2012 Supervisor Snapshot Survey was the final snapshot survey administered to participants in the Supervisor Component of the Platform.

respondents encouraging them to complete the survey. The same protocol was used for T3b, which became available to participants on July 2, 2012.[8] As with previous survey administrations, T3 completion was linked to an incentive. Respondents were told that $1 would be donated to the National Law Enforcement Memorial Fund for each T3a and T3b survey that is completed. This announcement was contained in all of the invitation and reminder emails referenced above.

Platform researchers began to notice that T3a was garnering a low response rate; thus, an alternative strategy was employed. A supplemental survey was created consisting of only the T3a items related to this study. This survey was sent as a "snapshot" survey to supervisor subjects who had not been included in the original T3 sample because it had not been a year since they took T2. In expanding the sample, supervisors were included who had completed their supervisory training, but had not met the original subject criteria–that they had completed one year as supervisors. The population of potential subjects who received the supplemental survey was 159 police supervisors, which created an overall target population of 485 supervisors. For an overview of the survey dissemination process, see Figure 1.

Response Rate

In total, 111 supervisors completed either T3a or the supplemental survey. This represented a response rate of 23% (111/485); moderate-to-low response rates are not uncommon in longitudinal police research (see e.g., Gould, 2000; Hodgins, Creamer, & Bell, 2001; Van Maanen, 1975).[9] Specifically, 64 out of 326 (20%) supervisors completed T3a and 47 out of 159 (30%) supervisors completed the supplemental survey. The final sample of 101 supervisors reflected 22% (101/453) of the eligible supervisors in the three agencies under study (see Figure 2).

[8] To accommodate a request from one of the agencies, participants from this agency were on a delayed schedule. They received T3a in July and T3b in August.
[9] Response rates: Gould (2000) = 32%; Hodgins et al. (2001) = 61%; Van Maanen (1975) = 57%.

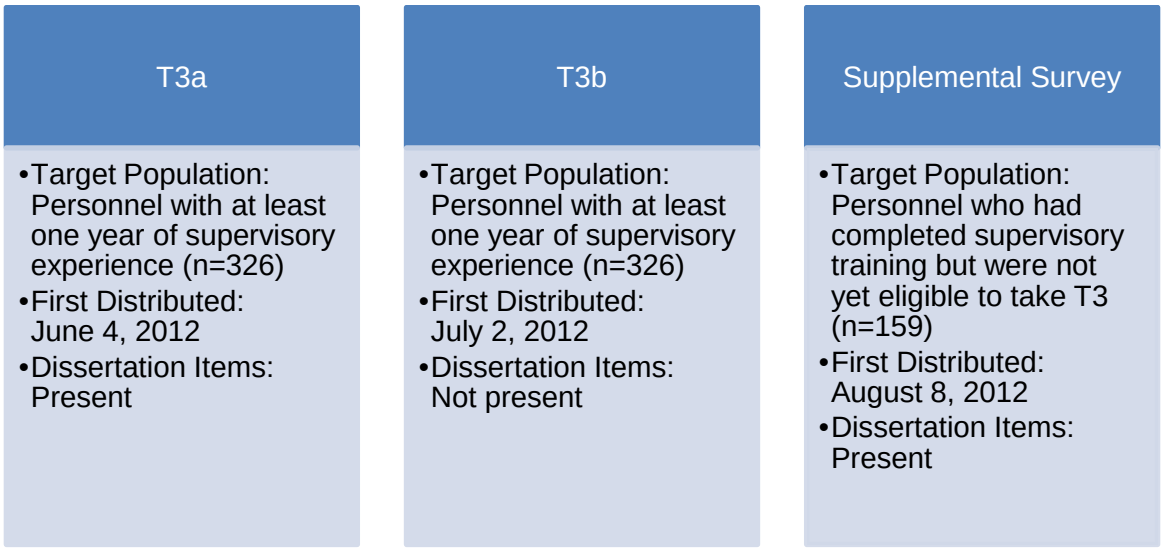

Figure 1: *Survey dissemination*

To assess for the possibility of non-response bias, several means-differences tests were conducted. Baseline (i.e., T1) data for study participants (respondents and non-respondents) were used to evaluate whether any systematic differences existed between the two groups. Chi-square tests were utilized for the following variables: Age, Sex, Race, Education, Length of Service, Career Goal: Rise in Rank, Career Goal: Become a High Ranking Administrator, and Career Goal: Obtain more Training and Education on Policing Topics.[10] Independent sample t-tests were utilized for three scales: Procedural Justice, Organizational Commitment, and Agency Cynicism. Each analysis demonstrated that no significant differences exist between respondents and non-respondents (see Appendix A, Tables 1A and 2A). The next section describes the study's variables.

[10] These variables were selected because they have been found to be related to police misconduct (e.g. Brandl et al., 2001; Donner & Jennings, 2013; Fyfe & Kane, 2005; Greene et al., 2004; Haarr, 1997; Hickman et al., 2004; Lersch & Kunzman, 2001; Regoli, 1977; Wolfe & Piquero, 2011).

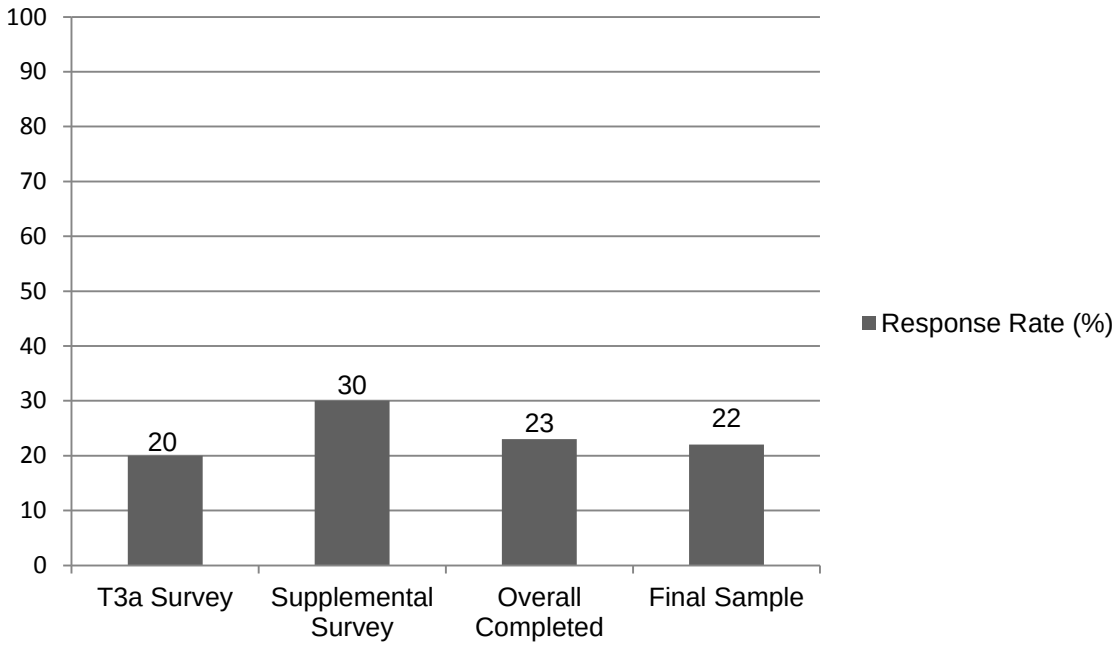

Figure 2: *Survey response rate*

Measures

This section describes how the key constructs were measured. The independent variables for the study reflect the two measures of self-control. The dependent variables measure police misconduct.

Independent variables. This dissertation utilized self-control as an explanatory construct. Two independent variables, one measuring each of the two versions of self-control theory, were utilized in the analyses. Prior investigations of Hirschi's (2004) revision of self-control have similarly included measures which tested Gottfredson and Hirschi's (1990) version of self-control to assess which of the two versions of self-control theory better predicts deviance. This dissertation also constructed a measure of self-control consistent with previous literature assessing Gottfredson and Hirschi's theory, and a measure of self-control consistent with previous literature assessing Hirschi's revised self-control theory.

Gottfredson and Hirschi's (1990) low self-control. Given its popularity and consistency in predicting deviant behavior, the Grasmick et al. scale is the "optimal"

measure to capture Gottfredson and Hirschi's (1990) concept of self-control. The 24-item scale taps into the six self-control dimensions outlined by Gottfredson and Hirschi: impulsivity (e.g., "I'm more concerned about what happens to me in the short run than in the long run"), preference for simple tasks (e.g., "The things in life that are the easiest to do bring me the most pleasure"), risk seeking (e.g., "Sometimes I will take a risk just for the fun of it"), preference for physical tasks (e.g., "I like to get out and do things more than I like to read or contemplate ideas"), self-centeredness (e.g., "If things I do upset people, it's their problem, not mine"), and temper (e.g., "I lose my temper pretty easily"). The full scale (see Appendix B) was utilized in this research. A four-point Likert scale was used to capture one's level of agreement or disagreement with 24 items (1=strongly disagree, 2=disagree somewhat, 3=agree somewhat, and 4=strongly agree). *Higher* scores on each item represent *lower* self-control.

A variable, *Low Self-Control*, was constructed to represent a measure of Gottfredson and Hirsch's original version of self-control theory. The variable was computed in SPSS by adding together the 24 Grasmick et al. items and dividing by 24; thus, giving each participant a low self-control "value." This produced a measure with a theoretical minimum of 1.00 (a subject selecting "disagree strongly" on all 24 items) and maximum of 4.00 (a subject selecting "agree strongly" on all 24 items). [11] *Higher* values on the scale indicated *lower* self-control, and the scale demonstrated reliable internal consistency (Cronbach's α=.84).

Hirschi's (2004) revised self-control. Because of several critiques (including measurement critiques) of Gottfredson and Hirschi's version of self-control theory, Hirschi (2004) redefined self-control and proposed a new way to measure it. The

[11] If participants did not provide responses for all 24 items, mean-replacement methodology was used to ensure that 24 remained a constant denominator for all participants. Mean-replacement was used five times across the following four items: "I dislike really hard tasks that stretch my abilities to the limit" (once, M=1.66); "I try to look out for myself first, even if it means making things difficult for other people" (twice, M=1.44); "I will try to get the things I want even when I know it's causing problems for other people" (once, M=1.34); and "I lose my temper pretty easily" (once, M=1.74).

empirical investigations of the new self-control theory have all used related, yet different, measures of self-control. Hirschi's (2004) self-control focuses on the number and salience of inhibitions. Consistent with prior research (Higgins et al., 2008; Piquero & Bouffard, 2007), this study used an inhibition-based measure of self-control to assess Hirschi's revised self-control theory.

Piquero and Bouffard (2007) argue that the use of subject-generated consequences to measure self-control captures individuals' true inhibitions and, thus, their self-control; that is, they argue that this method is better than providing respondents with hypothetical consequences from which to choose. Specifically, in their own research, Piquero and Bouffard (2007) presented their participants with seven blank lines and asked them to list of up to seven "bad things" (costs) that might occur if they engaged in the offending behavior depicted in each scenario. These potential consequences, in theory, are the inhibitors one considers before engaging in deviance. This methodology followed Hirschi's suggestion that the number of consequences that an individual considers when making decisions to offend is a measure of that individual's self-control. Individuals with longer lists are presumed to perceive more potential consequences of illegally searching a suspect; those with shorter lists are presumed to perceive fewer potential consequences of illegally searching a suspect. This is consistent with Hirschi's (2004) contention.

The current study used this approach by presenting participants with an example of misconduct and then a text box table for them to list their own inhibitions.[12] The example misconduct selected for this item was "Illegally search a suspect." This misconduct behavior was selected from the 10 items being used to assess misconduct. After the 10 acts of misconduct were selected for inclusion for the misconduct measures, the median act of misconduct (in terms of seriousness) from that list was selected based

[12] For time consideration, respondents were allowed to list up to 5 "bad things."

on prior research. In Martin's (2004) research, she asked Illinois officers to rate the seriousness of her 34 items of unethical police behavior. To measure seriousness, each respondent was asked to rate each item on a scale from 0 (not at all serious) to 15 (extremely serious). According to her results, the most serious of the 10 items in this research is "Falsify an arrest report" with a seriousness mean of 11.7 and the least serious of the 10 items is "Display your badge to avoid a traffic ticket" with a seriousness mean of 2.6. Because there is an even number of items (ten), a true median item cannot be established. The two items that surround the median are "Illegally stop and frisk a suspect" (seriousness mean of 7.6) and "Illegally search a suspect" (seriousness mean of 6.9). For this measure, the "less serious" item of the two choices was selected.

Hirschi also suggests that self-control is a function of the *salience* of the consequences that the individual considers. Individuals in Piquero and Bouffard's study were also asked to provide a measure of the salience of potential inhibiting factors associated with criminal activity. After listing any relevant costs, participants were asked to indicate, "How important each one of these things would be when making your decision whether or not to (offense behavior) under the circumstances in the story." These items were rated using a 0 (Not Important) to 100 (Very Important) scale. Given Hirschi's statements about the relevance of both the number of identified costs and their salience, Piquero and Bouffard's redefined self-control measure took the number of costs generated by the respondents and multiplied them by the average salience of costs. This produced a measure of self-control for each participant. The current research applied a similar methodology.

To develop this measure of self-control reflecting Hirschi's revised theory, participants were presented with a text box to list up to five "bad things" and the importance of each cost (see Appendix C). A variable, *Number of Costs,* was generated by manually counting the number of consequences each participant listed. A second

variable, *Average Salience*, was produced by manually adding the importance given to each cost for each participant and then dividing by the number of costs provided by that participant. The final variable, *Revised Self-Control*, was computed by multiplying *Number of Costs* by *Average Salience*. This methodology manufactured a multiplicative measure of self-control based on the number and salience of inhibition factors, and this variable had a theoretical minimum of 0.00 (a subject listing 0 consequences and therefore 0 importance) and maximum of 500.00 (a subject listing 5 consequences and giving each an importance of 100). Here, *higher* scores are indicative of *higher* self-control.[13]

Control variables. This research utilized five control variables. Gottfredson and Hirschi (1990) contend that age, biological sex, and race may have independent effects on crime that are unaccounted for by self-control theory, and these three variables have shown to be significant predictors of police misconduct (e.g., Green et al., 2004). Therefore, they were utilized as control variables in this study. *Age* was a ratio-level variable. *Biological Sex* was a dichotomous variable (0=Female, 1=Male). *Race* was a nominal variable with seven categories; this variable was recoded into a dichotomous variable (0=nonwhite, 1=white) for simpler interpretation of the correlation and regression coefficients. Prior research also suggests that education, length of service, and organizational culture are related to police misconduct (Hickman et al., 2004; Kane & White, 2009; Lersch & Kunzman, 2001; Manis et al., 2008; Weisburd et al., 2000). *Education* was an ordinal variable with six categories. *Length of Service* was an ordinal variable with eight categories; this variable also serves as a proxy for opportunity for past misconduct. *Agency* was a nominal variable indicating the supervisors' place of employment, and the variable was used as a proxy for organizational culture. Agencies

[13] "Costs only" measures (Higgins, Ricketts, & Vegh, 2008) and "Salience only" measures (Bouffard & Rice, 2011) have been used in prior research, but the multiplicative measure is a more theoretically consistent measure.

A and B were large-sized police departments, and Agency C was the statewide training facility that trains officers/supervisors from across that state. Because Agency C was comprised of supervisors from different departments (and may not adequately capture organizational culture), Agency C was used as the reference category in the regression models.

Dependent variables. The dependent variables consist of two variations on measures of police misconduct. When gauging the prevalence of police misconduct, previous research has commonly utilized indirect measures of deviance (e.g., respondents were asked if they had ever observed another officer engaging in the behaviors; Martin, 1994; Klockars et al. 1997). This dissertation seeks to link self-control and misconduct, however, so direct questions are used (e.g., "Have *you* ever…").

In this study, police misconduct is defined as any inappropriate behavior on the part of any law enforcement officer that is either illegal or immoral or both (Champion, 2001, p. 2). To operationalize police misconduct, this research used a modified version of a set of items developed by Martin (1994). The original items asking officers to report on their peers' deviance have been used in subsequent research (e.g., Knowles, 1996; Son & Rome, 2004), but the items for T3a and supplemental surveys utilized here were re-worded in such a way as to capture one's own behavior and one's intention for future behavior.[14]

Due to space considerations on the survey instrument, only 10 of Martin's 34 items were used (see Appendix D). The 10 items were: fix a ticket, conduct an unauthorized record check, fail to arrest or ticket a friend or relative, display your badge to avoid a traffic ticket, sleep while on duty, speed when no emergency exists, fail to

[14] "In your entire law enforcement career (i.e., since you were first hired at the rank of officer), have you ever engaged in any of the following behaviors?" (yes/no). "If given the opportunity to engage in the same set of behaviors in the future, how likely are you to engage in these behaviors?" (not at all likely, not very likely, somewhat likely, likely, very likely).

report an excessive force incident, illegally stop and frisk a suspect, illegally search a suspect, and falsify an arrest report. In deciding which of Martin's items to choose, the key criterion was to select items to which police personnel are most likely to respond honestly; the most serious offenses were considered least likely to elicit honest responses. For instance, "Using illegal drugs while on duty" is a relatively serious offense. It is probably a rare behavior and also serious enough that respondents who have engaged in this behavior, might choose to skip or not respond honestly. Therefore, this particular item was not selected for inclusion. Based on Martin's (1994) research concerning the seriousness of the items, 10 of the *least serious* items were selected for inclusion.

For each listed behavior, respondents were asked (1) whether they have committed the offense since becoming a law enforcement officer, and (2) if given the opportunity, how likely they would be to engage in the behavior in the future. As opposed to only asking about past behavior, this methodology was chosen to potentially assuage the fear that some respondents might have about answering honestly to these acts of misconduct. If given the opportunity to state that they're not going to do it in the future, this may lessen their apprehension to admit they have done it in the past. This methodology provided a past behavior measure and an inclination for future behavior measure of police misconduct, both of which have been previously utilized in self-control research (e.g., Langton et al., 2006; Miller et al., 2009; Simpson & Piquero, 2002; Tibbetts & Myers, 1999).

In this study, 22 dependent variables are utilized based on the items described above: one for each of the 10 dichotomous-based past misconduct acts, one for each of the 10 ordinal-based future misconduct acts, a past police misconduct index, and a

future police misconduct index.[15] A count-variable, *Past Misconduct*, was created by adding the 10 past misconduct items together. This measure had a theoretical minimum of 0.00 (a subject responding "no" to each misconduct item) and maximum of 10.00 (a subject responding "yes" to each misconduct item). A second count-variable, *Future Misconduct*, was also created. This was done by recoding each of the 10 future items into a dichotomous outcome [0= "not likely" (combining "not at all likely," "not very likely," and "somewhat likely"); 1= "likely" (combining "likely" and "very likely"]. A summative index was then created by adding the 10 recoded future misconduct items together. This measure had a theoretical minimum of 0.00 (a subject responding "not likely" to each misconduct item) and maximum of 10.00 (a subject responding "likely" to each misconduct item).

Hypotheses

Based on theory and prior research, this study had three main hypotheses:

1. *Low Self-Control*, as a measure of Gottfredson and Hirschi's (1990) self-control theory, will significantly predict police misconduct.
2. *Revised Self-control*, as a measure of Hirschi's (2004) revision of self-control, will significantly predict police misconduct.
3. In a full regression model, both measures will significantly predict misconduct whether it be a misconduct index or item.[16]

[15] Self-control theory assumes that correlates of crime incidence are also correlates of crime prevalence. In other words, the "causes of criminal acts are the same regardless of the number of such acts" (Gottfredson & Hirschi, 1990, p. 241).

[16] Regarding hypothesis #3, according to Hirschi (2004), measurement based on the new definition of self-control is paramount. This should mean that a bond measure of self-control would render an attitudinal measure of self-control non-significant in a full regression model. However, several empirical investigations, incorporating variables from both versions of the theory, demonstrate that both measures yield significant, and independent, effects (see Higgins et al., 2008; Intravia et al., 2012; Jones et al., in press; Miller et al., 2009).

CHAPTER 5:

RESULTS

This chapter presents the findings from statistical analyses. First, sample characteristics and frequencies for the study variables are presented. Second, bivariate correlations are presented to show the extent to which each of the independent and control variables are associated with the dependent variables. Third, multiple-regression models offer an evaluation of whether control and independent variables are statistically related to police misconduct. Specifically, regression models were generated for two purposes: (1) to test the predictive utility of the study's control variables on police misconduct; and (2), to test the predictive utility of the study's independent variables on police misconduct to assess whether or not self-control is related to misconduct, and, if so, which version of self-control theory is more empirically validated.

Sample Characteristics

Data were compiled through Qualtrics and data analyses were conducted via SPSS Version 20. The T3a and Supplemental Survey databases on Qualtrics were imported into SPSS datasets and then merged into a single dataset. Descriptive statistics (e.g., means, standard deviations, and ranges) were conducted to provide a summary of the study variables. Frequencies were run to assess the normality of each variable and to assess the prevalence of the outcome variables, both past misconduct and the likelihood of future misconduct. The data reflect a sample of 101 police supervisors from three geographically-diverse police agencies. Table 2 summarizes the control and independent variables. Supervisors from Agency C comprise more than two-thirds (68%) of the sample, while supervisors from Agency A reflect one-fifth (20%) of

the sample; supervisors from Agency B make up 12% of the sample. The sample is, on average, 40.61 years old (SD=7.22) with the youngest supervisor reporting an age of 19 and the oldest supervisor reporting an age of 65. Almost nine out of ten (87.10%) supervisors in the sample are men, and more than three-fourths (76.20%) of the sample are White. In terms of completed education, 36.60% of the sample has completed "Some College" (modal category), while 8.90% completed high school or obtained a GED (minimum category) and 5.90% earned a graduate degree (maximum category). With respect to length of service, 43.60% of the sample has 6–10 years with his/her department (modal category), while 1.00% has 1–2 years (minimum category) with his/her department and 3.00% has 21–25 years with his/her department (maximum category).

Descriptive statistics were also conducted on both measures of self-control. *Low Self-Control*, as a measure of Gottfredson and Hirschi's (1990) conceptualization of low self-control, had a mean of 1.85 (SD=0.35), with a minimum of 1.13 and a maximum of 2.83. *Revised Self-Control*, as a measure of Hirschi's (2004) conceptualization of self-control, had a mean of 365.63 (SD=133.39), with a minimum of 3.00 and a maximum of 500.00. The next section presents descriptive information regarding police misconduct.

Police Misconduct

This section provides descriptive information regarding the dependent variables that measure police misconduct. First, information is presented on the extent to which the subjects report having committed past acts of misconduct and the extent to which they anticipate committing future misconduct. Second, correlational analyses are used to assess the bivariate relationships between the two dependent measures of misconduct (past and future) and (a) the independent variables (i.e., low self-control, and self-control) and (b) the control variables (e.g., age, race).

Table 2: *Sample characteristics for independent and control variables*

Variable	M/% (SD)	Min	Max
Control Variables			
Age (In years)	40.61 (7.22)	19.00	65.00
Sex (0=Female; 1=Male)	87.10%	0.00	1.00
Race (0=Nonwhite; 1=White)	76.20%	0.00	1.00
Education			
HS/GED	08.10%	--	--
Some College	34.20%	--	--
Associate's Degree	11.70%	--	--
Bachelor's Degree	33.30%	--	--
Some Graduate School	05.40%	--	--
Graduate Degree	07.20%	--	--
Length of Service			
1-2 Years	0.90%	--	--
3-5 Years	9.90%	--	--
6-10 Years	42.30%	--	--
11-15 Years	33.30%	--	--
16-20 Years	09.00%	--	--
21-25 Years	02.70%	--	--
26+ Years	01.80%	--	--
Agency A (0=No; 1=Yes)	20.00%	0.00	1.00
Agency B (0=No; 1=Yes)	12.00%	0.00	1.00
Agency C (0=No; 1=Yes)	68.00%	0.00	1.00
Independent Variables			
Low Self-Control (Grasmick et al. scale)	1.85 (.35)	1.13	2.83
Revised Self-Control (Costs x Salience)	365.63 (133.39)	3.00	500.00

Extent of past police misconduct. Police supervisors report that they have engaged in several forms of police misconduct (see Table 3). Across the ten acts of misconduct, the three most prevalent misbehaviors are speeding when no emergency exists (82.20%), displaying one's badge to avoid a traffic ticket (51.50%), and sleeping while on duty (49.50%). At the opposite end of the spectrum, less than one in ten reported that he/she had ever failed to report an excessive force incident (7.90%),

illegally searched a suspect (7.90%), illegally stopped and frisked a suspect (4.00%), or falsified an arrest report (1.00%).

Table 3: *Sample characteristics for past police misconduct*

Variable	M/% (SD)	Min	Max
Individual Acts (0=No; 1=Yes)			
Fix a ticket	35.60% --	0.00	1.00
Conduct unauthorized record check	25.70% --	0.00	1.00
Fail to arrest or ticket a friend or relative	24.80% --	0.00	1.00
Display your badge to avoid a traffic ticket	51.50% --	0.00	1.00
Sleep while on duty	49.50% --	0.00	1.00
Speed when no emergency exists	82.20% --	0.00	1.00
Fail to report an excessive force incident	07.90% --	0.00	1.00
Illegally stop and frisk a suspect	04.00% --	0.00	1.00
Illegally search a suspect	07.90% --	0.00	1.00
Falsify an arrest report	01.00% --	0.00	1.00

To capture past police misconduct as a whole, an additive index was created by summing the individual acts. This variable had a mean of 2.90 (SD=2.00), with a minimum of 0.00 and a maximum of 10.00. A frequency analysis was conducted on *Past Police Misconduct* to ascertain the frequency of the number of past misconduct acts reported (see Table 4). In this sample, eight supervisors (7.90%) reported no acts of prior misbehavior. Almost one-fifth of the sample (18.80%) committed one act of misconduct; another 18.80% of the sample committed two acts of misconduct. More than one-fifth of supervisors (21.80%) reported having committed three acts of misconduct, and 15.80% reported having committed four acts of police misbehavior. Notably, one supervisor reported a history of committing all ten acts.

Table 4: *Past police misconduct index*

Additive Index	M (SD)	Min	Max
Past Police Misconduct	2.90 (2.00)	0.00	10.00

Count Frequency	%
0	07.90
1	18.80
2	18.80
3	21.80
4	15.80
5	07.90
6	04.00
7	01.00
8	02.00
9	01.00
10	01.00

Likelihood of future police misconduct. With regard to the likelihood of these supervisors engaging in misconduct in the future, “Not at all likely” was the modal category for nine of the ten acts of misconduct (see Table 5). In terms of likelihood for future misbehavior, frequencies were conducted on recoded individual acts variables. This procedure involved recoding the ordinal-response variables into dichotomous-outcome (1=Likely/Very Likely) variables. Across the ten acts of misconduct, the three most likely misbehaviors to occur in the future are displaying one’s badge to avoid a traffic ticket (28.80%), speeding when no emergency exists (27.90%), and fixing a ticket (11.80%). At the other end of the future-misconduct spectrum, less than five percent (4.50%) reported a likelihood of sleeping while on duty, and 2.70% reported a likelihood of both illegally searching a suspect and illegally stopping and frisking a suspect. No supervisors reported a likelihood of either failing to report an excessive force incident or falsifying an arrest report in the future.

Table 5: *Sample characteristics for the likelihood of future police misconduct*

Variable	Mode	%	Min	Max	Likely/Very Likely %
Individual Acts					
Fix a ticket	Not at all likely	52.00	Not at all likely	Very likely	11.80
Conduct unauthorized record check	Not at all likely	72.00	Not at all likely	Very likely	08.20
Fail to arrest or ticket a friend or relative	Not at all likely	51.50	Not at all likely	Very likely	09.90
Display your badge to avoid a traffic ticket	Not at all likely	33.70	Not at all likely	Very likely	28.80
Sleep while on duty	Not at all likely	60.40	Not at all likely	Very likely	04.50
Speed when no emergency exists	Somewhat likely	38.60	Not at all likely	Very likely	27.90
Fail to report an excessive force incident	Not at all likely	87.10	Not at all likely	Somewhat likely	00.00
Illegally stop and frisk a suspect	Not at all likely	87.10	Not at all likely	Likely	02.70
Illegally search a suspect	Not at all likely	88.00	Not at all likely	Likely	02.70
Falsify an arrest report	Not at all likely	96.00	Not at all likely	Somewhat likely	00.00

To capture the likelihood of future police misconduct as a whole, an additive index was created by summing the recoded individual act variables. This variable had a mean of 0.97 (SD=1.45), with a minimum of 0.00 and a maximum of 7.00. Table 6 presents an overview of supervisors' likelihood of committing police misconduct in the future. In this sample, fifty-eight supervisors (57.40%) reported no likelihood of future misbehavior. Approximately one-sixth of the supervisors (16.70%) reported a likelihood of committing one of the misconduct acts in the future; another 10.20% of the sample reported a likelihood of committing two acts of the misconduct acts in the future. Almost one in ten supervisors (9.30%) reported a likelihood of committing three misconduct acts in the future, and two supervisors (1.90%) reported a likelihood of committing seven of the misconduct acts in the future. Notably, no supervisors reported a likelihood of committing more than seven of the misconduct acts in the future. While it is important to

describe the sample and report the prevalence of police misconduct, it is also important to evaluate whether the study variables are statistically associated. Thus, the next section provides bivariate correlations among the study variables.

Table 6: *Future police misconduct index*

Additive Index	**M (SD)**	**Min**	**Max**
Future Police Misconduct (1=Likely/Very Likely)	0.97 (1.45)	0.00	7.00

Count Frequency	**%**
0	57.40
1	16.70
2	10.20
3	09.30
4	02.80
5	00.90
6	00.90
7	01.90

Correlations

Bivariate correlations were conducted to assess whether or not associations existed between the two measures of misconduct and the other study variables (i.e., the independent variables and control variables). For correlations with two continuous variables, Pearson correlation coefficients were utilized; for correlations with at least one ordinal variable, Spearman correlation coefficients were utilized; for correlations between two dichotomous variables, Phi correlation coefficients were utilized; and for correlations between a dichotomous variable and a continuous variable, Point Biserial correlation coefficients were utilized. The subsections below present the correlation results, first for past police misconduct, and then for the likelihood of future police misconduct.

Correlates of past police misconduct. Table 7 presents correlations between the independent and control variables and past police misconduct. Defining the columns

are the independent variables of low self-control and self-control and the control variables. The rows reflect each potential act of past police misconduct and the past police misconduct index. The findings demonstrated that both *Low Self-Control* (i.e., the Grasmick et al. scale) and *Revised Self-Control* (i.e., Costs X Salience) were correlated with just a few past misconduct acts or the past misconduct index. Specifically, *Low Self-Control* was positively associated with sleeping while on duty (r_{pb}=.24, p<.05) and with the past misconduct index (r=.23, p<.05). *Revised Self-control* was negatively correlated with conducting an unauthorized record check (r_{pb}=-.23, p<.05), illegally searching a suspect (r_{pb}=-.19, p<.10), falsifying an arrest report (r_{pb}=-.21, p<.05), and the past misconduct index (r=-.19, p<.10).

The results also revealed that age was negatively associated with illegally searching a suspect (r_{pb}=-.21, p<.05) and the past misconduct index (r=-.19, p<.05), while being White was positively associated with conducting an unauthorized record check (φ=.23, p<.05), speeding when no emergency exists (φ=.23, p<.05), and the past misconduct index (r_{pb} =.23, p<.05). Being an employee of Agency A was negatively correlated to five past misconduct variables: fixing a ticket (φ=-.35, p<.01), failing to ticket or arrest a friend or relative (φ=-.21, p<.05), displaying one's badge to avoid a traffic ticket (φ=-.21, p<.05), speeding when no emergency exists (φ=-.39, p<.01), and the past misconduct index (r_{pb}=-.32, p<.01). Being an employee of Agency B was negatively associated with fixing a ticket (φ=-.20, p<.05), but positively associated with falsifying an arrest report (φ=.27, p<.01). Being an employee of Agency C was positively correlated with fixing a ticket (φ=.42, p<.01), failing to arrest or ticket a friend or relative (φ=.27, p<.01), speeding when no emergency exists (φ=.31, p<.01), and the past misconduct index (φ=.25, p<.01). Education level was only correlated with one past outcome (conducting an unauthorized record check, r_s=.26, p<.05), while sex and length

Table 7: *Bivariate correlations of past police misconduct*

Variable	LSC	RSC	Age	Sex	Race	Ed.	LS	Agency A	Agency B	Agency C
Fix a ticket	.10	-.16	-.09	.14	.15	.03	-.17	**-.35****	**-.20***	**.42****
Conduct unauthorized record check	.07	-.23*	-.14	.13	**.23***	**.26***	.01	-.16	.06	.11
Fail to arrest or ticket a friend or relative	.18	-.04	-.06	.13	.08	-.13	-.14	**-.21***	-.13	**.27****
Display your badge to avoid a traffic ticket	.09	-.07	-.05	-.04	.09	-.07	-.05	**-.21***	.10	.07
Sleep while on duty	**.24***	-.17	-.18	-.06	.02	.13	-.10	.01	.18	-.12
Speed when no emergency exists	.11	-.11	-.06	.06	**.39****	.04	-.07	**-.39****	.01	**.31****
Fail to report an excessive force incident	.07	-.03	-.10	.10	.08	.07	.12	-.04	.13	.01
Illegally stop and frisk a suspect	.15	-.16	-.09	.07	.01	-.09	-.01	-.09	.09	.05
Illegally search a suspect	.15	**-.19**$^{+}$	**-.21***	.10	.08	.07	-.13	-.13	.02	.15
Falsify an arrest report	.04	**-.21***	-.12	.03	.05	-.15	-.05	-.05	**.27****	-.12
Past Misconduct Index	**.23***	**-.19**$^{+}$	**-.19***	.06	**.23***	.08	-.10	**-.32****	.05	**.25****

Note. LSC = Low Self-Control; RSC = Revised Self-Control; Ed. = Education; LS = Length of Service

$^{+}p<.10$ *$p<.05$ **$p<.01$

of service were uncorrelated with all past outcomes. The next subsection presents the correlations relating to the likelihood of *future* misconduct.

Correlates of the likelihood of future police misconduct. *Low Self-Control* and *Revised Self-Control* were correlated with the likelihood of several acts of future misconduct (see Table 8). Specifically, *Low Self-Control* was positively associated with

fixing a ticket (r_s=.21, p<.05), failing to arrest or ticket a friend or relative (r_s=.16, p<.10), sleeping while on duty (r_s=.24, p<.05), speeding when no emergency exists (r_s=.19, p<.05), illegally stopping and frisking a suspect (r_s=.22, p<.05), illegally searching a suspect (r_s=.22, p<.05) and the future misconduct index (r=.20, p<.05). Alternatively, *Revised Self-Control* was negatively correlated with fixing a ticket (r_s=-.23, p<.05), conducting an unauthorized record check (r_s=-.22, p<.05), failing to arrest or ticket a friend or relative (r_s=-.25, p<.05), illegally stopping and frisking a suspect (r_s=-.29, p<.05), illegally searching a suspect (r_s=-.30, p<.05), falsifying an arrest report (r_s=-.26, p<.05), and the future misconduct index (r=-.24, p<.05).

Table 8 also provides the bivariate associations between the study's control variables and the likelihood of future police misconduct. The findings revealed that age was negatively correlated with conducting an unauthorized record check (r_s=-.22, p<.05) and failing to report an excessive force incident (r_s=-.20, p<.05). Being male was negatively associated with sleeping while on duty (r_s=-.18, p<.10) and failing to report an excessive force incident (r_s=-.22, p<.05); being White was positively correlated with fixing a ticket (r_s=.19, p<.05), conducting an unauthorized record check (r_s=.24, p<.05), failing to arrest or ticket a friend or relative (r_s=.23, p<.05), displaying one's badge to avoid a traffic ticket (r_s=.18, p<.10), and speeding when no emergency exists (r_s=.33, p<.05).

With respect to department, being an employee of Agency A was negatively associated with fixing a ticket (r_s=-.40, p<.01), conducting an unauthorized record check (r_s=-.24, p<.05), failing to ticket or arrest a friend or relative (r_s=-.35, p<.01), displaying one's badge to avoid a traffic ticket (r_s=-.23, p<.05), and speeding when no emergency exists (r_s=-.32, p<.01). Being employed by Agency B was positively correlated with sleeping while on duty (r_s=.24, p<.05), failing to report an excessive force incident (r_s=.49, p<.01), illegally stopping and frisking a suspect (r_s=.30, p<.01), illegally

searching a suspect (r_s=.23, p<.05), and falsifying an arrest report (r_s=.21, p<.05). Being an employee of Agency C was positively associated with fixing a ticket (r_s=.28, p<.01), failing to arrest a friend or relative (r_s=.21, p<.05), speeding when no emergency exists (r_s=.25, p<.01), and it was negatively correlated with sleeping while on duty (r_s=-.32, p<.01) and failing to report an excessive force incident (r_s=-.23, p<.05). Length of service was negatively associated with a single act–fixing a ticket, (r_s=-.22, p<.05), while education level was uncorrelated with all future outcomes. Interestingly, none of the control variables was correlated with the future misconduct index. While the bivariate correlations provide measures of association between the study variables, it is important to consider these variables within a multivariate framework. The results for the multivariate analysis are reported in the next section.

Predicting Police Misconduct

This key section, which is devoted to presenting the multivariate regression results, is divided into four subsections. The first section looks at the multivariate relationships between police misconduct and the control variables. The subsequent three sections present the results of tests of the three hypotheses, which again are:

1. *Low Self-Control*, as a measure of Gottfredson and Hirschi's (1990) self-control theory, will significantly predict police misconduct.
2. *Revised Self-control*, as a measure of Hirschi's (2004) revision of self-control, will significantly predict police misconduct.
3. In a full regression model, <u>both</u> measures will significantly predict misconduct whether it be a misconduct index or item.

These four sections correspond with the four regression models (#1 through #4) set forth conceptually in Table 9. Within each of the four sections outlined above, there are two subsections reflecting the two forms of the dependent measure–one for past misconduct and one for the likelihood of future misconduct.

Table 8: *Bivariate correlations of future police misconduct*

Variable	LSC	RSC	Age	Sex	Race	Ed.	LS	Agency A	Agency B	Agency C
Fix a ticket	**.21***	**-.23***	-.15	.06	**.19***	-.03	**-.22***	**-.40****	-.14	**.28****
Conduct unauthorized record check	.06	**-.22***	**-.22***	-.15	**.24***	.17	-.05	**-.24***	.10	-.01
Fail to arrest or ticket a friend or relative	**.16**$^{+}$**	**-.25***	-.09	.03	**.23***	.06	-.09	**-.35****	.02	**.21***
Display your badge to avoid a traffic ticket	.05	-.06	-.04	-.03	**.18**$^{+}$**	.02	-.10	**-.23***	.14	.08
Sleep while on duty	**.24***	-.13	-.12	**-.18**$^{+}$**	-.06	-.04	-.09	.03	**.24***	**-.32****
Speed when no emergency exists	**.19***	-.14	-.03	-.04	**.33***	-.05	-.13	**-.32****	.10	**.25****
Fail to report an excessive force incident	.10	-.16	**-.20***	**-.22***	.02	-.12	-.03	-.10	**.49****	**-.23***
Illegally stop and frisk a suspect	**.22***	**-.29***	-.11	-.12	.09	-.10	-.01	-.11	**.30****	-.05
Illegally search a suspect	**.22***	**-.30***	-.13	-.13	.08	.00	-.05	-.10	**.23***	-.01
Falsify an arrest report	.11	**-.26***	-.12	-.06	.02	-.09	-.08	-.10	**.21***	-.12
Future Misconduct Index	**.20***	**-.24***	-.07	.10	.15	.04	-.06	-.12	.04	.05

Note. LSC = Low Self-Control; RSC = Revised Self-Control; Ed. = Education; LS = Length of Service
$^{+}p<.10$ *$p<.05$ **$p<.01$

According to this section structure, attention is first given to the statistical relationships between the study's control variables and police misconduct. Here, regression model #1 examined how the control variables relate to police misconduct. Second, analyses were conducted to assess the potential relationship between low self-control and police misconduct. Here, the second regression model, designed to test

Hypothesis #1, incorporated *Low Self-Control* to determine if Gottfredson and Hirschi's (1990) self-control theory had any predictive value on police misconduct. Third, findings are presented with regard to the potential relationship between self-control and police misconduct. In model #3, *Low Self-Control* was removed, and *Revised Self-Control* was entered to evaluate whether Hirschi's (2004) revision of self-control had any predictive value (a test of Hypothesis #2). Fourth, coverage is given to results derived from full regression models. Here, model #4 included both measures of self-control to examine which version of self-control theory, if any, better predicted police misconduct (a test of Hypothesis #3).

In order to properly analyze the data, various regression strategies are employed. For regression analyses on the individual misconduct items, logistic regression was utilized for *past* misconduct due to the dichotomous nature of the items; ordinal regression was utilized for *future* misconduct due to the ordinal nature of the items. This research utilized negative binomial regression models for the misconduct *indexes* because of the distribution of the data.[17] Negative binomial regression models are designed to modify the Poisson regression model if the equidispersion assumption (i.e., mean = variance) does not hold (MacDonald & Lattimore, 2010). These models are designed for "over-dispersed" count dependent variables meaning that the conditional mean does not equal the conditional variance. Typically, in most research settings, the variance is considerably greater than the mean and negative binomial regression is the preferred method. The first section below details what effect, if any, the study's control variables had on police misconduct.

[17] Likelihood-ratio alpha tests confirmed the use of negative binomial regression.

Table 9: *Template for multiple regression models*

Variable/Model	Model #1 (Controls Only)	Model #2 (Hyp. #1)	Model #3 (Hyp. #2)	Model #4 (Hyp. #3)
Age	_____	_____	_____	_____
Sex	_____	_____	_____	_____
Race	_____	_____	_____	_____
Education	_____	_____	_____	_____
Length of Service	_____	_____	_____	_____
Agency A	_____	_____	_____	_____
Agency B	_____	_____	_____	_____
Low Self-Control	XXXX	_____	XXXX	_____
Self-Control	XXXX	XXXX	_____	_____

Note. XXXX refers to models with omitted variables.

The Relationship between Control Variables and Police Misconduct

Past police misconduct. Table 10 presents a summary of the statistical relationships between the study control variables and past police misconduct (see Appendix E for full results).[18] Age was found to be negatively related to the index, *Past Misconduct* (b=-.02, se=.47, p<.10) and to two individual acts of past police misconduct when all other variables are controlled. Specifically, older supervisors were less likely to have failed to report an excessive force incident (b=-.18, se=.10, p<.10) and to have illegally searched a suspect (b=-.22, se=.09, p<.05). Level of education and length of service were each positively related to one individual act of police misconduct. More

[18] Data for four of the ten acts of past misconduct (displaying a badge to avoid a traffic ticket, sleeping while on duty, illegally stopping and frisking a suspect, and falsifying an arrest report) did not fit the logistic regression models (as evinced by non-significant chi-square values), so results were not presented for those acts. This circumstance is indicated in the tables with "n/a."

educated supervisors were more likely to have conducted an unauthorized record check (b=.42, se=.20, *p*<.05), and supervisors with longer lengths of service were more likely to have failed to report an excessive force incident (b=1.34, se=.61, *p*<.05). The two agency variables also proved useful in predicting past police misconduct, where Agency C is the reference category. Specifically, being a supervisor in Agency A was negatively related to the index, *Past Misconduct* (b=-.70, se=.21, *p*<.01), and a past history of fixing a ticket (b=-2.01, se=.88, *p*<.01), failing to arrest or ticket a friend or relative (b=-2.02, se=1.17, *p*<.10), and speeding when no emergency exists (b=-2.02, se=.87, *p*<.05). Conversely, being a supervisor in Agency B was negatively related to fixing a ticket (b=-2.15, se=1.10, *p*<.05), but positively related to failing to report an excessive force incident (b=2.25, se=1.22, *p*<.10). In a departure from previous research, sex and race were unrelated to prior police misbehavior.

Future police misconduct. With respect to control variables, generally similar results were seen for the future police misconduct dependent measure (see Table 11 for a summary).[19] Overall, four control variables predicted the likelihood of various future misconduct outcomes when other variables are controlled.[20] Age was negatively related to the future likelihood of failing to report an excessive force incident (b=-.17, se=.07, *p*<.05), while being a White supervisor was positively related to the future likelihood of speeding when no emergency exists (b=1.14, se=.48, *p*<.05) and positively related to the future misconduct index (b=.64, se=.36, *p*<.10). Being a supervisor from Agency A was negatively related to a future likelihood of fixing a ticket (b=-3.34, se=1.10, *p*<.01), conducting an unauthorized record check (b=-1.90, se=.1.06, *p*<.10), failing to arrest or ticket a friend or relative (b=-2.45, se=.81, *p*<.01), and speeding when no emergency

[19] Data for five of the ten acts of future misconduct (displaying a badge to avoid a traffic ticket, sleeping while on duty, illegally stopping and frisking a suspect, illegally searching a suspect, and falsifying an arrest report) did not fit the ordinal regression models (as evinced by non-significant chi-square values), so results were not presented for those acts.

[20] The parallel lines assumption of ordinal regression held for each of the model-fitting ordinal regression models as evinced by non-significant chi-square values (p>.05).

Table 10: *Summary of logistic and negative binomial regression models predicting past police misconduct*

Variable	Age	Sex	Race	Education	Length of Service	Agency A	Agency B
Fix a ticket	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.***	**Neg.***
Conduct unauthorized record check	*ns*	*ns*	*ns*	**Pos.***	*ns*	*ns*	*ns*
Fail to arrest or ticket a friend or relative	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.+**	*ns*
Display your badge to avoid a traffic ticket	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sleep while on duty	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Speed when no emergency exists	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.+**	*ns*
Fail to report an excessive force incident	**Neg.+**	*ns*	*ns*	*ns*	**Pos.***	*ns*	**Pos.+**
Illegally stop and frisk a suspect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Illegally search a suspect	**Neg.+**	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Falsify an arrest report	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Past Misconduct Index	**Neg.+**	*ns*	*ns*	*ns*	*ns*	**Neg.+**	*ns*

Note. Pos. = Positive Relationship; Neg. = Negative Relationship; *ns* = Non-significant; n/a = Not Applicable
$^{+}p<.10$ $^{*}p<.05$ $^{**}p<.01$

exists (b=-1.27, se=.55, $p<.05$). Supervisors from Agency B were also less likely than their counterparts in Agency C to fix a ticket in the future (b=-1.37, se=.70, $p<.05$), but they were more likely to fail to report an excessive force incident (b=3.03, se=.88, $p<.01$). Inconsistent with previous research, sex, education level, and length of service did not provide predictive utility for the likelihood of future police misconduct.

The Relationship between Low Self-Control and Police Misconduct

The results presented in this section, reflect an assessment of Hypothesis #1. Recall that the first hypothesis presumed that low self-control, as stipulated in Gottfredson and Hirschi's version of self-control theory and measured by the Grasmick et al. scale, would significantly predict police misconduct. For the purposes of the regression models, these results reflect model #2 (see Table 9) for each of the two outcome variables (past and future misconduct). Logistic regression was utilized for past acts of misconduct, ordinal regression was used for the likelihood of future misconduct, and negative binomial regression was utilized for both misconduct indexes.

Past police misconduct. The first subsection provides results for past misbehavior. The findings demonstrated empirical evidence that low self-control was positively related to past police misconduct; in fact, the measure was predictive of seven individual acts and the misconduct index (see Table 12).[21] Substantively, this means that the lower a supervisor's self-control, the more likely it is that the supervisor has engaged in police misconduct. Specifically, low self-control was positively related to conducting an unauthorized record check (b=1.94, se=.92, p<.05), failing to arrest or ticket a friend or relative (b=1.76, se=.95, p<.10), sleeping while on duty (b=2.55, se=.78, p<.01), speeding when no emergency exists (b=1.87, se=.93, p<.05), failing to report an excessive force incident (b=3.25, se=1.88, p<.10), illegally stopping and frisking a suspect (b=3.18, se=1.76, p<.10), and illegally searching a suspect (b=1.88, se=.91, p<.01). Low self-control was also significantly related to the past misconduct index (B=.63, se=.19, p<.01).

[21] Data for two of the ten acts of past misconduct (display a badge to avoid a traffic ticket and falsifying an arrest report) did not fit the logistic regression model (as evinced by a non-significant chi-square value), so results were not presented for this act.

Table 11: *Summary of ordinal and negative binomial regression models predicting future police misconduct*

Variable	Age	Sex	Race	Education	Length of Service	Agency A	Agency B
Fix a ticket	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.****	**Neg.***
Conduct unauthorized record check	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.+**	*ns*
Fail to arrest or ticket a friend or relative	*ns*	*ns*	*ns*	*ns*	*ns*	**Neg.****	*ns*
Display your badge to avoid a traffic ticket	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sleep while on duty	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Speed when no emergency exists	*ns*	*ns*	**Pos.***	*ns*	*ns*	**Neg.***	*ns*
Fail to report an excessive force incident	**Neg.***	*ns*	*ns*	*ns*	*ns*	*ns*	**Pos.****
Illegally stop and frisk a suspect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Illegally search a suspect	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Falsify an arrest report	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Future Misconduct Index	*ns*	*ns*	**Pos.+**	*ns*	*ns*	*ns*	*ns*

Note. Pos. = Positive Relationship; Neg. = Negative Relationship; *ns* = Non-significant; n/a = Not Applicable
$^{+}p<.10$ $^{*}p<.05$ $^{**}p<.01$

Future police misconduct. This section presents the results of the test of Hypothesis #1 using future police misconduct as the dependent measure.[22] With regard to the likelihood of future misconduct, low self-control was positively related to eight of

[22] Data for two of the ten acts of future misconduct (displaying a badge to avoid a traffic ticket and falsifying an arrest report) did not fit the ordinal regression models (as evinced by non-significant chi-square values), so results were not presented for those acts.

Table 12: *Low self-control predicting past police misconduct*

Variable	Low Self-Control		
	b	**se**	**Wald χ^2**
Fix a ticket	.24	.89	.07
Conduct unauthorized record check	**1.94***	.92	4.46
Fail to arrest or ticket a friend or relative	**1.76**$^{+}$	.95	3.34
Display your badge to avoid a traffic ticket	n/a	n/a	n/a
Sleep while on duty	**2.55****	.78	10.49
Speed when no emergency exists	**1.87***	.93	4.04
Fail to report an excessive force incident	**3.25**$^{+}$	1.88	2.98
Illegally stop and frisk a suspect	**3.18**$^{+}$	1.76	2.72
Illegally search a suspect	**1.88****	.91	6.74
Falsify an arrest report	n/a	n/a	n/a
	B	**se**	**Wald χ^2**
Past Misconduct Index	**.63****	.19	10.86

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
$^{+}p<.10$ *$p<.05$ **$p<.01$

the individual acts and the future misconduct index (see Table 13).[23] Police supervisors with lower levels of self-control were found to be more likely to commit misconduct in the future if given the opportunity. At the individual-act level, the Grasmick et al. scale positively predicted a future likelihood of fixing a ticket (b=1.30, se=.69, $p<.10$), conducting an unauthorized record check (b=1.38, se=.78, $p<.10$), failing to arrest or ticket a friend or relative (b=1.38, se=.66, $p<.05$), sleeping while on duty (b=2.68, se=.68, $p<.001$), speeding when no emergency exists (b=1.60, se=.59, $p<.01$), failing to report an excessive force incident (b=3.58, se=1.43, $p<.05$), illegally stopping and frisking a suspect (b=4.50, se=1.40, $p<.01$), and illegally searching a suspect (b=3.97, se=1.33, $p<.01$). Low self-control also significantly predicted higher values on the future

[23] The parallel lines assumption of ordinal regression held for each of the model-fitting ordinal regression models as evinced by non-significant chi-square values (p>.05).

misconduct index (B=1.03, se=.42, p<.01). Overall, these analyses demonstrated that low self-control, as measured to reflect Gottfredson and Hirschi's version of self-control theory, is an important correlate of police misconduct.

The Relationship between Revised Self-Control and Police Misconduct

In this section, analyses testing to Hypothesis #2 are reported. Recall that the second hypothesis stated that revised self-control, as specified in Hirschi's (2004) version of self-control theory and measured by a Cost X Salience variable, would be significantly related to police misconduct. In terms of the regression models, these results come from model #3 (see Table 9) for each of the outcome variables, where the

Table 13: *Low self-control predicting the likelihood of future police misconduct*

Variable	Low Self-Control		
	b	**se**	**Wald χ^2**
Fix a ticket	**1.30**$^{+}$	.69	3.53
Conduct unauthorized record check	**1.38**$^{+}$	.78	3.12
Fail to arrest or ticket a friend or relative	**1.38***	.66	4.38
Display your badge to avoid a traffic ticket	n/a	n/a	n/a
Sleep while on duty	**2.68*** **	.68	15.54
Speed when no emergency exists	**1.60****	.59	7.36
Fail to report an excessive force incident	**3.58***	1.43	6.26
Illegally stop and frisk a suspect	**4.50****	1.40	10.26
Illegally search a suspect	**3.97****	1.33	8.89
Falsify an arrest report	n/a	n/a	n/a
	B	**se**	**Wald χ^2**
Future Misconduct Index	**1.03****	.42	6.07

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
^{+}p<.10 *p<.05 **p<.01 ***p<.001

Grasmick et al. scale measure has been removed and the Costs X Salience variable has been entered. Again, logistic regression was conducted for past acts of misconduct, ordinal regression was utilized for the likelihood of future misconduct, and negative binomial regression was employed for both misconduct indexes.

Past police misconduct. This section reports the results of testing hypothesis #2 using past police misconduct as the dependent measure. Table 14 presents the results for the potential relationships between revised self-control (as defined by Hirschi's re-conceptualized theory) and past misconduct.[24] Revised self-control was found to be unrelated to each of the past misconduct acts, but the self-control measure did demonstrate predictive utility in the negative binomial regression model. Specifically, revised self-control was negatively related to the past misconduct index (B=-.01, se=.00; $p<.10$).

Future police misconduct. This section reports the results of testing hypothesis #2 using the likelihood of future police misconduct as the dependent measure.[25] While revised self-control was only related to one of the *past* misconduct variables (i.e., the index), the measure of Hirschi's revised version of the theory was found to be related to four of the future acts and to the future misconduct index (see Table 15).[26] The relationship between revised self-control and misconduct was negative, indicating that police supervisors with higher levels of self-control were less likely to commit misconduct in the future if given the opportunity to do so. With regard to the individual acts, revised

[24] Data for four of the ten acts of past misconduct (displaying a badge to avoid a traffic ticket, sleeping while on duty, illegally stopping and frisking a suspect, and falsifying an arrest report) did not fit the logistic regression models (as evinced by non-significant chi-square values), so results were not presented for those acts.
[25] Data for three of the ten acts of future misconduct (displaying a badge to avoid a traffic ticket, illegally search a suspect, and falsifying an arrest report) did not fit the ordinal regression models (as evinced by non-significant chi-square values), so results were not presented for those acts.
[26] The parallel lines assumption of ordinal regression held for each of the model-fitting ordinal regression models as evinced by non-significant chi-square values (p>.05).

Table 14: *Revised self-control predicting past police misconduct*

Variable	Revised Self-Control		
	b	**se**	**Wald χ^2**
Fix a ticket	-.01	.00	.35
Conduct unauthorized record check	-.01	.00	1.86
Fail to arrest or ticket a friend or relative	.01	.00	.21
Display your badge to avoid a traffic ticket	n/a	n/a	n/a
Sleep while on duty	n/a	n/a	n/a
Speed when no emergency exists	-.01	.00	1.04
Fail to report an excessive force incident	.01	.00	.78
Illegally stop and frisk a suspect	n/a	n/a	n/a
Illegally search a suspect	-.01	.00	.12
Falsify an arrest report	n/a	n/a	n/a
	B	**se**	**Wald χ^2**
Past Misconduct Index	**-.01**$^{+}$	.00	3.09

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
$^{+}p<.10$

self-control was negatively related to a future likelihood of fixing a ticket (b=-.01, se=.00, $p<.01$),conducting an unauthorized record check (b=-.01, se=.00, $p<.05$), failing to arrest or ticket a friend or relative (b=-.01, se=.00, $p<.05$), and illegally stopping and frisking a suspect (b=-.01, se=.00, $p<.10$). The revised self-control measure also was negatively related to the future misconduct index (B=-.01, se=.00, $p<.01$). Overall, these results provided some support for Hirschi's version of self-control theory.

The Relative Strength of Two Versions of Self-Control Theory as it applies to Police Misconduct

This section presents the findings for the test of Hypothesis #3. Recall that the third hypothesis, bolstered by empirical evidence (e.g., Higgins et al., 2008; Intravia et al., 2012; Miller et al., 2009), postulated that measures from both theoretical versions of

Table 15: *Revised self-control predicting the likelihood of future police misconduct*

Variable	Revised Self-Control		
	b	**se**	**Wald χ^2**
Fix a ticket	**-.01****	.00	8.37
Conduct unauthorized record check	**-.01***	.00	5.30
Fail to arrest or ticket a friend or relative	**-.01***	.00	6.41
Display your badge to avoid a traffic ticket	n/a	n/a	n/a
Sleep while on duty	-.01	.00	1.91
Speed when no emergency exists	-.01	.00	1.17
Fail to report an excessive force incident	-.01	.00	.74
Illegally stop and frisk a suspect	**-.01^{+}**	.00	3.34
Illegally search a suspect	n/a	n/a	n/a
Falsify an arrest report	n/a	n/a	n/a
	B	**se**	**Wald χ^2**
Future Misconduct Index	**-.01****	.00	6.68

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
$^{+}p<.10$ $*p<.05$ $**p<.01$

self-control would significantly predict police misconduct when included in the same model. The results reported here reflect model #4 (see Table 9) of the multiple regression strategy for each of the outcome variables. In these full models, all control and independent variables were included. Logistic regression was employed for past acts of misconduct, ordinal regression was utilized for the likelihood of future misconduct, and negative binomial regression was conducted for both misconduct indexes. The first subsection provides results for past misconduct.

Past police misconduct. As reported above, low self-control provided predicted seven individual acts of past police misconduct and the past police misconduct index (Table 12), whereas revised self-control was only related to the past misconduct index (Table 14). Full model results for past deviance are presented in Table 16 and similar results are seen with regard to the influence of low self-control and revised self-control

on past police misconduct.[27] The Grasmick et al. scale was found to be predictive of seven individual acts of misconduct, while the Costs X Salience measure was found to be unrelated to the individual acts. Specifically, low self-control was positively related to conducting an unauthorized record check (b=2.76, se=1.13, p<.05), failing to arrest or ticket a friend or relative (b=2.72, se=1.24, p<.05), sleep while on duty (b=1.75, se=.88, p<.05), speeding when no emergency exists (b=2.22, se=1.26, p<.10), failing to report an excessive force incident (b=4.05, se=2.24, p<.10), illegally stopping and frisking a suspect (b=2.20, se=1.21, p<.10), and illegally searching a suspect (b=2.19, se=1.20, p<.05). Substantively, this means that supervisors who scored higher on the Grasmick et al. scale were more likely to have committed acts of misconduct even while controlling for their scores on the Cost X Salience measure of self-control. With regard to the past misconduct index, both independent measures of the self-control construct provided predictive utility. Low self-control was positively related to the outcome (B=.72, se=.23, p<.01), and revised self-control was negatively related to the outcome (B=-.01, se=.00, p<.10).

Future police misconduct. This section summarizes the results of the full model (that is, with both measures of the construct, self-control) with the future police misconduct dependent measures. As you will recall from Tables 13 and 15, both independent variables demonstrated some explanatory power with individual acts of future misconduct as well as with the future misconduct indexes. Within full models (see Table 17), similar findings were demonstrated.[28] Low self-control was found to be significantly related to seven individual acts and revised self-control was related to six

[27] Data for two of the ten acts of past misconduct (displaying a badge to avoid a traffic ticket and falsifying an arrest report) did not fit the logistic regression models (as evinced by non-significant chi-square values), so results were not presented for those acts.
[28] Data for one of the ten acts of future misconduct (displaying a badge to avoid a traffic ticket) did not fit the ordinal regression models (as evinced by a non-significant chi-square value), so results were not presented for this act.

Table 16: *Low self-control and revised self-control predicting past police misconduct*

Variable	Low Self-Control			Revised Self-Control		
	b	**se**	**Wald χ^2**	**b**	**se**	**Wald χ^2**
Fix a ticket	1.32	1.05	.23	-.01	.00	.80
Conduct unauthorized record check	**2.76***	1.13	5.93	-.01	.00	2.04
Fail to arrest or ticket a friend or relative	**2.72***	1.24	4.83	.01	.00	.42
Display your badge to avoid a traffic ticket	n/a	n/a	n/a	n/a	n/a	n/a
Sleep while on duty	**1.75***	.88	3.90	.01	.00	.03
Speed when no emergency exists	**2.22^{+}**	1.26	3.09	-.01	.00	1.72
Fail to report an excessive force incident	**4.05^{+}**	2.24	3.28	.01	.00	.71
Illegally stop and frisk a suspect	**2.20^{+}**	1.21	3.17	-.02	.01	1.60
Illegally search a suspect	**2.19***	1.20	5.65	-.01	.00	.10
Falsify an arrest report	n/a	n/a	n/a	n/a	n/a	n/a
	B	**se**	**Wald χ^2**	**B**	**se**	**Wald χ^2**
Past Misconduct Index	**.72****	.23	9.93	**-.01^{+}**	.00	2.79

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
$^{+}p<.10$ *$p<.05$ **$p<.01$

individual acts.[29] Based on the Grasmick et al. scale, police supervisors with higher levels of low self-control were *more* likely to commit the following misconduct acts in the future: fix a ticket (b=2.02, se=.85, $p<.05$), fail to arrest or ticket a friend or relative (b=1.37, se=.78, $p<.10$), sleep while on duty (b=1.60, se=.77, $p<.05$), speed when no emergency exists (b=1.16, se=.70, $p<.10$), illegally stop and frisk a suspect (b=4.71, se=1.80, $p<.01$), and falsify an arrest report (b=8.93, se=4.46, $p<.05$). Based on the Costs X Salience measure of revised self-control, police supervisors with higher levels of self-control were *less* likely to commit the following misconduct acts in the future: fix a

[29] The parallel lines assumption of ordinal regression held for each of the model-fitting ordinal regression models as evinced by non-significant chi-square values (p>.05).

ticket (b=-.01, se=.00, *p*<.01), conduct an unauthorized record check (b=-.01, se=.00, *p*<.05), fail to arrest a friend or relative (b=-.01, se=.00, *p*<.05), illegally stop and frisk a suspect (b=-.01, se=.00, *p*<.10), illegally search a suspect (b=-.01, se=.00, *p*<.01), and falsify an arrest report (b=-.03, se=.02, *p*<.10).

With regard to the future misconduct index, both independent measures demonstrated predictive utility. Specifically, low self-control was positively related to the index (B=1.03, se=.41, *p*<.05), whereas revised self-control was negatively related to the index (B=-.01, se=.00, *p*<.01). The next chapter presents a discussion of these results.

Table 17: *Low self-control and revised self-control predicting future police misconduct*

Variable	Low Self-Control			Revised Self-Control		
	b	**se**	**Wald χ^2**	**b**	**se**	**Wald χ^2**
Fix a ticket	**2.02***	.85	5.66	**-.01****	.00	9.04
Conduct unauthorized record check	1.23	.95	1.67	**-.01***	.00	5.32
Fail to arrest or ticket a friend or relative	**1.37**$^{+}$**	.78	3.09	**-.01***	.00	6.49
Display your badge to avoid a traffic ticket	n/a	n/a	n/a	n/a	n/a	n/a
Sleep while on duty	**1.60***	.77	4.23	-.01	.00	2.07
Speed when no emergency exists	**1.16**$^{+}$**	.70	2.80	-.01	.00	1.30
Fail to report an excessive force incident	2.36	1.80	1.72	-.01	.00	1.05
Illegally stop and frisk a suspect	**4.71****	1.80	6.87	**-.01**$^{+}$**	.00	3.51
Illegally search a suspect	**3.34***	1.65	3.78	**-.01***	.00	4.11
Falsify an arrest report	**8.93***	4.46	4.01	**-.03**$^{+}$**	.02	2.80
	B	**se**	**Wald χ^2**	**B**	**se**	**Wald χ^2**
Future Misconduct Index	**1.03***	.41	6.39	**-.01****	.00	6.93

Note. Regression coefficients are net of study control variables
n/a = Not Applicable
^{+}p<.10 *p<.05 **p<.01

CHAPTER 6:

DISCUSSION

This chapter provides a discussion focusing on hypotheses, results, implications for theory and measurement, implications for policy and practice, strengths and weaknesses of the study, and directions for future research. First, the discussion briefly revisits the state of knowledge within the police misconduct literature, and it reviews the statement of the problem that this dissertation addresses. Second, the study's three principal hypotheses are reviewed and a discussion of the results, within the context of the study's hypothesized relationships, is presented.[30] Here, particular attention is given to what the results substantively mean, whether or not the hypotheses were supported, and how the findings integrate with previous research. Third, this chapter provides an overview of the results that are not reflected within the hypotheses; specifically, these findings pertain to the relationships between the control variables and police misconduct. Fourth, the policy implications of the pertinent findings are discussed. Within this section, detailed attention is given to implications for police administrators in terms of reducing police misconduct through pre-employment screening, recruit and supervisory training, and misconduct detection. Fifth, the discussion highlights the study's main strengths and weaknesses with respect to methodological design and variable measurement. Sixth, and finally, this chapter offers directions for future research and concluding remarks.

[30] The discussion of the study results are primarily limited to the past and future misconduct indexes (as opposed to the individual acts). According to Babbie (2004), many variables that social scientists wish to study have no clear and unambiguous single indicators. A single item (e.g., fix a ticket) usually gives researchers a rough indication of a given construct, whereas Indexes (a composite measure of several items) can provide a more comprehensive and accurate indication of the construct.

Summary of Police Misconduct Research

The bulk of previous research examining correlates of police misconduct has established several individual (e.g., Lersch & Kunzman, 2001), organizational (e.g., Sechrest & Burns, 1992, and community-level (e.g., Kane & White, 2012) correlates of police misconduct. These factors can be important in guiding department policy in an effort to decrease police deviance, but strategies to reduce misconduct can also be gleaned from research within the context of criminological theory.

In this framework, research demonstrates that police misconduct is a product of such concepts as strain (Arter, 2007), social learning (Chappell & Piquero, 2004), and self-control (Donner & Jennings, 2013). This latter study is the only known study, to date, which tests the influence of Gottfredson and Hirschi's self-control theory on police misconduct. The researchers found that low self-control is generally related to misconduct, but their study is limited by their measures of both low self-control (i.e., behavioral) and misconduct (i.e., official citizen complaints). To address these limitations, and to further assess the impact of self-control by including Hirschi's (2004) revised theory, this dissertation sought to investigate whether self-control (measured by the Grasmick et al. scale and a Costs X Salience variable) is significantly related to police misconduct (measured by self-reports of past deviance and the likelihood of future deviance); and, if so, identify which version of self-control theory best explains police misconduct.

Review of Hypotheses

Based on theory and prior research, three research hypotheses were proposed in this study. First, it was hypothesized that *Low Self-Control*, as a measure of Gottfredson and Hirschi's (1990) version of self-control theory, would be significantly related to both past police misconduct and the likelihood of future police misconduct. Second, it was hypothesized that *Self-control*, as a measure of Hirschi's (2004) revision

of self-control theory, would significantly predict both past and future police misconduct. Third, it was hypothesized that in full regression models, both measures would have significant (and independent) effects on past and future misconduct.

Discussion of Results Related to Hypothesized Relationships

The study hypotheses were tested using multiple dependent measures and various multiple regression strategies based on the measurement of the dependent variable. The findings will be presented for each hypothesis, and an analysis of the results will address (a) why each hypothesis is or is not supported, (b) how the results compare to what would be expected based on theory and previous research, and (c) how the findings might be attributable to measurement strategy.

Hypothesis #1: Low self-control, as measured by the Grasmick et al. scale, will predict police misconduct.

Results. To address a methodological critique of Donner & Jennings' (2013) behavioral measure of low self-control, and to further explore the relationship between Gottfredson and Hirschi's version of self-control theory and police misconduct, this study assessed the potential relationship between low self-control (as measured by the widely-used Grasmick et al. scale) and self-reported police misconduct. Recall that this research utilized both individual misconduct acts and misconduct indexes for both past and future behavior. The results demonstrate that low self-control is significantly related to seven of ten individual acts of prior misconduct[31] and, importantly, the past misconduct index (see Table 18, model #2). Specifically, a one standard deviation increase in low self-control was associated with a .11 standard deviation increase in the police misconduct index.[32]

[31] The data for two individual acts did not fit the regression models.
[32] Standardized regression coefficients were calculated by the following formula: $\beta=b(s_x/s_y)$, where β is the standardized coefficient, b is the unstandardized coefficient, s_x is the standard deviation of the independent variable, and s_y is the standard deviation of the dependent variable (Gau, 2013).

With regard to future misconduct, the results also demonstrate that low self-control is positively related to the future likelihood of eight of ten individual acts[33] and, importantly, the future misconduct index (see Table 19, model #2). A one standard deviation increase in low self-control was associated with a .23 standard deviation increase in the future likelihood of police misconduct. Taken as a whole, these findings suggest that police supervisors who are unable to consider, or appreciate, the *long-term* consequences of their behavior are *more* likely to engage in police misconduct and have a future likelihood of committing misconduct. Accordingly, police supervisors who are impulsive, prefer easy tasks, enjoy risk-seeking activities, are self-centered, and are prone to more easily lose their temper have an increased likelihood of engaging in police misconduct. These findings yield considerable support for Hypothesis #1.

Results in the context of theory and research. The above findings are consistent with theory. As previously stated, Gottfredson and Hirschi (1990) contend that low self-control is the underlying cause of individual-level crime and analogous behavior and that individuals who have low levels of self-control are more likely to pursue the immediate pleasure of deviant behavior when presented with an opportunity to do so. The findings of the current study are consistent with this theoretical proposition.

The results of this study are also consistent with a large body of research that supports Gottfredson and Hirschi's theoretical formulation.[34] (e.g., Arneklev et al., 1993; Cochran et al., 1998; Jones & Quisenberry, 2004; Pratt & Cullen, 2000; Sellers, 1999). Additionally, this study examining the theory using police supervisors and their occupational misbehavior is consistent with previous empirical investigations that yield support for the relationship between low self-control and occupational deviance (e.g.,

[33] The data for two individual acts did not fit the regression models.
[34] Keep in mind that Gottfredson and Hirschi's theory does not have complete support. Some empirical evidence suggests that low self-control is not related to deviant behavior altogether (e.g., Simpson & Piquero, 2002; Van Wyk et al., 2000) and some researchers question the empirical importance of low self-control (e.g., Chapple, 2005; Higgins, 2004; Higgins, Pratt & Cullen, 2000).

Langton et al., 2006), impulsivity and police misconduct (Piquero & Pogarsky, 2004), and low self-control and police misconduct (Donner & Jennings, 2013).

Table 18: *Standardized regression coefficients and pseudo-R^2 values for past police misconduct*

Variable	Model #1 Control Vars. β (R^2)	Model #2 LSC β (R^2)	Model #3 RSC β (R^2)	Model #4 LSC RSC β (R^2)
Fix a ticket	--- (.39)	0.17 (.39)	-2.59 (.36)	0.94 -2.59 (.38)
Conduct unauthorized record check	--- (.23)	1.49* (.29)	-2.82 (.29)	2.13* -2.82 (.38)
Fail to arrest or ticket a friend or relative	--- (.23)	1.39^{+} (.27)	2.89 (.22)	2.15* 2.89 (.31)
Display a badge to avoid a traffic ticket	n/a	n/a	n/a	n/a
Sleep while on duty	n/a	1.73** (.25)	n/a	n/a
Speed when no emergency exists	--- (.32)	1.63* (.37)	-3.19 (.31)	1.94^{+} -3.19 (.37)
Fail to report an excessive force incident	--- (.29)	4.25^{+} (.37)	4.79 (.32)	5.30^{+} 4.79 (.40)
Illegally stop and frisk a suspect	n/a	5.69^{+} (.53)	n/a	3.93^{+} -13.10 (.61)
Illegally search a suspect	--- (.33)	2.46** (.57)	-4.78 (.36)	2.86* -4.78 (.58)
Falsify an arrest report	n/a	n/a	n/a	n/a
Index	--- (.06)	0.11** (.09)	-0.63^{+} (.05)	0.12** -0.63^{+} (.08)

Note.
R^2 for individual items = Nagelkerke R^2
R^2 for index = McFadden R^2
n/a = Data did not fit the model (p>.10)
^{+}p<.10 *p<.05 **p<.01

Table 19: *Standardized regression coefficients and pseudo-R^2 values for future police misconduct*

Variable	Model #1 Control Vars. β (R^2)	Model #2 LSC β (R^2)	Model #3 RSC β (R^2)	Model #4 LSC RSC β (R^2)
Fix a ticket	--- (.28)	0.38^{+} (.30)	-1.08** (.30)	0.60* -1.08** (.35)
Conduct unauthorized record check	--- (.18)	0.47^{+} (.20)	-1.26* (.25)	0.42 -1.26* (.27)
Fail to arrest or ticket a friend or relative	--- (.18)	0.42* (.21)	-1.10* (.23)	0.41^{+} -1.10* (.25)
Display a badge to avoid a traffic ticket	n/a	n/a	n/a	n/a
Sleep while on duty	n/a	0.93*** (.23)	-1.27 (.16)	0.56* -1.27 (.21)
Speed when no emergency exists	--- (.19)	0.45** (.24)	-1.03 (.18)	0.33^{+} -1.03 (.20)
Fail to report an excessive force incident	--- (.38)	3.04* (.47)	-3.11 (.46)	2.01 -3.11 (.49)
Illegally stop and frisk a suspect	n/a	2.73** (.33)	-2.22^{+} (.29)	2.86** -2.22^{+} (.42)
Illegally search a suspect	n/a	2.33** (.24)	n/a	1.96* -2.15* (.30)
Falsify an arrest report	n/a	n/a	n/a	11.68* -14.36^{+} (.34)
Index	--- (.04)	0.23** (.07)	-0.81** (.09)	0.23* -0.81** (.11)

Note.
R^2 for individual items = Nagelkerke R^2
R^2 for index = McFadden R^2
n/a = Data did not fit the model (p>.10)
^{+}p<.10 *p<.05 **p<.01 ***p<.001

The current results are also consistent within the self-control literature specifically pertaining to the use of the Grasmick et al. scale to measure low self-control. Recall that the measurement of low self-control has been debated in the criminological literature,

and that several measurement strategies have been crafted (and utilized) because Gottfredson and Hirschi (1990) do not explicitly state how to properly measure the construct in their original thesis. Though the authors later argue that behavioral measures are preferred (Hirschi & Gottfredson, 1993), and such measures have shown to be valid and reliable indicators of low self-control (e.g., Donner & Jennings, 2013; Tittle et al., 2003), attitudinal scales tapping into Gottfredson and Hirschi's six dimensions of low self-control tend to be the preferred strategy.

Among attitudinal scales, the 24-item Grasmick et al. scale is the most widely used, and it has also been shown to be a valid and reliable indicator of low self-control (e.g., Pratt & Cullen, 2000). Findings from Langton et al. (2006), for example, demonstrate that the Grasmick et al. scale is significantly related to employee theft intentions; furthermore, analyses from Pogarsky and Piquero (2004) yield evidence that the four impulsivity items from the Grasmick et al. scale are related to police misconduct. This research utilized the full Grasmick et al. scale and, consistent with previous research, found that low self-control significantly predicted police deviance in the workplace.

Hypothesis #2: Revised self-control, as measured by a Costs X Salience variable, will predict police misconduct.

Results. To further contribute to the self-control and police misconduct literatures, this study evaluated the relationship between revised self-control (as measured by a Costs X Salience variable) and self-reported police misconduct. The findings reveal that, as hypothesized, revised self-control is negatively related to the past misconduct index, four of ten future misconduct acts, and the future misconduct index (see Tables 18 and 19, model #3).[35] Specifically, a one standard deviation increase in

[35] The data for four individual acts did not fit the regression models for past misconduct, and the data for three individual acts did not fit the regression models for future misconduct.

revised self-control was associated with a .63 standard deviation decrease in past police misconduct and a .81 standard deviation decrease in the future likelihood of police misconduct. These results suggest that police supervisors, who display self-control by considering the *full range* of short-term and long-term consequences of their behavior, are *less* likely to have engaged in police misconduct and are *less* likely to engage in misconduct in the future. Accordingly, these findings imply that police supervisors who have a larger (and more salient) set of inhibitions (and are thus more socially bonded to conventional society) have a decreased likelihood of committing police misconduct. Overall, the second hypothesis is supported.

Results in the context of theory and research. The findings regarding Hypothesis #2 are somewhat consistent with theory and prior research. In his 2004 re-conceptualization of self-control, Hirschi moved away from a personality-based construct toward a bond-based construct that assumes that the four components of the social bond act as inhibiting factors on behavior. He surmises that self-control is best epitomized by the questions, "Do I care what X thinks of me?" and "Will X know what I have done?" If the answers to these questions are "yes," then it is reasonable to think that these individuals have carefully considered the full-range of potential costs of their behavior. More specifically, Hirschi argues that costs can vary in terms of number and salience; and those individuals with a greater number of potential costs and who attribute greater importance to those costs are more likely to control themselves from engaging in behaviors that have short- and/or long-term consequences. These individuals, according to Hirschi, who have high levels of self-control, are less likely to pursue the benefits of deviant behavior when presented with an opportunity to do so. Accordingly, the findings of the current research provide support for Hirschi's theoretical proposal because revised self-control was related to both the past and future misconduct indexes.

The results of this study are fairly consistent with prior research investigating Hirschi's revised version of self-control theory. Though no study to date has assessed Hirschi's revised self-control within the realm of occupational misconduct, the theory is "general" in the sense that it presumes to explain all crime and deviance. Thus, one can look at the body of literature on Hirschi's revised theory to put the current findings into context. Dating back to Hirschi's (2004) own reanalysis of his Fayetteville and Richmond data, studies have shown support for his version of the theory for both self-reported prior behavior (Ward et al., in press) and the likelihood of future behavior (e.g., Higgins et al., 2008; Piquero & Bouffard, 2007). Although a review of the published literature to date appears to suggest that self-generated inhibition measures (e.g., Costs X Salience)[36] tend to perform stronger with hypothetical vignettes of future intentions than they do with self-reports of prior involvement, the current findings demonstrate that revised self-control is related to both measurement strategies of police misconduct as indicated by the past and future misconduct indexes.

Hypothesis #3: In full regression models, <u>both</u> measures of self-control will significantly (and independently) predict police misconduct.

Results. Several studies investigating Hirschi's revised self-control theory include theory-competition analyses. That is, in these studies, the researchers assessed the effects of low self-control and revised self-control in full regression models to evaluate which version of the theory is more empirically validated. The findings related to the full models are fairly consistent with previous results: low self-control and revised self-control were related to past and future misconduct. The analyses show that low self-control was positively related to seven acts of past misconduct, the past misconduct index, seven acts of future misconduct, and the future misconduct index (see Tables 18 and 19, model #4). Specifically, a one standard deviation increase in the *Low Self-*

[36] As opposed to traditional social bonding items (e.g., Hirschi, 2004).

Control was associated with a .12 standard deviation increase in the past misconduct index and a .23 standard deviation increase in the future misconduct index. As measured by the Costs X Salience variable *Revised Self-Control* was related to the past misconduct index, six acts of future misconduct, and the future misconduct index (see Tables 18 and 19, model #4). Here, a one standard deviation increase in revised self-control was associated with a .63 standard deviation decrease in past police misconduct and a .81 standard deviation decrease in the likelihood of future police misconduct.

Substantively, these findings demonstrate that supervisors with higher levels of low self-control as measured by items tapping into such traits such as their impulsivity are more likely engage in police misconduct, while controlling for their levels of revised self-control as measured by their perception of costs and the importance of those costs. Conversely, the findings also demonstrate that supervisors with higher levels of revised self-control are significantly less likely to engage in misconduct, while controlling for their levels of low self-control. Therefore, these analyses yield support for Hypothesis #3.

By taking a closer look at the relative strength of both measures of self-control theory, one can more fully evaluate which theoretical version is more empirically validated within the scope of police misconduct. To assess the relative strength of both theoretical versions, pseudo R^2 values were compared across regression models to see which model was better fitted by the data[37] and standardized regression coefficients were compared within model #4. Table 20 provides a summary of these statistics for both past and future misconduct.

[37] According to Long (1997), R^2 values cannot be established in logistic, ordinal, and Poisson-based regression. Unlike an R^2 value in OLS regression which indicates the explained variance in the dependent variable by the independent variables in the model, pseudo-R^2 values indicate model fit, with higher R^2 values indicating better model fit.

Table 20: *Summary of standardized regression coefficients and pseudo-R^2 values for police misconduct indexes*

Variable	Model #1 Control Vars. β (R^2)	Model #2 LSC β (R^2)	Model #3 RSC β (R^2)	Model #4 LSC RSC β (R^2)
Past Misconduct Index	--- (.06)	0.11** (.09)	-0.63^{+} (.05)	0.12** -0.63^{+} (.08)
Future Misconduct Index	--- (.04)	0.23** (.07)	-0.81** (.09)	0.23* -0.81** (.11)

Note.
R^2 for index = McFadden R^2
n/a = Data did not fit the model (*p*>.10)
$^{+}$*p*<.10 *p<.05 **p<.01

With respect to past police misconduct, the relative strength of both theoretical versions appears to be mixed. Starting with Table 18, one can see that model #2 (with *Low Self-Control*, R^2=.09) offers a better fitting model than model #1 (control variables only, R^2=.06) with respect to the past misconduct index. Interestingly, model #3 (with *Revised Self-Control*, R^2=.05) yields a worse-fitting model than either model #2, or model #1. Substantively, this means that, with respect to the past misconduct, entering the *Revised Self-Control* actually *decreases* the model-fit. When *Low Self-Control* is included again in model #4, the model-fit improves to R^2=.08, but is still lower than model #2 which has *Low Self-Control* without the *Revised Self-Control*. Based on model-fit, it appears *Low Self-Control* provides greater empirical validity; however, by looking at the standardized regression coefficients in model #4 (a better gauge of relative strength than pseudo-R^2 values) for the past misconduct index, it is clear that *Revised Self-Control* is the stronger measure as it yields a larger standardized coefficient (β=-.63, *p*<.10) than *Low Self-Control* (β=.12, *p*<.01).

For the likelihood of future misconduct, the relative strength of both theoretical versions appears to favor *Revised Self-Control*. In looking at the future misconduct index

in Table 19, both *Low Self-Control* (R^2=.07) and *Revised Self-Control* (R^2=.09) offer better fitting models than the control-variable model (R^2=.04), but the model with the *Revised Self-Control* offers a better fitting model than the model with the *Low Self-Control*. Moreover, if one looks at the standardized coefficients in the full model (#4) for the future misconduct index, one can see that *Revised Self-Control* (β=-.81, *p*<.01) again yields a larger standardized coefficient than *Low Self-Control* (β=.23, *p*<.01). Based on these findings, and with respect to future misconduct, it appears that *Revised Self-Control* provides greater empirical validity based on both better model-fit and a larger standardized coefficient.

Results in the context of theory and research. The findings from the full models are inconsistent with theory, but they are consistent with prior research. Gottfredson and Hirschi's (1990) posit that, if correctly measured, low self-control is the individual-level cause of crime and other explanations (including social bonds) are spurious. Because this research found that a self-generated inhibitions measure was related to deviance while controlling for a measure of low self-control, the findings are theoretically inconsistent. Hirschi's (2004) argues that his revised theory, if measured correctly, is the paramount conceptualization (and measurement) of self-control. Thus, a revised self-control measure should render a low self-control measure insignificant in a full model. Because this research found empirical support for both theoretical versions, the findings are not consistent with Hirschi's revised theory.

Prior research has assessed the relative strength of both versions of the theory. Overall, this line of research tends to show that both theoretical avenues are important in that measures from both versions have generally produced significant (and independent) effects on deviance when paired together in a full model (e.g., Higgins et al., 2008; Intravia et al., 2012; Jones et al., in press). The current research corroborates this line of research.

Results Unrelated to Study Hypotheses

This section discusses the results not reflected within the study hypotheses. Specifically, these findings pertain to the relationships between the control variables and police misconduct. First, a summary of the results is provided with an emphasis on what these results mean substantively. Second, the results are discussed within the context of prior research.

Results. For both outcome indexes, the control variables were generally found to be unrelated to police misconduct (results from model #1). Specifically, only three control variables across both outcomes were found to be related to misconduct. *Age* and *Agency A* were found to be negatively related to the past misconduct index, while *Race* was positively related to the future misconduct index. These results imply that as supervisors grow older, they are more likely to engage in police misconduct; White supervisors are *more* likely to engage in misconduct; and supervisors employed by Agency A are *less* likely than Agency C supervisors to engage in police misconduct.

Results in the context of prior research. Many of the findings from the current study are inconsistent with prior research in the sense that prior research has found that these controls variables do tend to be related to police misconduct. Age was negatively related to the past misconduct index, and this finding is consistent with prior research, which has established that older police personnel are less likely to engage in misconduct (Donner & Jennings, 2013; Brandl et al., 2001; Greene et al., 2004; Kane & White, 2012). In the current study, biological sex was unrelated to both past and future misconduct. These null findings are consistent with some previous research (e.g., Hickman et al., 2001; Kane & White, 2009) but are inconsistent with other research. Specifically, results from Brandl et al. (2001), Greene et al., (2004), and Donner and Jennings (2013) demonstrate that males are more likely to engage in police misconduct.

Compared to previous research, the study control variables are also inconsistent with respect to race, education, and length of service. This study's finding that being White was positively related to one of the study's outcome indexes is inconsistent with several prior studies that indicate that minority personnel are more likely to be involved in misconduct (Fyfe & Kane, 2005; Hickman et al., 2001; Kane & White, 2009). Interestingly, one prior study demonstrated conflicting results within its own analyses (Greene et al., 2004). In that study, being a White officer was positively related to having physical abuse complaints, but being a minority officer was positively related to being disciplined by the department. In terms of education level, the present results are inconsistent with previous research. The current study found that education was unrelated to misconduct, but several prior studies have established that education is negatively related to misconduct (e.g., Fyfe & Kane, 2005; Lersch & Kunzman, 2001). The current research indicates that length of service is unrelated to misconduct; this finding is inconsistent with both research that shows a *positive* relationship between length of service and misconduct (e.g., Donner & Jennings, 2013) and research that shows a *negative* relationship between length of service and misconduct (e.g., Fyfe and Kane, 2005; Manis et al., 2008).

With respect to one's organizational culture, this study used a proxy measure indicating the agency to which the supervisors were employed. The only significant finding was that supervisors from Agency A were less likely than Agency C supervisors to have a history of misconduct. Although further exploration of organizational characteristics cannot be undertaken because the data do not contain information pertaining to specific agency attributes (e.g., leadership, recruitment, training, culture), the current findings show some consistency with previous studies in the sense that the organization has an influence on police misconduct (e.g., Goldstein, 1975; Herbert,

1998; Sechrest & Burns, 1992; Sherman, 1978; Van Maanen, 1978; Weisburd et al., 2000).

Policy and Practical Implications

The results of this study have policy implications for how police administrators can reduce misconduct knowing that self-control has an influence on employee deviance. In order to reduce misconduct, low self-control must be detected and dealt with. Within the context of occupational management, there are two primary avenues for detecting low self-control: 1) pre-employment detection, and 2) post-hiring detection. Specifically, administrators can minimize the potential for police misconduct by detecting low self-control through pre-employment procedures, which closely examine a candidate's suitability to serve in the policing profession and that culminates in the applicant being disqualified for employment. Misconduct also can be minimized by the detection of low self-control on the part of current employees through integrity testing, which can culminate in training to increase one's level of low self-control. Strategies for "early" detection include better pre-employment screening of police recruits using background investigations and psychological exams. Strategies for "late" detection include integrity testing of current employees, such as analysis of citizen complaints and other early warning systems.

Early detection: Personnel selection and hiring. The most important implication for administrators garnered from these results is that police applicants with low self-control should not be hired. Within pre-employment screening, there are two key indicators of low self-control: past deviance in all aspects of life (i.e., behavioral measures) and psychological testing (i.e., attitudinal measures). Recent research suggests that police recruits with a history of problematic behavior (e.g., poor work history; Donner & Jennings, 2013; Kane & White, 2012) and police recruits with negative personality traits (e.g., egocentricity; Weiss et al., 2004) are more likely to engage in

police misconduct. Since self-control, theoretically, is established prior to police personnel being hired, the current findings call for agency leaders to: 1) have police background investigators more carefully screen police applicants through judicious background investigations; 2) have police psychologists conduct rigorous psychological evaluations in an effort to assess possible attitudinal indicators of low self-control; and 3) make their hiring criteria more stringent in an effort to disqualify applicants with checkered backgrounds.

More judicious background investigations. Background investigations serve to develop a more complete understanding of a potential employee, and careful assessments of candidates can aid in the detection of questionable integrity. The more information obtained by background investigators, the easier it is for organizations to determine if a candidate is suitable for employment. In law enforcement, background investigations typically utilize a myriad of investigatory "checks" of records in the realms of criminal history, finances, driving, employment, education, military, and drug/alcohol abuse (Palmiotto, 2001). According to data from the Bureau of Justice Statistics (2010), 99.9% of municipal police departments utilize criminal record checks, 99.8% use driving record checks, 99.6% conduct background investigations, 93.3% employ drug tests, and 82.2% utilize credit record checks. Many agencies cross-reference the findings of these investigations with self-reported information given by the candidate on his or her application. Lack of self-control might be indicated, for instance, by a criminal record (even if the crimes are minor ones), multiple driving offenses, a bankruptcy and so forth.

Background investigations are important because they help to confirm if a candidate possesses the attributes necessary for employment. In any occupation, but especially policing, employers wish to hire employees who are honest, hard-working, and honorable. When strong background investigations are conducted, there is a smaller likelihood that a candidate with undesirable characteristics will be hired. For example,

there have been times when police departments in Miami, FL, New York City, Houston, TX, and Washington, D.C. did not conduct rigorous background investigations when their respective city councils mandated large hiring periods (Palmiotto, 2001). This practice yielded the hiring of some police officers who had serious histories with crime, drugs, and other deviance. Many of these same officers went on to commit police misconduct. In fact, BJS (2012) data demonstrate that more than two-fifths of municipal departments allowed the consideration of applicants whose personal history included prior credit-related problems (82%), marijuana use (76%), a misdemeanor conviction (75%), a suspended driver's license (72%), job-related problems (71%), DUI convictions (62%), and the use of illegal drugs other than marijuana (47%). It is reasonable to surmise that more judicious background investigations would produce police personnel less likely to commit occupational deviance.

Increased use of psychological testing. Beyond background investigations, police departments should also make use of pre-employment psychological testing (Arrigo & Claussen, 2003). Recent research from Cochrane, Tett, and Vandercreek (2003) indicates that about 90% of municipal police departments administer some form of psychological testing. Moreover, data from BJS (2010) indicates that 72% of police departments (98% of large agencies serving 25,000 or more residents) utilize psychological evaluations, and 48% of departments (60% of large agencies) utilize personality inventories. Personality inventories (e.g., MMPI, CPI) include behavioral and/or attitudinal items, which tap into some of Gottfredson and Hirschi's six dimensions of low self-control (e.g., impulsivity, temper, thrill-seeking), and prior research has established that these behavioral/personality factors predict police misconduct (e.g., Caillouet, Boccaccini, Varela, Davis, & Rostow, 2010; Sarchione et al., 1998; Weiss et al., 2004). Structured interviews with trained psychologists also can be helpful in detecting both behavioral and attitudinal indicators of low self-control (Cochrane et al.,

2003). Thus, if appropriately administered in a pre-employment situation, psychological testing is another mechanism police departments can use to help identify applicants with undesirable characteristics.

More stringent hiring criteria. While prudent background investigations and effective psychological screening can help detect low self-control, it is imperative that this information be used to make decisions regarding the hiring of questionable candidates. Accordingly, agencies should set stringent standards to disqualify candidates who are linked to low self-control. Many departments currently make available their automatic disqualifiers (e.g., adjudication of a felony offense; use of any hard drug), but these criterion may be relaxed if an agency needs to fill substantially more positions than usual (Palmiotto, 2001; Sechrest & Burns, 1992). For example, the City of Miami relaxed its hiring standards during the early-to-mid 1980s (e.g., history of hard drug use, history of poor credit). Some of the officers hired during this time became notorious for their roles in the "Miami River Cops" drug raids[38], and, of the first 13 River Cops arrested, more than half (7) had histories of drug use, which would have disqualified them under Miami's pre-1980 hiring standards (Sechrest & Burns, 1992).[39] Police administrators could reduce the prevalence of police misconduct by utilizing stringent hiring criteria, which can automatically disqualify an undesirable candidate; these standards should not be waived just to fill the ranks of the department quickly.

Late detection: Integrity testing. Police administrators should monitor their personnel through integrity-testing mechanisms. Macintyre and Prenzler (1999) state

[38] The Miami Rivers Cops were a group of Miami, FL police offers that sold illegal drugs to drug dealers; the drugs had been confiscated during three boat raids on the Miami River in 1985. The investigations, and eventual convictions, of these officers led to the uncovering of wide-spread misconduct throughout the department. By 1988, 77 officers had been suspended or fired. Interestingly, 72 of these officers were hired during the major personnel increase, which began in 1980 (Sechrest & Burns, 1992).

[39] Additionally, background investigations were hampered by a consent decree (e.g., deception indicated on a polygraph was not sufficient for disqualification without an admission from the applicant) and changes in the screening process to generate larger numbers of successful candidates (e.g., mail verification of employment rather than personal verification by a background investigator).

that integrity testing can be used as a way to identify the prevalence and nature of misconduct, and it can be utilized to identify problem officers. If employees with low self-control are detected, training programs can be employed to hopefully strengthen one's level of self-control. Integrity testing strategies include such mechanisms as the analysis of citizen complaints and early warning systems. Supervisors and administrators should regularly review citizen complaints to look for patterns of high-complaint personnel because research has demonstrated that police personnel with citizen complaints have lower levels of self-control (Donner & Jennings, 2013), and research has also shown that employees with low self-control engage in other forms of occupational misconduct (Gibson & Wright, 2001; Langton et al., 2006). If administrators closely monitor citizen complaint records, they could detect problem officers and provide them with corrective measures, such as counseling or training.

Administrators also would be wise to go beyond an assessment of citizen complaints to identify misbehavior; this might include adopting an early warning system. . An early warning system is a database management tool, which is designed to identify personnel with aberrant behavior (Boggess, Donner, & Maskaly, 2011; Rojek, Decker, & Wagner, 2005; Walker & Alpert, 2002). Early warning systems are used by employers to manage risk, and these risk assessments attempt to predict the likelihood that employees will "cause harm" to the organization (Walker & Alpert, 2002). According to Rojek et al. (2005), an early warning system contains three parts. First, the system identifies problematic officers through the monitoring of conduct indicators (e.g., citizen complaints, use of force reports, civil litigation, pursuits and vehicle accidents). Second, personnel with a predetermined number of these indicators are diverted for intervention aimed to improve the employee's performance (e.g., counseling with a superior, additional training). Third, after the corrective strategy is administered, the employee continues to be monitored to assess the effectiveness of the intervention and to

ascertain if further correction is needed. Accordingly, in an effort to detect low self-control in current employees to aid in the attempted reduction of police misconduct, early warning systems try to identify "problem officers" on the basis of undesirable work performance and provide interventions to correct the problem behavior.

Police training. Training is one such intervention police administrators should utilize to correct problem behavior in personnel with low self-control. Meine, Cowles, and Watson (1998) found that ethics training was, at best, generally limited, and, at worst, non-existent. In strengthening ethics training, the current study implies that a strong emphasis needs to be placed on the consequences of misbehavior (see also Meine & Dunn, 2012; Pollock, 2005; Skogan & Frydl, 2004). Recall that Hirschi's (2004) revision of self-control theory suggests that the dimensions of self-control are the factors affecting one's calculation of the consequences of one's behavior. Here, Hirschi emphasizes the rational choice component of the theory, and he contends that inhibitors (i.e., costs) influence the choices people make. Accordingly, police training should highlight the potential costs of a failure to adhere to the rules (Meine & Dunn, 2012). Results from the current research demonstrate that police personnel typically consider (and place a high importance) on a few key costs: getting fired or suspended, getting sued, and losing the respect of their family and friends. Ethics trainers should firmly discuss the formal and informal penalties for engaging in misconduct and share real-life stories of police personnel who have "lost" something because of misconduct. If this is done in an effective way, it could make police personnel more aware of their decision-making and make them more cognizant of what is at stake if they were to engage in misconduct.[40]

[40] As a matter of pragmatism, it should be noted that many departments have been facing budget cuts during the recent economic downturn. According to data from the Police Executive Research Forum (PERF; 2013), training is one budgetary item that has been affected. For instance, the Camden, NJ police department has had to disband some classroom training programs in favor of computerized training. Thus, the relevance of training as a policy recommendation should be considered within the current economic

As part of ethics training, administrators should also implement strategies to *strengthen* employees' levels of self-control, as research suggests that self-control *can be* improved through training (Baumeister, Gailliot, DeWall, & Oaten, 2006; Dixon & Holcomb, 2000; Muraven, 2010; Muraven, Baumeister, & Tice, 1999). Similar to a muscle in the body, this line of research demonstrates that self-control can also be strengthened through repeated exercise. For example, Muraven (2010) found that 92 adult participants, who practiced self-control by inhibiting their urges (not eating sweets for two weeks) and controlling their behaviors (squeezing a handgrip for as long as possible twice a day)[41], performed significantly better in a self-control assessment (i.e., stop signal task).[42] Therefore, police administrators could utilize these findings to implement self-control exercises in their training programs.

Study Strengths and Limitations

This research has both strengths and weaknesses. This design of the current study has several advantages including the geographic and organizational diversity of the agencies, the rank of police personnel (i.e., first-line supervisors) under study, the examination of two variants of self-control theory, and the use of self-reported police deviance. First, participants in the study represent three geographically- and organizationally-diverse "agencies."[43] While the agencies and supervisors were selected by convenience (see generalizability limitation below), this study contributes to the

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context. The PERF report did not indicate any budgetary restraints as it relates to the pre-employment screening of applicants, but this does not necessarily mean that the screening process is shielded from budget cutbacks.

[41] Not eating tempting food is a difficult self-control exercise; thus, individuals in the "avoiding sweets group" were practicing self-control by not indulging in it. Holding a handgrip requires overcoming physical discomfort and the desire to release it; thus, individuals in the "handgrip group" were practicing self-control by squeezing the handgrip for as long as they could as doing so requires considerable self-control.

[42] The stop signal task is a well-established cognitive test of inhibition (Muraven, 2010). In this task, participants were seated at a computer; they were asked to press the right button if a square appeared on the right side of a fixated point and to press the left button if a square appeared on the left side of a fixated point. On one-quarter of the trials, a tone sounded. If a tone sounded, participants were asked to suppress their response when they saw a square.

[43] The term "agencies" needs to be qualified. Recall that Agency C reflects police supervisors who received their supervisor training from a statewide training academy. This "agency," thus, is comprised of personnel from several departments within that state.

literature by using a multi-agency sample, whereas previous studies of police misconduct mainly relied on single-agency examinations (e.g., Donner & Jennings, 2013; Pogarsky & Piquero, 2004). Utilizing multiple sites aids in the generalizability of the results.

Second, the participants are all first-line supervisors, which comprise an under-researched subgroup with police agencies. This study adds to the dearth of knowledge related to this crucial rank of police personnel. It is important to study all ranks of police because the ranks are qualitatively different and personnel assigned to different ranks have qualitatively different duties, responsibilities, views, and attitudes (e.g., Brehm & Gates, 1993; Engel, 2000; 2001; Van Maanen, 1984).

The third strength pertains to the analysis of the two variants of self-control theory. This investigation utilized variables from two versions of self-control theory to test if self-control is related to police misconduct and to test which theoretical version is empirically superior. Theory-based research is important; theory helps to generate hypotheses and helps to select pertinent independent variables for inclusion into the study (Babbie, 2004). Theory competition is particularly important because it helps to delineate "true" causes of behavior and helps to more fully outline the relationships between variables. For example, in Pogarsky and Piquero's (2004) study on deterrence and police misconduct, the researchers found that the certainty of punishment (deterrence theory) influenced an officer's likelihood of conducting an unauthorized background check. However, when they included a measure of impulsivity (psychological theory), the effect of certainty of punishment was rendered non-significant in one regression model and was partially mediated in another regression model. The impact of deterrence on this outcome was affected by another theoretical construct, which provided some clarity regarding the relationship between deterrence and police

misconduct. The current study, too, assessed the relative empirical validity of two theories to improve our understanding of police deviance.

The final strength of this study is that police misconduct is measured by asking the respondents about their own (versus others') behavior through self-report items. The use of self-report measures contrasts with the vast majority of previous misconduct studies, which have relied on indirect estimates of deviance (e.g., peer reports, citizen complaints). This study contributes to the literature by directly asking police personnel to report their own misconduct and likelihood of future misconduct. Doing so was advantageous within the given theoretical context; individual-level self-control needed to be linked with that same respondent's level of deviance.

As with any research, however, there are limitations. There are six key methodological concerns associated with this study: 1) self-report validity; 2) self-control measurement; 3) operationalization of police misconduct; 4) measurement error; 5) sampling and representativeness; and 6) sample size.

The first weakness of the current study pertains to the validity of self-report measures; the validity of any self-report study hinges on whether respondents respond honestly (Mosher, Miethe, & Hart, 2011). Although in one sense, respondents' own reported behavior can be seen as a positive in this research (as above), it is possible that some police personnel were less than fully frank in divulging their own deviant activities even with confidentiality assurances. (For reviews of under and over-reporting in self-report research, see Krohn, Thornberry, Gibson, & Baldwin, 2010; Thornberry & Krohn, 2000.). Untruthful responses would impact the validity of the results in this research because they would compromise the measurement of the dependent variables. Consequently, prevalence estimates may be skewed and relationships between study variables may be faulty.

The current research design, however, included several measures to assure participants of the confidentiality of their responses. This heeded the advice of Klockars et al. (1997), who suggest that researchers repeatedly assure participants that responses are voluntary and that data will remain confidential, Platform participants were consistently made aware of the voluntary nature of participation and the confidentiality of their responses. At the outset of the project (i.e., when the subjects took survey T1), each participant signed an informed consent document indicating his/her willingness to participate. With all online surveys that were distributed, the introductory email reminded respondents of the voluntary nature of participation. Moreover, and specifically for the dissertation, the misconduct items were preceded by a statement reflecting the confidential nature of the data and the importance of responding honestly to the questions.

The second limitation concerns measuring self-control through the utilization of the Grasmick et al. (1993) scale. The Grasmick et al. scale has been criticized on several grounds, such as its reliability (e.g., Hirschi & Gottfredson, 1993; Piquero et al., 2000), dimensionality (e.g., DeLisi et al., 2003), and operationalization (e.g., Marcus, 2004). Although Gottfredson and Hirschi prefer a *behavioral* measure of self-control, and while some studies have questioned the use of the Grasmick et al. scale, the Grasmick et al. scale–an *attitudinal* measure–has been applied extensively and been demonstrated to be a reliable predictor of deviant behavior (e.g., Jones & Quisenberry, 2004; Langton et al., 2006; Sellers, 1999). For example, Pratt and Cullen (2000) found that 20 studies–which met their meta-analytic inclusion criteria–had utilized attitudinal measures of self-control, and more than half (11) of those used the Grasmick et al. scale. They found those 11 studies (41 effect sizes; predicting crime and analogous behavior) to have a mean effect size of .255 (p<.01). More recently, De Ridder et al. (2012) conducted a meta-analysis on three widely used attitudinal self-control scales.

With respect to the Grasmick et al. scale, they found mean effect sizes of .25 for addictive behavior and .15 for deviant behavior (both $p<.001$).

Relatedly, the Cost x Salience variable, which was created for this study and based on Piquero and Bouffard's (2007) strategy to measure Hirschi's (2004) version of self-control, has also been methodologically criticized. According to Bouffard and Rice (2011), this measurement strategy can lead to measurement error because participants may report small lists because they fail to report all the costs that they may actually consider and not because they fail to consider all costs (see also, Piquero et al., 2000). Additionally, in the current study, participants were given the option to list up to five "bad things," whereas in previous studies respondents were given the option to list up to seven "bad things." The choice to limit the potential costs to five has the potential to limit the variation within the variable, which could have an effect on the size of correlation and regression estimates.

The third limitation is that only "minor" forms of police misconduct were utilized for the dependent variables. The ten acts that were included in the study do not represent an exhaustive list of police misconduct, which is a potential threat to content validity (Babbie, 2004). Careful consideration was given to all of Martin's (1994) 34 items, but only the least serious items were retained, as the ones deemed most likely to elicit honest responses from the participants. Because only "minor" forms of misconduct are utilized, it is quite possible that this study misses important acts of deviance committed by police personnel; however, the results of the study should still generalize to more serious forms of misconduct because of the generality of self-control theory.

The fourth limitation focuses on measurement error as it relates to the study's key findings. Recall that the analyses for several of the individual acts of misconduct, as well as the misconduct indexes (see Tables 18-20) demonstrated that both measures of self-control had stronger relationships with the likelihood of future police misconduct than

with prior police misconduct. It is possible that measurement error, which is a threat to predictive validity, has attenuated the relationship between self-control and prior misconduct (Peppers, Petrie, & Sullivan, 2010; Stefanski, 2000).

In this study, both measures of self-control assess "current" levels of self-control within the respondents; that is, levels of self-control were measured at the time of data collection. However, the measure of prior misconduct, which was collected at the time of data collection, could have captured behavior that was committed several years earlier. Although self-control theory assumes that self-control is relatively time-stable, some research (e.g., Jennings et al., 2013; Mitchell & Mackenzie, 2006; Muraven, 2010; Na & Paternoster, 2012; Turner & Piquero, 2002) indicates that self-control varies over time. Thus, it is possible that the time-varying nature of self-control could have attenuated the relationship between self-control and prior police misconduct.

According to Peppers et al. (2010, p. 360), attenuation bias occurs when the presence of measurement error in the independent variable "dilutes the apparent strength of the relationship between x and y, causing the estimated slope parameter to underestimate the magnitude of the true effect." Based on the cited literature, and assuming that self-control is time-varying, supervisors' levels of self-control at the time of data collection may not reflect their levels of self-control at earlier times, such as when deviant acts were committed. If true, "current self-control" is predicting past behavior, which was committed at a time when their levels of self-control may have actually been at a different level. This error in measurement could have diminished the statistical relationships that were produced because "current self-control" was being used to predict "prior behavior," and supervisors' levels of self-control may have changed over time (i.e., from the time when they committed past misconduct to the time of data collection). A more reliable way to have analyzed the relationship between self-control

and police misconduct would have been to measure self-control closer to the time when the supervisors had actually committed their prior misbehaviors.[44]

Conversely, the statistical relationships between self-control and future misconduct do not suffer from measurement error or attenuation bias. Here, "current self-control" and "current intentions" for future behavior were measured in the same time-context (i.e., both at the time of data collection) rather than being measured currently (i.e., self-control) and retrospectively (i.e., prior misconduct). In sum, if levels of self-control are time-varying, the demonstrated relationships between self-control and prior misconduct may be weakened through attenuation bias because "current self-control" may not accurately reflect the levels of self-control the respondents had when they committed their acts of misconduct in the past.

The fifth limitation involves the sampling strategy to recruit study respondents. The participating agencies reflect a convenience sample, which is considered a weak sampling technique (Babbie, 2004; Hagan, 2005). Convenience sampling is a nonprobability procedure in which subjects, or in this case agencies, are selected on the basis of accessibility. Relying on available subjects is not optimal because this sampling method limits the representativeness of the sample. The researchers cannot claim that the characteristics of the sample match the characteristics of the population. Because of this, internal and external validity can be compromised (Babbie, 2004). Results and conclusions of the current study will need to be interpreted with caution as the results could possibly be attributed to something other than the scientific manipulation of the independent variables (i.e., a systematic bias within the convenience sample). The conclusions drawn from the study may not accurately reflect the true nature of the

[44] If supervisors' levels of self-control were relatively the same at both points in time (i.e., time of prior behavior and time of data collection), then measurement error is not an issue. However, data were not collected at "time of prior behavior," so confirmation cannot be made regarding the time-stability or time-variability of self-control.

relationship between self-control and police misconduct. Furthermore, the results and conclusions may not be fully representative of (or generalizable to) all police personnel.

Two related issues pertain to self-selection bias, which concerns representativeness of the sample, and non-response bias, which are threats to internal validity (Babbie, 2004; Fowler, 2009; Hagan, 2005; Mosher et al., 2011). Self-selection bias can result when survey respondents choose whether or not they want to participate in a survey. Platform researchers make research participation available to all new supervisors attending the training class, and the sample is based on which ones choose to participate. Self-selection is an inherent problem with human research, and a threat to external validity. Biased data can result if the respondents who choose to participate do not represent the entire target population. This bias can produce findings that do generalize well to other police supervisors.

Additionally, in the current study, it is possible that the police supervisors, who chose to participate in this survey research, were systematically different than the police supervisors who chose not to participate. According to Babbie (2004), if the respondents' proclivity for participating in the study is associated with the substantive topic the researchers are trying to study, there will be non-response bias in the resulting data, which is a threat to internal validity. Internal validity refers to the inferences being made in cause-and-effect relationships; and, if a study is internally valid, then the observed relationships can be attributed to the IV-DV linkage (Babbie, 2004; see also Fowler, 2009). In this study, it is possible that the respondents have *higher* levels of self-control than the non-respondents. If this is the case, the observed relationships would be biased due to a systematic difference between the responding and non-responding groups. Analyses were conducted to check for systematic differences between the groups on several fronts (see Appendix A, Tables 1A and 2A), and it appears that respondents and non-respondents are not significantly different across a range of variables.

Unfortunately, however, data limitations prevented means-difference tests between the groups for the independent and dependent variables of interest.

The final limitation pertains to the relatively small sample size. In research, sample size is a critical feature of any study in which the researcher is trying to make inferences about a population from a sample. Researchers generally expect larger samples to yield more reliable results than smaller samples because, in theory, larger sample are more reflective of the population. When sample sizes are small, threats are made to the interrelated subjects of statistical power, Type I and Type II errors, and generalizability. Statistical power depends on the alpha level, sample size, population effect size (Cohen, 1992). Furthermore, the relationship between power and sample size has an influence on the probability of retaining the null hypothesis if the research hypothesis is "true" (Cohen, 1992; Raudenbush & Liu, 2000). With a sample of only 101 supervisors, it would not have been surprising to find null results even if the research hypothesis was "true." Luckily, the sample size was large enough to produce statistically significant findings; however, the small sample size still weakens the overall generalizability of the results to the population.

Directions for Future Research

Despite the study limitations, the current study adds to both the policing and criminological theory literatures by examining the relationship between self-control and police misconduct among a sample of 101 police supervisors. There are several avenues for future research that can further expand what researchers know about self-control theory and police misconduct. Future researchers should continue to refine the measurement of Hirschi's (2004) revised version of self-control theory. This dissertation utilized a Costs X Salience approach as first suggested by Piquero and Bouffard (2007). This measurement strategy, however, is not the only way researchers have operationalized revised self-control. Beginning with Hirschi's (2004) own 9-item social

bonding self-control scale, scholars have used traditional bond items to measure one's level of self-control (e.g., Jones et al., in press). Future research should employ a bond-based self-control measure to assess its predictive utility on police misconduct. Rather than asking participants to list costs of their behavior, participants should be asked questions that are more clearly linked to the components of the social bond (e.g., "How important is having a good marriage and family life?"). This line of measurement may be better suited to tap into a social bond measure of self-control and would be more consistent with Hirschi's (2004) measurement strategy. With that said, researchers should continue to refine measurement strategies of Hirschi's (2004) revised version of self-control theory in an attempt to reach an agreement on the most valid and reliable way to measure self-control.

Future research should attempt to replicate the current findings within police officer samples. This dissertation used data from a sample of police supervisors, who may have higher levels of self-control based on their rank within their agency. Future research should investigate whether police officers (e.g., patrol, traffic, undercover) have similar levels of self-control as police supervisors and whether police officers commit similar types of misconduct and at similar rates. This line of research would help in advancing the knowledge about policing ranks and may help to delineate other potential explanations for police misconduct, such as the role of opportunity.

As stated in the policy implications section, police administrators should set strict standards for hiring. In this vein, future research could aid administrators in providing research that could help set those standards. Researchers may want to consider a prospective longitudinal research study wherein police candidates are "screened" for indicators of low self-control (e.g., background investigations and psychological testing). The researcher(s) could then follow the hired candidates over their careers to see which ones become involved in misconduct. By focusing on pre-employment behaviors and

personality characteristics (as identified through the screening process) as indicators of one's level of self-control, the researcher(s) could help establish a low self-control "cut-line" so that hiring standards and disqualifiers could be set by police administrators for future applicant pools.

Lastly, future research should utilize a multi-theory critical test approach to assess police misconduct in a more comprehensive examination. Previous studies attempting to link criminological theory and police misconduct have investigated a particular theory, but these studies, for the most part, did not control for other relevant theories. For example, Chappell and Piquero (2004) analyzed the relationship between social learning theory and misconduct, but did not control for other theories; Hickman et al. (2001) studied the relationship between control balance theory and misconduct, but did not control for other theories; Donner and Jennings (2013) examined the relationship between self-control theory and misconduct, but did not control for other theories. Thus, the relationships found in these studies could possibly suffer from omitted-variable bias. For example, the current study did not include a variable measuring whether or not the supervisors had previous experience with departmental discipline. Deterrence research (e.g., Pogarsky & Piquero, 2004) and perceptual deterrence research (e.g., Paternoster, 1987; Paternoster & Piquero, 1995; Stafford & Warr, 1993) demonstrate that individuals calculate their decision-making based, in part, on their direct and indirect experience with punishment and punishment avoidance. Past experience with discipline may increase the potency of the costs associated with misbehavior, which could decrease the potential for future misconduct. In the future, researchers should undertake a comprehensive investigation, which collects data on several theoretical constructs. For example, this study might ask participants about their deviant peers, their levels of self-control and strain, their prior experiences with departmental discipline, and their routine work activities. This type of examination, potentially, would be able to tease out the "true"

criminological “causes” of police misconduct, which could then have a meaningful impact on policy recommendations. The research, thus far, suggests that social learning (Chappell & Piquero, 2004), strain (Arter, 2007), control balance (Hickman et al., 2001), deterrence (Pogarsky & Piquero, 2004), and low self-control (Donner & Jennings, 2013) have effects on police misconduct, so administrators are left wondering where to direct their resources to combat police misconduct. In a comprehensive test, some theoretical constructs may be rendered non-significant in favor of the “true” cause(s) of police misconduct. If this were to happen, police administrators would have better guidance for appropriately and effectively directing their resources.

Final Thoughts

The police have an integral role in society. They are responsible for enforcing criminal laws and maintaining order, and they are entrusted to do so with integrity. As they carry out their societal duties, they are supposed to “practice what they preach.” Unfortunately, not all police personnel adhere to this creed. The resulting behavior, police misconduct, can have far-reaching effects on the individual employee, the agency, the community, and the profession. Police misbehavior can result in federal oversight, distrust on the part of the citizenry, poor police-community relations, and lawsuits. It is vitally important for academics and practitioners to investigate and understand why some police personnel engage in police deviance so that useful policies and strategies can be developed and implemented to reduce police misconduct.

The current study utilized data from 101 police supervisors from multiple agencies to try to improve our understanding of police deviance. Specifically, the study examined the relationship between self-control and misconduct. Self-control was measured using two approaches. The Grasmick et al. scale was used to measure Gottfredson and Hirschi’s (1990) version of self-control theory, and a Costs X Salience variable was used to measure Hirschi’s (2004) revised version of self-control theory.

Both measurement approaches demonstrated predictive utility as both versions of the theory were found to be related to past police misconduct and the likelihood of future police misconduct in multiple regression models. In sum, the findings show that supervisors with lower levels of self-control are more likely to misbehave while on the job and supervisors with higher levels of self-control are less likely to misbehave while on the job. The current study offers insight into why police personnel engage in occupational deviance and has implications both for police administrators, who have a vested interest in combatting occupational deviance, and for researchers who will continue to advance our understanding of this important topic.

REFERENCES

Akers, R.L. (1991). Self-control as a general theory of crime. *Journal of Quantitative Criminology*, *7*(2), 201-211.

Akers, R. L., & Sellers, C. S. (2009). *Criminological theories*. Oxford: Oxford University Press.

Allen, D.N. (1982). Police supervision on the street: An analysis of supervisor/officer interaction during the shift. *Journal of Criminal Justice*, *10*(2), 91-109.

Alpert, G.P., & Dunham, R.G. (1997). *Policing urban America.* Prospect Heights, IL: Waveland Press.

Arneklev, B. J., Cochran, J. K., & Gainey, R. R. (1998). Testing Gottfredson and Hirschi's low self-control stability hypothesis: An exploratory study. *American Journal of Criminal Justice*, *23*(1), 107-127.

Arneklev, B. J., Grasmick, H. G. Tittle, C. R., & Bursik, R. J. (1993). Self-control theory and imprudent behavior. *Journal of Quantitative Criminology*, *9*(3), 225-247.

Arrigo, B.A., & Claussen, N. (2003). Police corruption and psychological testing: A strategy for pre-employment screening. *International Journal of Offender Therapy & Comparative Criminology*, *47*(3), 272-290.

Arter, M.L. (2007). Stress and deviance in policing. *Deviant Behavior*, *29*(1), 43-69.

Babbie, E. (2004). *The practice of social research*. Belmont, CA: Thomson Wadsworth.

Barker, T. (1977). Peer group support for police occupational deviance. *Criminology*, *15*(3), 353-366.

Barker, T., & Carter, D.L. (1986). *Police deviance*. Cincinnati, OH: Anderson.

Barker, T., & Roebuck, J. (1973). *An empirical typology of police corruption: A study in organizational deviance*. Springfield, IL: Charles C. Thomas.

Baron, S.W. (2003). Self-control, social consequences, and criminal behavior: Street youth and the general theory of crime. *Journal of Research in Crime & Delinquency*, *40*(4), 403-425.

Baumeister, R.F., Gailliot, M., DeWall, C.N., & Oaten, M. (2006). Self-regulation and personality: How interventions increase regulatory success, and how depletion moderates the effects of traits on behavior. *Journal of Personality*, *74*(6), 1773-1802.

Beaver, K.M., & Wright, J.P. (2007). The stability of low self-control from kindergarten through first grade. *Journal of Crime & Justice*, *30*(1), 63-86.

Beaver, K.M., Wright, J.P., DeLisi, M., & Vaughn, M.G. (2008). Genetic influences on the stability of low self-control: Results from a longitudinal sample of twins. *Journal of Criminal Justice*, *36*(6), 478-485.

Benson, M., & Moore, E. (1992). Are white-collar and common offenders the same? An empirical and theoretical critique of a recently proposed general theory of crime. *Journal of Research in Crime & Delinquency*, *29*(3), 251-272.

Black, D.J., & Reiss, A.J. (1970). Police control of juveniles. *American Sociological Review*, *35*(1), 63-77.

Boggess, L.N., Donner, C.M., & Maskaly, J.M. (2011). Police brutality. In W. Chambliss (Ed.), *Key issues in crime and punishment* (pp. 111-127). Thousand Oaks, CA: Sage.

Boman, J.H., Krohn, M.D., Gibson, C.L., & Stogner, J.M. (2012). Investigating friendship quality: An exploration of self-control and social control theories' friendship hypotheses. *Journal of Youth & Adolescence*, *41*(11), 1526-1540.

Bouffard, J. A. (2002). Methodological and theoretical implications of using subject-generated consequences in tests of rational choice theory. *Justice Quarterly*, *19*(4), 747-771.

Bouffard, J.A., & Rice, S.K. (2011). The influence of the social bond on self-control at the moment of decision: Testing Hirschi's redefinition of self-control. *American Journal of Criminal Justice*, *36*(2), 138-157.

Brandl, S.G., Stroshine, M.S., & Frank, J. (2001). Who are the complaint-prone officers? An examination of the relationship between police officers' attributes, arrest activity, assignment, and citizens' complaints about excessive force. *Journal of Criminal Justice*, *29*(6), 521-529.

Brehm, J., & Gates, S. (1993). Donut shops and speed traps: Evaluating models of supervision on police behavior. *American Journal of Political Science*, *37*(2), 555-581.

Brooks, L.W. (2005). Police discretionary behavior: A study of style. In R.G. Dunham & G.P. Alpert (Eds.), *Critical issues in policing* (pp. 89-105). Long Grove, IL: Waveland Press.

Brown, M.K. (1978). The impact of alternative forms of citizen control on police organization and police discretion. *Journal of Voluntary Action Research*, *7*(1), 85-101.

Brownfield, D., & Sorenson, A. M. (1993). Self-control and juvenile delinquency: Theoretical issues and an empirical assessment of selected elements of a general theory of crime. *Deviant Behavior*, *14*(3), 243-264.

Bureau of Justice Statistics (BJS) (2010). *Local police departments, 2007.* Washington, DC: Office of Justice Programs.

Bureau of Justice Statistics (BJS) (2012). *Hiring and retention of state and local law enforcement officers, 2008 – statistical tables.* Washington, DC: Office of Justice Programs.

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*(2), 353-396.

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 & Delinquency*, *35*(2), 123-148.

Burton, V. S., Cullen, F. T., Evans, D. T., & Dunaway, G. R. (1994). Reconsidering strain theory: Operationalization, rival theories, and adult criminality. *Journal of Quantitative Criminology*, *10*(3), 213-239.

Burton, V.S., Evans, D.T., Cullen, F.T., Olivares, K.M., & Dunaway, G.R. (1999). Age, self-control, and adults' offending behaviors: A research note assessing A General Theory of Crime. *Journal of Criminal Justice*, *27*(1), 45-54.

Caillouet, B.A., Boccaccini, M.T., Varela, J.G., Davis, R.D., & Rostow, C.D. (2010). Predictive validity of the MMPI-2 PSY-5 scales and facets for law enforcement officer employment outcomes. *Criminal Justice & Behavior*, *37*(2), 217-238.

Carter, D.L. (1984). Theoretical dimensions in the abuse of authority by police officers. *Police Studies*, *7*(4), 224-236.

Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*(2), 245-276.

Champion, D.J. (2001). *Police misconduct in America*. Santa Barbara, CA: ABC-CLIO.

Chappell, A.T., & Piquero, A.R. (2004). Applying social learning theory to police misconduct. *Deviant Behavior*, *25*, 89-108.

Chapple, C.L. (2005). Self-control, peer relations, and delinquency. *Justice Quarterly*, *22*(1), 89-106.

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*(3), 227-255.

Cochrane, R.E., Tett, R.P., & Vandercreek, L. (2003). Psychological testing and the selection of police officers. *Criminal Justice & Behavior*, *30*(5), 511-537.

Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, *1*(3), 98-101.

Crank, J.P. (1990). The influence of environmental and organizational factors on police style in urban and rural environments. *Journal of Research in Crime & Delinquency*, *27*(2), 166-189.

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*(2), 241-263.

De Ridder, D.T., Lensvelt-Mulders, G., Finkenauer, C., Stok, F.M., & Baumeister, R.F. (2012). Taking stock of self-control: A meta-analysis of how trait self-control relates to a wide range of behaviors. *Personality and Social Psychology Review*, 16(1), 76-99.

Dixon, M.R., & Holcomb, S. (2000). Teaching self-control to small groups of dually diagnosed adults. *Journal of Applied Behavior Analysis*, *33*(4), 611-614.

Dodson, K.M. (2009). *Tracing the evolution of Gottfredson and Hirschi's concept of self-control: A conceptual and empirical analysis*. (Unpublished doctoral dissertation). Indiana University of Pennsylvania; Indiana, PA.

Donner, C.M., & Jennings, W.G. (2013). *Low self-control and police deviance: Applying Gottfredson and Hirschi's general theory to officer misconduct*. Manuscript submitted for publication.

Engel, R.S. (2000). The effects of supervisory styles on patrol officer behavior. *Police Quarterly*, *3*(3), 262-293.

Engel, R.S. (2001). Supervisory styles of police patrol sergeants and lieutenants. *Journal of Criminal Justice*, *29*(4), 341-355.

Engel, R.S. (2005). How police supervisory styles influence patrol officer behavior. In R.G. Dunham & G.P. Alpert (Eds.), *Critical issues in policing* (pp. 131-140). Long Grove, IL: Waveland Press.

Engel, R.S., & Worden, R.E. (2003). Police officers' attitudes, behavior, and supervisory influences: An analysis of problem solving. *Criminology*, *41*(1), 131-166.

Evans, T. D., Cullen, F. T., Burton, Jr., V. S., Dunaway, R. G., & Benson, M. L. (1997). The social consequences of self-control: Testing the general theory of crime. *Criminology*, *35*(3), 475-504.

Eysenck, S.B.G., & Eysenck, H.J. (1978). Impulsiveness and venturesomeness: Their position in a dimensional system of personality description. *Psychological Reports*, *43*(3), 1247-1255.

Forde, D. R., & Kennedy, L. W. (1997). Risky lifestyles, routine activities, and the general theory of crime. *Justice Quarterly*, *14*(2), 265-294.

Fowler, F.J. (2009). *Survey research methods*. Los Angeles: Sage.

Fyfe, J.J, & Kane, R. (2005). *Bad cops: A study of career-ending misconduct among New York City police officers*. Washington, DC: National Institute of Justice.

Gau, J.M. (2013). *Statistics for criminology and criminal justice*. Thousand Oaks, CA: Sage.

Geis, G. (2000). On the absence of self-control as the basis for a general theory of crime: A critique. *Theoretical Criminology*, *4*(1), 35-53.

Gibbs, J. J., & Giever, D. (1995). Self-control and its manifestations among university students: An empirical test of Gottfredson and Hirschi's general theory. *Justice Quarterly*, *12*(2), 231-255.

Gibbs, J. J., Giever, D., & Higgins, G. E. (2003). A test of Gottfredson and Hirschi's general theory using structural equation modeling. *Criminal Justice & Behavior*, *30*(4), 441-458.

Gibbs, J. J., Giever, D., & Martin, J. S. (1998). Parental-management and self-control: An empirical test of Gottfredson and Hirschi's general theory. *Journal of Research in Crime & Delinquency*, *35*(1), 42-72.

Gibson, C.L., & Wright, J. (2001). Low self-control and coworker delinquency: A research note. *Journal of Criminal Justice*, *29*(6), 483-492.

Girodo, M. (1991). Drug corruption in undercover agents: Measuring the risk. *Behavioral Sciences & the Law*, *9*(3), 361-370.

Goldsmith, A. (2005). Police reform and the problem of trust. *Theoretical Criminology*, *9*(4), 443-470.

Goldstein, H. (1975). *Police corruption: A perspective on its nature and control*. Washington, DC: The Police Foundation.

Goldstein, H. (1977). *Policing in a free society*. Cambridge: Ballinger.

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. (2011). The empirical status of control theory in criminology. In F.T. Cullen, J.P. Wright, & K.R. Blevins (Eds.), *Taking stock: The status of criminological theory* (pp. 77-100). New Brunswick, NJ: Transaction 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.

Gough, H. (1975). *California psychological inventory manual*. Palo Alto, CA: Consulting Psychological Services.

Gould, L.A. (2000). A longitudinal approach to the study of the police personality: Race/gender differences. *Journal of Police & Criminal Psychology*, *15*(2), 41-51.

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 & Delinquency*, *30*(1), 5-29.

Greene, J.R., Piquero, A.R., Hickman, M.J., & Lawton, B.A. (2004). *Police integrity and accountability in Philadelphia: Predicting and assessing police misconduct*. Washington, DC: National Institute of Justice.

Gunter, W.D., & Bakken, N.W. (2012). The many measurements of self-control: How re-operationalized self-control compares. *European Journal of Criminology*, *9*(3), 309-322.

Haarr, R. (1997). They're making a bad name for the department: Exploring the link between organizational commitment and police occupational deviance in a police patrol bureau. *Policing: An International Journal of Police Strategies & Management*, *20*(4), 786-812.

Hagan, F.E. (2005). *Essentials of research methods in criminal justice and criminology*. Boston, MA: Pearson.

Hay, C. (2001). Parenting, self-control, and delinquency: A test of self-control theory. *Criminology*, *39*(3), 707-736.

Hay, C., & Forrest, W. (2006). The development of self-control: Examining self-control theory's stability hypothesis. *Criminology*, *44*(4), 739-774.

Herbert, S. (1998). Police subculture reconsidered. *Criminology*, *36*(2), 343-370.

Hickman, M.J., Piquero, A.P., Lawton, B.A., & Greene, J.R. (2001). Applying Tittle's control balance theory to police deviance. *Policing: An International Journal of Police Strategies & Management*, *24*(4), 497-519.

Hickman, M.J., Piquero, N.L., & Piquero, A.R. (2004). The validity of Niederhoffer's cynicism scale. *Journal of Criminal Justice*, *32*(1), 1-13.

Higgins, G. E. (2002). General theory of crime and deviance: A structural equation modeling approach. *Journal of Crime & Justice*, *25*(2), 71-95.

Higgins, G.E. (2004): Can low self-control help with the understanding of the software piracy problem? *Deviant Behavior*, *26*(1), 1-24.

Higgins, G.E., Fell, B.D., & Wilson, A.L. (2007). Low self-control and social learning in understanding students' intentions to pirate movies in the United States. *Social Science Computer Review*, *25*(3), 339-357.

Higgins, G.E., Jennings, W.G., Tewksbury, R., & Gibson, C.L. (2009). Exploring the link between low self-control and violent victimization trajectories in adolescents. *Criminal Justice & Behavior*, *36*(10), 1070-1084.

Higgins, G.E., Mahoney, M., & Ricketts, M.L. (2009). Nonsocial reinforcement of the nonmedical use of prescription drugs: A partial test of social learning and self-control theories. *Journal of Drug Issues*, *39*(4), 949-963.

Higgins, G.E., Ricketts, M.L., & Vegh, D.T. (2008). The role of self-control in college student's perceived risk and fear of online victimization, *American Journal of Criminal Justice*, *33*(2), 223-233.

Higgins, G.E., Wolfe, S.E., & Marcum, C.D. (2008). Digital piracy: An examination of three measurements of self-control. *Deviant Behavior*, *29*(5), 440-460.

Hirschi, T. (1969). *Causes of delinquency*. Berkeley, CA: University of California Press.

Hirschi, T. (2004). Self-control and crime. In R. Baumeister & K. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 537-552). New York: Guilford Press.

Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology*, *89*, 552-584.

Hirschi, T., & Gottfredson, M. R. (1986). The distinction between crime and criminality. In T. F. Hartnagel & R. A. Silverman (Eds.), *Critique and explanation: Essays in honor of Gwynne Nettler* (pp. 142-161). New Brunswick, NJ: Transaction.

Hirschi, T. & Gottfredson, M. (1993). Commentary: Testing the general theory of crime. *Journal of Research in Crime & Delinquency*, *30*(1), 47-54.

Hirschi, T., & Gottfredson, M. R. (2000). In defense of self-control. *Theoretical Criminology*, *4*(1), 55-69.

Hirschi, T., & Gottfredson, M.R. (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.

Hodgins, G.A., Creamer, M., & Bell, R. (2001). Risk factors for post-trauma reactions in police officers: A longitudinal study. *Journal of Nervous & Mental Disease*, *189*(8), 541-547.

Intravia, J., Jones, S., & Piquero, A.P. (2012). The roles of social bonds, personality, and perceived costs: An empirical investigation into Hirschi's "new" control theory. *International Journal of Offender Therapy and Comparative Criminology*, *56*(8), 1182-1200.

Ivkovic, S.K. (2009). Rotten apples, rotten branches, and rotten orchards. *Criminology & Public Policy*, *8*(4), 777-785.

Jennings, W.G., Higgins, G.E., Akers, R.A., Khey, D.N., & Dobrow, J. (2013). Examining the influence delinquent peer association on the stability of self-control in late childhood and early adolescence: Toward an integrated theoretical model. *Deviant Behavior*, *34*(5), 407-442.

Jones, S., Lynam, D. R., & Piquero, A. R. (in press). Substance use, personality, and inhibitors: Testing Hirschi's predictions about the reconceptualization of self-control. *Crime & Delinquency*.

Jones, S., & Quisenberry, N. (2004). The general theory of crime: How general is it? *Deviant Behavior*, *25*(5), 401-426.

Kaariainen, J., Lintonen, T., Laitinen, A., & Pollock, J. (2008). The code of silence: Are self-report surveys a viable means for studying police misconducts? *Journal of Scandinavian Studies in Criminology and Crime Prevention*, *9*(2), 86-96.

Kane, R.J. (2002). The social ecology of police misconduct. *Criminology*, *40*(4), 867-896.

Kane, R.J., & White, M.D. (2009). Bad cops: A study of career-ending misconduct among New York City police officers. *Criminology & Public Policy*, *8*(4), 735-767.

Kane, R.J., & White, M.D. (2012). *Jammed up: Bad cops, police misconduct, and the New York City Police Department*. New York: New York University Press.

Kappeler, V.E., Sluder, R.D., & Alpert, G.P. (1998). *Forces of deviance: Understanding the dark side of policing*. Prospect Heights, IL: Waveland Press.

Keane, C., Maxim, P., & Teevan, J. (1993). Drinking and driving, self-control, and gender: Testing a general theory of crime. *Journal of Research in Crime & Delinquency*, *30*(1), 3-46.

Kim, J., & Mueller, C.W. (1978). *Introduction to factor analysis*. Newbury Park, CA: Sage.

Klockars, C.B., Ivkovich, S.K., Harver, W.E., & Haberfeld, M.R. (1997). *The measurement of police integrity*. Washington, DC: National Institute of Justice.

Knowles, J.J. (1996). *Ohio police behavior study: An assessment from the officers*. Columbus, OH: Ohio Office of Criminal Justice Services.

Krohn, M.D., Thornberry, T.P., Gibson, C.L., & Baldwin, J.M. (2010). The development and impact of self-report measures of crime and delinquency. *Journal of Quantitative Criminology*, *26*(4), 509-525.

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*(1), 41-72.

Langton, L., Piquero, N.L., & Hollinger, R.C. (2006). An empirical test of the relationship between employee theft and low self-control. *Deviant Behavior*, *27*(5), 537-565.

Lersch, K.M. (2002). *Policing and misconduct*. Upper Saddle River, NJ: Pearson.

Lersch, K.M., & Kunzman, L.L. (2001). Misconduct allegations and higher education in a southern sheriff's department. *American Journal of Criminal Justice*, *25*(2), 162-172.

Lersch, K.M., & Mieczkowski, T. (2000). An examination of the convergence and divergence of internal and external allegations of misconduct filed against police officers. *Policing: An International Journal of Police Strategies & Management*, *23*(1), 54-68.

Longshore, D. (1998). Self-control and criminal opportunity: A prospective test of general theory of crime. *Social Problems*, *45*(1), 102-114.

Longshore, D., & Turner, S. (1998). Self-control and criminal opportunity: Cross-sectional test of general theory of crime. *Criminal Justice & Behavior*, *25*(1), 81-98.

Longshore, D., Turner, S., & Stein, J.A. (1996). Self-control in a criminal sample: An examination of construct validity. *Criminology*, *34*(2), 209-228.

Lundman, R.J. (1979). Organizational norms and police discretion. *Criminology*, *17*(2), 159-171.

Lynch, R.G. (1998). *The police manager*. Cincinnati, OH: Anderson.

MacDonald, J.M., & Lattimore, P.K. (2010). Count models in criminology. In A. Piquero & D. Weisburd (Eds.), *Handbook of Quantitative Criminology*. New York: Springer.

Macintyre, S., & Prenzler, T. (1999). The influence of gratuities and personal relationships on police use of discretion. *Policing & Society*, *9*(2), 181-201.

Manis, J., Archbold, C.A., & Hassell, K.D. (2008). Exploring the impact of police officer education level on allegations of police misconduct. *International Journal of Police Science & Management*, *10*(4), 509-523.

Marcus, B. (2004). Self-control in the general theory of crime. *Theoretical Criminology*, *8*(1), 33-55.

Martin, C. (1994). *Illinois municipal officers' perceptions of police ethics*. Chicago, IL: Illinois Criminal Justice Information Authority.

Meine, M.F., Cowles, C.W., & Watson, C. (1998). Ethics education and training in police departments: A study of the Virginia example. *Security Journal*, *11*(2), 145-149.

Meine, M.F., & Dunn, T.P. (2012). Policing the police: Using ethics education and training to combat official deviance. *Journal of US-China Public Administration*, *9*(9), 1069-1075.

Miller, H.V., Jennings, W.G., Alvarez-Rivera, L.L., & Lanza-Kaduce, L. (2009). Self-control, attachment, and deviance among Hispanic adolescents. *Journal of Criminal Justice*, *37*(1), 77-84.

Mitchell, O., & Mackenzie, D. L. (2006). The stability and resiliency of self-control in a sample of incarcerated offenders. *Crime & Delinquency*, *52*(3), 432-449.

Morris, R.G., Gerber, J., & Menard, S. (2011). Social bonds, self-control, and adult criminality: A nationally representative assessment of Hirschi's revised self-control theory. *Criminal Justice & Behavior*, *38*(6), 584-599.

Mosher, C.J., Miethe, T.D., & Hart, T.C. (2011). *The mismeasure of crime*. Thousand Oaks, CA: Sage.

Muraven, M. (2010). Building self-control strength: Practicing self-control leads to improved self-control performance. *Journal of Experimental Social Psychology*, *46*(2), 465-468.

Muraven, M., Baumeister, R.F., & Tice, D.M. (1999). Longitudinal improvement of self-regulation through practice: Building self-control strength through repeated exercise. *The Journal of Social Psychology*, 139(4), 446-457.

Na, C., & Paternoster, R. (2012). Can self-control change substantially over time? Rethinking the relationship between self- and social control. *Criminology*, *50*(2), 427-462.

Nunnally, J.C. (1978). *Psychometric theory*. New York: McGraw-Hill.

Nye, F.I. (1958). *Family relationships and delinquent behavior*. New York: Wiley.

Palmiotto, M.J. (2001). Can police recruiting control police misconduct? In M.J. Palmiotto (Ed.), *Police misconduct: A reader for the 21st century* (pp. 344-354). Upper Saddle River, NJ: Prentice Hall.

Paternoster, R. (1987). The deterrent effect of the perceived certainty and severity of punishment: A review of the evidence and issues. *Justice Quarterly*, *4*(2), 173-217.

Paternoster, R., & Brame, R. (1998). The structural similarity of processes generating criminal and analogous acts. *Criminology*, *36*(3), 633-669.

Paternoster, R., & Piquero, A. (1995). Reconceptualizing deterrence: An empirical test of personal and vicarious experiences. *Journal of Research in Crime & Delinquency*, *32*(3), 251-286.

Patterson, G. R. (1980). Children who steal. In T. Hirschi & M. Gottfredson (Eds.), *Understanding crime: Current theory and research* (pp. 73-90). Beverly Hills, CA: Sage.

Pepper, J., Petrie, C., & Sullivan, S. (2010).Measurement error in criminal justice data. In A.R. Piquero & D. Weisburd (Eds.), *Handbook of Quantitative Criminology* (pp. 353-374). New York: Springer.

Perrone, D., Sullivan, C.J., Pratt, T.C., Margaryan, S. (2004). Parental efficacy, self-control, and delinquency: A test of A General Theory of Crime on a nationally representative sample of youth. *International Journal of Offender Therapy & Comparative Criminology*, *48*(3), 298-312.

Piquero, A.R. (2009). Self-control theory: Research issues. In M.D. Krohn, A.J. Lizotte, & G.P. Hall (Eds.), *Handbook on crime and deviance* (pp. 153-168). New York: Springer.

Piquero, A.R., & Bouffard, J.A. (2007). Something old, something new: A preliminary investigation of Hirschi's redefined self-control. *Justice Quarterly, 24*(1), 1-27.

Piquero, A.R., Farrington, D.P., Nagin, D.S., & Moffitt, T.E. (2010). Trajectories of offending and their relation to life failure in late middle age: Results from the Cambridge study in delinquent development. *Journal of Research in Crime & Delinquency*, *47*(2), 151-173.

Piquero, A.R., Jennings, W.G., & Farrington, D.P. (2010). On the malleability of self-control: Theoretical and policy implications regarding A General Theory of Crime. *Justice Quarterly*, *27*(6), 803-834.

Piquero, A. R., MacIntosh, R., & Hickman, M. (2000). Does self-control affect survey response? Applying exploratory, confirmatory, and item response theory analysis to Grasmick et al.'s self-control scale. *Criminology*, *38*(3), 897-930.

Piquero, A.R., & Rosay, A.B. (1998). The reliability and validity of Grasmick et al.'s self-control scale: A comment on Longshore et al. *Criminology*, *36*(1), 157-173.

Piquero, A.R., & Tibbetts, S.G. (1996). Specifying the direct and indirect effects of low self-control and situational factors in offender's decision making: Toward a more complete model of rational offending. *Justice Quarterly*, *13*(3), 481-510.

Piquero, N.L., Schoepfer, A., & Langton, L. (2010). Completely out of control or the desire to be in complete control? How low self-control and the desire for control relate to corporate offending. *Crime & Delinquency*, *56*(4), 627-647.

Pogarsky, G., & Piquero, A.R. (2004). Studying the reach of deterrence: Can deterrence theory help explain police misconduct? *Journal of Criminal Justice*, *32*(4), 371-386.

Polakowski, M. (1994). Linking self- and social control with deviance: Illuminating the structure underlying a general theory of crime and its relation to deviant activity. *Journal of Quantitative Criminology*, *10*(1), 41-79.

Police Executive Research Forum (PERF) (2013). *Policing and the economic downturn: Striving for efficiency is the new normal.* Washington, DC: PERF.

Pollock, J.M. (2005). Ethics and law enforcement. In R.G. Dunham & G.P. Alpert (Eds.), *Critical issues in policing* (pp. 280-303). Long Grove, IL: Waveland Press.

Pratt, T.C., & Cullen, F.T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, *38*(3), 931-964.

Pratt, T.C., Turner, M.G., & Piquero, A.R. (2004). Parental socialization and community context: A longitudinal analysis of the structural sources of low self-control. *Journal of Research in Crime & Delinquency*, *41*(3), 219-243.

Punch, M. (2000). Police corruption and its prevention. *European Journal on Criminal Policy & Research*, *8*(3), 301-324

Raudenbush , S.W., & Liu, X. (2000). Statistical power and optimal design for multisite randomized trials. *Psychological Methods*, *5*(2), 199-213.

Reckless, W. (1961). A new theory of delinquency. *Federal Probation*, *25*(4), 42-46.

Regoli, R.M. (1977). *Police in America*. Washington, D.C.: University Press of America.

Reisig, M.D., & Pratt, T.C. (2011). Low self-control and imprudent behavior revisited. *Deviant Behavior*, *32*(7), 589-625.

Reiss, A.J. (1951). Delinquency as the failure of personal and social controls. *American Sociological Review*, *16*(2), 196-207.

Reiss, A.J. (1971). *The police and the public*. New Haven, CT: Yale University Press.

Robin, G.D. (1974). White collar crime and employee theft. *Crime & Delinquency*, *20*(3), 251-262.

Rojek, J., Decker, S.H., & Wagner, A.E. (2005). Addressing police misconduct: The role of citizen complaints. In R.G. Dunham & G.P. Alpert (Eds.), *Critical issues in policing* (pp. 258-279). Long Grove, IL: Waveland Press.

Sarchione, C.D., Cuttler, M.J., Muchinsky, P.M., & Nelson-Gray, R.O. (1998). Prediction of dysfunctional job behaviors among law enforcement officers. *Journal of Applied Psychology*, *83*(6), 904-912.

Sechrest, D.K., & Burns, P. (1992). Police corruption: The Miami case. *Criminal Justice & Behavior*, *19*(3), 294-313.

Sellers, C.S. (1999). Self-control and intimate violence: An examination of the scope and specification of the general theory of crime. *Criminology*, *37*(2), 375-404.

Sherman, L.W. (1978). *Scandal and reform: Controlling police corruption*. Berkeley, CA: University of California Press.

Sherman, L.W. (1980). Causes of police behavior: The current state of quantitative research. *Journal of Research in Crime & Delinquency*, *17*(1), 69-100.

Simpson, S.S., & Geis, G. (2008). The undeveloped concept of opportunity. In E. Goode (Ed.), *Out of control: Assessing the general theory of crime* (49-60). Stanford, CA: Stanford University Press.

Simpson, S.S., & Piquero, N.L. (2002). Low self-control, organizational theory, and corporate crime. *Law & Society Review*, *36*(3), 509-548.

Skogan, W., & Frydl, K. (2004). *Fairness and effectiveness in policing: The evidence.* Washington, D.C.: National Academic Press.

Skolnick, J.H., & Fyfe, J.J. (1993). *Above the law*. New York: Free Press.

Smith, T.R. (2004). Low self-control, staged opportunity, and subsequent fraudulent behavior. *Criminal Justice & Behavior*, *31*(5), 542-563.

Son, I.S., & Rome, D.M. (2004). The prevalence and visibility of police misconduct: A survey of citizens and police officers. *Justice Quarterly*, *7*(2), 179-204.

Sorenson, A. M., & Brownfield, D. (1995). Adolescent drug use and a general theory of crime: An analysis of a theoretical integration. *Canadian Journal of Criminology*, *37*(1), 19-37.

Stafford, M.C., & Warr, M. (1993). A reconceptualization of general and specific deterrence. *Journal of Research in Crime & Delinquency*, *30*(2), 123-135.

Stefanski, L.A. (2000). Measurement error models. *Journal of the American Statistical Association*, *95*(452), 1353-1358.

Stylianou, S. (2002). The relationship between elements and manifestations of low self-control in a general theory of crime: Two comments and a test. *Deviant Behavior*, *23*(6), 531-557.

Tangney, J.P., Baumeister, R.F., & Boone, A.L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271-324.

Thornberry, T.P., & Krohn, M.D. (2000). The self-report method of measuring delinquency and crime. In D. Duffee (Ed.), *Measurement and analysis of crime and justice* (pp. 33-83). *Critical issues in policing* (pp. 258-279). Washington, DC: Department of Justice.

Tibbetts, S.G., & Myers, D.L. (1999). Low self-control, rational choice, and student test cheating. *American Journal of Criminal Justice*, *23*(2), 179-200.

Tittle, C.R., Ward, D.A., & Grasmick, H.G. (2003). Self-control and crime/deviance: Cognitive vs. behavioral measures. *Journal of Quantitative Criminology, 19*(4), 333-365.

Toby, J. (1957). Social disorganization and stakes in conformity: Complementary factors in the predatory behavior of hoodlums. *Journal of Criminal Law, Criminology, & Police Science*, *48*(1), 12-17.

Turner, M. G. & Piquero, A. R. (2002). The stability of self-control. *Journal of Criminal Justice*, *30*(6), 457-471.

Turner, M.G., Piquero, A. R., & Pratt, T.C. (2005). The school context as a source of self-control. *Journal of Criminal Justice*, *33*(4), 327-339.

Unnever, J.D., Cullen, F.T., & Agnew, R. (2006). Why is "bad" parenting criminogenic? Implications from rival theories. *Youth Violence & Juvenile Justice*, *4*(1), 3-33.

Unnever, J. D., Cullen, F. T., & Pratt, T. C. (2003). Parental management, ADHD, and delinquent involvement: Reassessing Gottfredson and Hirschi's general theory. *Justice Quarterly*, *20*(3), 471-500.

Van Maanen, J. (1975). Police socialization: A longitudinal examination of job attitudes in an urban police department. *Administrative Science Quarterly*, *20*(2), 207-228.

Van Maanen, J. (1978). The asshole. In P.K. Manning & J. Van Maanen (Eds.), *Policing: A view from the street* (pp. 221-237). Santa Monica, CA: Goodyear Publishing.

Van Maanen, J. (1984). Making rank: Becoming an American police sergeant. *Urban Life*, *13*(2), 155-176.

Van Wyk, J.A., Benson, M.L., & Harris, D.K. (2000). A test of strain and self-control theories: Occupational crime in nursing homes. *Journal of Crime & Justice*, *23*(2): 27-44.

Vazsonyi, A. & Huang, L. (2010). Where self-control comes from: On the development of self-control its relationship to deviance over time. *Developmental Psychology*, *46*(1), 245-257.

Vazsonyi, A. T., Pickering, L. E., Junger, M., & Hessing, D. (2001). An empirical test of a general theory of crime: A four-nation comparative study of self-control and the prediction of deviance. *Journal of Research in Crime & Delinquency*, *38*(2), 91-131.

Walker, S., & Alpert, G.P. (2002). Early warning systems as risk management for police. In K.M. Lersch (Ed.), *Policing and misconduct* (pp. 219-230). Upper Saddle River, NJ: Pearson.

Walker, S., & Katz, C.M. (2002). *The police in America*. Boston, MA: McGraw Hill.

Ward, J.T., Boman, J.H., & Jones, S. (in press). Hirschi's redefined self-control: Assessing the implications of the merger between social- and self-control theories. *Crime & Delinquency*.

Weisburd, D., Greenspan, R., Hamilton, E.E., Williams, H., & Bryant, K.A. (2000). *Police attitudes toward abuse of authority: Findings from a national survey*. Washington, DC: National Institute of Justice.

Weiss, W.U., Rostow, C. Davis, R., & DeCoster-Martin, E. (2004). The Personality Assessment Inventory as a selection device for law enforcement personnel. *Journal of Police & Criminal Psychology*, *19*(2), 23-29.

Weiss, W.U., Zehner, S.N., Davis, R.D., Rostow, C., & DeCoster-Martin, E. (2005). Problematic police performance and the Personality Assessment Inventory. *Journal of Police & Criminal Psychology*, *20*(1), 16-21.

Westmarland, L. (2005). Police ethics and integrity: Breaking the blue code of silence. *Policing & Society*, *15*(2), 145-165).

Winfree, L. T., & Bernat, F. P. (1998). Social learning, self-control, and substance abuse by eighth grade students: A tale of two cities. *Journal of Drug Issues*, *28*(2), 539-559.

Wolfe, S.E., & Piquero, A.R. (2011). Organizational justice and police misconduct. *Criminal Justice & Behavior*, *38*(4), 332-353.

Wood, P., Pfefferbaum, B., & Arneklev, B. (1993). Risk-taking and self-control: Social psychological correlates of delinquency. *Journal of Crime & Justice*, *16*(1), 111-130.

Wright, J. P., & Beaver, K. M. (2005). Do parents matter in creating self-control in their children? A genetically informed test of Gottfredson and Hirschi's theory of self-control. *Criminology*, *43*(3), 1169-1202.

Wright, B.R., 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*(2), 321-351.

Wright, J.P., & Cullen, F.T. (2001). Parental efficacy and delinquent behavior: Do control and support matter? *Criminology*, *39*(3), 677-706.

Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. Cambridge, UK: Cambridge University Press.

APPENDICES

Appendix A: Respondent versus Non-Respondent Analyses

Table 1A: *Independent sample t-tests for group differences between respondents and non-respondents*

Variable	Study Respondent							
	No			Yes				
	M	SD	N	M	SD	N	t (df)	*p*-value
PJ	3.14	0.77	358	3.04	0.75	89	1.12 (445)	.26
OC	3.57	0.66	360	3.52	0.69	88	0.54 (446)	.59
AC	2.84	0.54	356	2.92	0.52	89	-1.29 (443)	.20

Note. PJ=Procedural Justice; OC=Organizational Commitment; AC=Agency Cynicism

Table 2A: *Chi-square tests for group differences between respondents and non-respondents*

Variable		Study Respondent		χ^2 (df)	*p*-value
		No	Yes		
Controls					
Age	18-29 years old	28	7		
	30-39 years old	201	51		
	40-49 years old	116	26		
	50 years old +	21	7	0.70 (3)	.87
Sex	Female	32	8		
	Male	329	81	0.01 (1)	.97
Race	Nonwhite	83	20		
	White	281	70	0.01 (1)	.91
Education	HS Grad	42	8		
	Some College	133	36		
	College Grad +	190	47	0.68 (2)	.71
Length of Service	Less than 10 years	203	54		
	11 years +	161	37	0.38 (1)	.54
Career Goals					
RR	Not Important	96	18		
	Important	269	73	1.65 (1)	.20
HRA	Not Important	183	36		
	Important	183	53	2.62 (1)	.11
TE	Not Important	48	8		
	Important	317	81	1.15 (1)	.28

Note. RR=Rise in Rank; HRA=Become a High Ranking Administrator; TE=Obtain more Training and Education on Policing Topics

Appendix B: Low Self-Control (Grasmick et al. scale)

Please indicate the extent to which you agree or disagree with the following statements about yourself.

	Strongly Disagree	Disagree Somewhat	Agree Somewhat	Strongly Agree
I don't devote much thought and effort to preparing for the future.	1	2	3	4
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	1	2	3	4
I'm more concerned about what happens to me in the short run than in the long run.	1	2	3	4
I much prefer doing things that pay off right away rather than in the future.	1	2	3	4
I frequently try to avoid things that I know will be difficult.	1	2	3	4
When things get complicated, I tend to withdraw.	1	2	3	4
The things in life that are the easiest to do bring me the most pleasure.	1	2	3	4
I dislike really hard tasks that stretch my abilities to the limit.	1	2	3	4
I like to test myself every now and then by doing something a little risky.	1	2	3	4
Sometimes I will take a risk just for the fun of it.	1	2	3	4
I sometimes find it exciting to do things for which I might get in trouble.	1	2	3	4
Excitement and adventure are more important to me than security.	1	2	3	4
If I had a choice, I would almost always rather do something physical than something mental.	1	2	3	4

I almost always feel better when I am on the move than when I am sitting and thinking.	1	2	3	4
I like to get out and do things more than I like to read or contemplate ideas.	1	2	3	4
I seem to have more energy and a greater need for activity than most other people my age.	1	2	3	4
I try to look out for myself first, even if it means making things difficult for other people.	1	2	3	4
I'm not very sympathetic to other people when they are having problems.	1	2	3	4
If things I do upset people, it's their problem, not mine.	1	2	3	4
I will try to get the things I want even when I know it's causing problems for other people.	1	2	3	4
I lose my temper pretty easily.	1	2	3	4
Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry.	1	2	3	4
When I am really angry, other people better stay away from me.	1	2	3	4
When I have a serious disagreement with someone, it's usually hard for me to talk about it without getting upset.	1	2	3	4

Appendix C: Revised Self-Control (Costs X Salience)

Please take a brief moment to think about the following act of police misconduct:

Illegally search a suspect

Please list up to five "bad things" (i.e., consequences) that could happen to you if you were to be caught engaging in this act. These consequences could be professional or personal. On the other side of the table, please indicate how important each of your consequences would be to you during your decision-making process to engage in this act of police misconduct.

Please use the following scale to indicate the importance of each consequence to you during your decision-making process: 0 (Not Important) to 100 (Very Important).

Possible Consequence	**Importance of this Consequence (0 to 100)**

Appendix D: Police Misconduct

In this section, we would like you to respond to questions (1. Past Behavior; 2. Intentions for Future Behavior) pertaining to minor forms of police misconduct. Please remember that, as indicated in the consent form you originally signed, your individual responses are completely confidential and will never be made available to anyone in your agency or reported anywhere else. We understand these items (and your responses) may be sensitive in nature, but the validity of this research is dependent on your complete honesty and cooperation.

In your entire law enforcement career (i.e., since you were first hired at the rank of officer), have you ever engaged in any of the following behaviors?

Item	Yes	No
Fix a ticket		
Conduct unauthorized record check		
Fail to arrest or ticket a friend or relative		
Display your badge to avoid a traffic ticket		
Sleep while on duty		
Speed when no emergency exists		
Fail to report an excessive force incident		
Illegally stop and frisk a suspect		
Illegally search a suspect		
Falsify an arrest report		

If given the opportunity to engage in the same set of behaviors in the future, how likely are you to engage in these behaviors?

Item	Not at all likely	Not very likely	Somewhat likely	Likely	Very likely
Fix a ticket					
Conduct unauthorized record check					
Fail to arrest or ticket a friend or relative					
Display your badge to avoid a traffic ticket					
Sleep while on duty					
Speed when no emergency exists					
Fail to report an excessive force incident					
Illegally stop and frisk a suspect					
Illegally search a suspect					
Falsify an arrest report					

Appendix E: Full Results

(For all models: $^{+}p<.10$; $*p<.05$; $**p<.01$; $***p<.001$)

Past Misconduct: Fix a ticket

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.02	.03	.25	-.02	.03	.21	-.01	.04	.02	-.01	.04	.01
Sex	1.34	.95	2.01	1.36	.95	2.02	1.25	.96	1.70	1.37	1.02	1.80
Race	-1.08	.84	1.63	-1.07	.84	1.63	-.72	.87	.68	-.69	.88	.61
Education	.09	.18	.23	.11	.20	.30	.11	.19	.31	.22	.21	1.05
Service	.08	.28	.07	.09	.29	.09	-.08	.31	.07	-.02	.32	.01
Agency A	-2.01*	.88	3.02	-2.32*	1.07	3.98	-2.47*	1.15	3.34	-2.32*	1.07	3.98
Agency B	-2.15*	1.10	3.82	-2.08^{+}	1.13	3.41	-2.03^{+}	1.15	3.12	-1.65	1.19	1.56
LSC	--	--	--	.24	.89	.07	--	--	--	1.32	1.05	.23
RSC	--	--	--	--	--	--	-.01	.00	.35	-.01	.00	.80
χ^2		33.01***			33.08***			24.39**			26.01**	
-2LL		97.67			97.60			82.39			80.77	
Pseudo-R^2		.39			.39			.36			.38	

Past Misconduct: Conduct an unauthorized record check

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.03	.04	.51	-.02	.04	.26	-.01	.04	.04	-.01	.05	.01
Sex	-.86	.76	1.27	-1.05	.82	1.65	-1.03	.80	1.67	-1.42	.90	2.47
Race	.90	.89	1.01	1.12	.97	1.32	.89	.95	.88	1.25	1.09	1.32
Education	.42*	.20	4.54	.62**	.23	7.61	.59**	.23	6.92	.89**	.27	10.56
Service	.49	.31	2.58	$.57^{+}$	.31	3.45	.46	.35	1.73	.57	.35	2.55
Agency A	-1.32	.91	2.11	-1.50	.94	2.51	-1.24	.99	1.54	-1.32	1.02	1.68
Agency B	.02	.77	.01	.53	.83	.41	.47	.86	.30	1.28	.94	1.84
LSC	--	--	--	1.94*	.92	4.46	--	--	--	2.76*	1.13	5.93
RSC	--	--	--	--	--	--	-.01	.00	1.86	-.01	.00	2.04
χ^2		16.80*			21.61**			18.28**			25.13**	
-2LL		97.81			93.00			78.38			71.52	
Pseudo-R^2		.23			.29			.29			.38	

Past Misconduct: Fail to arrest or ticket a friend or relative

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.03	.04	.75	-.03	.04	.53	.07^{+}	.04	2.53	-.07^{+}	.04	2.50
Sex	1.30	1.15	1.27	1.57	1.25	1.57	1.25	1.16	1.17	1.64	1.29	1.62
Race	-.05	.77	.01	-.13	.80	.03	.26	.84	.10	.27	.90	.09
Education	-.21	.21	1.09	-.05	.22	.05	-.18	.21	.70	.08	.25	.09
Service	-.44	.31	1.96	-.37	.31	1.42	-.35	.35	.95	-.31	.36	.80
Agency A	-2.02^{+}	1.17	2.98	-2.35^{+}	1.22	3.68	-1.55	1.18	1.71	-1.88	1.28	2.18
Agency B	-1.50	1.12	1.77	-1.07	1.17	.85	-1.32	1.19	1.23	-.71	1.28	.31
LSC	--	--	--	1.76^{+}	.95	3.41	--	--	--	2.72*	1.24	4.83
RSC	--	--	--	--	--	--	.01	.00	.21	.01	.00	.42
χ^2		16.77*			20.39**			13.33^{+}			18.97*	
-2LL		95.70			92.08			79.38			73.74	
Pseudo-R^2		.23			.27			.22			.31	

Past Misconduct: Display a badge to avoid a traffic ticket

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age												
Sex												
Race												
Education												
Service	Data did not fit model			Data did not fit model			Data did not fit model			Data did not fit model		
Agency A												
Agency B												
LSC												
RSC												
χ^2		6.36			7.49			7.40			11.09	
-2LL		132.11			130.98			104.58			100.89	
Pseudo-R^2		.08			.10			.12			.17	

Past Misconduct: Sleep while on duty

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age				-.02	.03	.26				-.01	.04	.03
Sex				.01	.78	.01				.35	.80	.19
Race				.11	.64	.03				.14	.69	.04
Education				.41*	.20	4.03				.34	.21	2.61
Service	Data did not fit model			-.25	.27	.91	Data did not fit model			-.38	.30	1.62
Agency A				.35	.70	.36				.78	.80	.98
Agency B				2.20**	.84	6.79				2.58*	1.01	6.54
LSC				2.55**	.78	10.49				1.75*	.88	3.90
RSC				--	--	--				.01	.00	.03
χ^2		8.04			20.38**			8.94			13.16$^+$	
-2LL		130.59			118.25			103.34			99.12	
Pseudo-R^2		.10			.25			.14			.20	

Past Misconduct: Speed when no emergency exists

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.02	.05	.23	-.02	.05	.16	.02	.06	.10	.02	.07	.11
Sex	.81	.90	.81	.72	.94	.59	1.08	.95	1.28	.95	.99	.92
Race	1.20	.70	2.78	1.23$^+$	.73	2.82	1.05	.85	1.51	1.30	.90	2.09
Education	.14	.27	.26	.33	.31	1.17	.12	.31	.15	.32	.36	.81
Service	.10	.38	.07	.18	.42	.19	.17	.49	.12	.23	.55	.18
Agency A	-2.02*	.87	5.29	-2.26*	.92	5.76	-2.33*	1.07	4.69	-2.47*	1.14	4.70
Agency B	-.41	1.04	.16	.10	1.10	.01	-.92	1.15	.63	-.35	1.25	.08
LSC	--	--	--	1.87*	.93	4.04	--	--	--	2.22$^+$	1.26	3.09
RSC	--	--	--	--	--	--	-.01	.01	1.04	-.01	.00	1.72
χ^2		21.48**			25.93**			15.40*			18.89*	
-2LL		72.80			68.34			52.58			49.06	
Pseudo-R^2		.32			.37			.31			.37	

Past Misconduct: Fail to report an excessive force incident

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.18^{+}	.10	2.55	-.17	.12	2.02	-.17	.10	2.48	-.16	.12	1.85
Sex	.14	.71	.01	.01	.78	.01	.47	.77	.01	.36	.80	.01
Race	-.54	1.75	.10	-.92	1.88	.24	-.44	1.65	.07	-.75	1.80	.17
Education	.40	.30	1.66	.87*	.44	3.81	.37	.30	1.42	.91*	.46	3.89
Service	1.34*	.61	4.87	1.32*	.64	4.20	1.24*	.61	4.12	1.13^{+}	.66	2.90
Agency A	-1.00	1.74	.33	-1.64	2.01	.67	-.57	1.63	.12	-1.37	1.98	.48
Agency B	2.25^{+}	1.22	3.34	3.46*	1.55	4.94	2.62*	1.35	3.77	4.04*	1.73	5.46
LSC	--	--	--	3.25^{+}	1.88	2.98	--	--	--	4.05^{+}	2.24	3.28
RSC	--	--	--	--	--	--	.01	.00	.78	.01	.00	.71
χ^2		13.36^{+}			16.96*			13.15^{+}			17.07*	
-2LL		42.39			38.80			39.07			35.15	
Pseudo-R^2		.29			.37			.32			.40	

Past Misconduct: Illegally stop and frisk a suspect

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age				-.34	.21	2.51				-.39	.24	2.57
Sex				.02	.73	.01				.37	.81	.01
Race				-2.33	1.20	3.08				-1.90	1.27	2.86
Education				.75	.72	1.09				.59	.72	.67
Service	Data did not fit model			2.28	1.56	2.14	Data did not fit model			2.95	2.27	1.68
Agency A				-1.30	.70	.58				-.75	.75	.32
Agency B				2.51^{+}	1.31	3.00				1.31	.71	2.04
LSC				3.18^{+}	1.76	2.72				2.20^{+}	1.21	3.17
RSC				--	--	--				-.02	.01	1.60
χ^2		7.91			16.37*			8.36			17.93*	
-2LL		25.68			17.21			23.51			13.93	
Pseudo-R^2		.27			.53			.30			.61	

Past Misconduct: Illegally search a suspect

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.22*	.09	4.72	-.30*	.12	5.66	-.20$^+$	.11	3.02	-.25*	.13	3.76
Sex	1.33	.96	.76	1.30	.94	.70	1.28	.95	.82	1.30	.99	.65
Race	-1.94	1.53	1.60	-5.06*	2.54	3.95	-2.40	1.67	2.05	-4.90	2.56	3.65
Education	.32	.31	1.06	1.59*	.63	6.24	.42	.33	1.60	1.70$^+$	.69	6.01
Service	.90	.63	2.08	1.49$^+$	.82	3.29	1.20	.77	2.42	1.43	.90	2.50
Agency A	-1.01	1.72	.41	-1.62	1.98	1.09	-.58	1.61	.24	-1.39	1.94	.61
Agency B	1.16	1.37	.72	2.21*	.85	4.56	1.26	1.56	.66	2.05*	.92	4.05
LSC	--	--	--	1.88**	.91	6.74	--	--	--	2.19*	1.20	5.65
RSC	--	--	--	--	--	--	-.01	.00	.12	-.01	.01	.10
χ^2		15.21*			27.86**			13.93$^+$			23.91**	
-2LL		40.54			27.89			33.73			23.75	
Pseudo-R^2		.33			.57			.36			.58	

Past Misconduct: Falsify an arrest report

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age												
Sex												
Race												
Education												
Service	Data did not fit model			Data did not fit model			Data did not fit model			Data did not fit model		
Agency A												
Agency B												
LSC												
RSC												
χ^2		11.20			11.20			10.77			10.77	
-2LL		0.00			0.00			0.00			0.00	
Pseudo-R^2		1.00			1.00			1.00			1.00	

Future Misconduct: Fix a ticket

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.03	.03	1.03	-.02	.03	.68	-.02	.03	.52	-.02	.03	.24
Sex	.22	.68	.10	.27	.69	.15	-.35	.71	.24	-.28	.74	.14
Race	.04	.54	.01	.10	.55	.03	.15	.59	.06	.21	.60	.13
Education	-.11	.15	.55	-.02	.15	.01	-.11	.16	.45	.03	.17	.03
Service	-.20	.21	.91	-.12	.21	.35	-.24	.23	1.14	-.11	.23	.22
Agency A	-3.44**	1.10	9.79	-3.62**	1.12	10.38	-3.36**	1.19	7.93	-3.38**	1.17	8.24
Agency B	-1.37*	.70	3.87	-1.02	.72	2.00	-1.64*	.82	4.02	-1.15	.85	1.83
LSC	--	--	--	1.30$^+$	.69	3.53	--	--	--	2.02*	.85	5.66
RSC	--	--	--	--	--	--	-.01**	.00	8.37	-.01**	.00	9.04
χ^2		32.20***			35.50***			28.99***			34.65***	
-2LL		227.99			243.75			193.96			188.34	
Pseudo-R^2		.28			.30			.30			.35	

Future Misconduct: Conduct an unauthorized record check

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.04	.04	1.07	-.03	.04	.53	-.02	.04	.30	-.02	.04	.16
Sex	-.91	.69	2.65	-.99	.70	1.98	-1.42*	.73	3.72	-1.52*	.75	4.05
Race	1.16	.73	1.08	1.26$^+$	.76	2.82	.90	.78	1.34	.97	.80	1.49
Education	.21	.16	1.77	.32$^+$	.18	3.47	.33$^+$	.19	3.14	.45*	.21	4.56
Service	.05	.25	2.48	.12	.25	.25	.06	.28	.04	.13	.28	.22
Agency A	-1.90$^+$	1.06	1.62	-1.94$^+$	1.05	3.36	-1.81	1.16	2.42	-1.66	1.12	2.12
Agency B	.13	.68	.04	.50	.72	.49	.52	.78	.45	.92	.84	1.20
LSC	--	--	--	1.38$^+$	.78	3.12	--	--	--	1.23	.95	1.67
RSC	--	--	--	--	--	--	-.01*	.00	5.30	-.01*	.00	5.32
χ^2		17.49*			20.48**			20.95**			22.70**	
-2LL		171.68			180.83			140.93			139.19	
Pseudo-R^2		.18			.20			.25			.27	

Future Misconduct: Fail to arrest or ticket a friend or relative

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.01	.03	.15	-.01	.03	.02	-.04	.03	1.35	-.03	.03	.93
Sex	.28	.65	.18	.20	.66	.09	-.18	.68	.07	-.28	.69	.17
Race	.37	.53	.50	.48	.54	.80	.50	.57	.76	.63	.57	1.21
Education	.08	.14	.34	.20	.15	1.73	.01	.15	.01	.13	.17	.57
Service	-.01	.20	.01	.07	.20	.12	.05	.22	.05	.13	.22	.35
Agency A	-2.45**	.81	9.14	-2.56**	.82	9.64	-2.36**	.88	7.25	-2.31**	.86	7.21
Agency B	-.11	.61	.03	.28	.65	.19	-.92	.74	1.58	-.56	.77	.53
LSC	--	--	--	1.38*	.66	4.38	--	--	--	1.37^{+}	.78	3.09
RSC	--	--	--	--	--	--	-.01*	.00	6.41	-.01*	.00	6.49
χ^2		19.67**			23.75**			20.85**			23.85**	
-2LL		242.91			256.25			206.20			204.59	
Pseudo-R^2		.18			.21			.23			.25	

Future Misconduct: Display a badge to avoid a traffic ticket

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age												
Sex												
Race												
Education												
Service	Data did not fit model			Data did not fit model			Data did not fit model			Data did not fit model		
Agency A												
Agency B												
LSC												
RSC												
χ^2		9.69			10.66			6.32			8.16	
-2LL		312.78			330.87			272.90			271.06	
Pseudo-R^2		.09			.10			.07			.09	

Future Misconduct: Sleep while on duty

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age				-.01	.03	.66	.01	.03	.02	.01	.03	.06
Sex				-.68	.66	.52	-.69	.66	1.06	-.81	.69	1.42
Race				-.20	.52	.16	-.70	.54	1.70	-.58	.55	1.09
Education				.21	.16	1.72	-.03	.16	.04	.11	.17	.37
Service	Data did not fit model			.03	.22	.02	-.13	.23	.34	-.04	.23	.03
Agency A				.25	.59	.18	.35	.65	.30	.39	.66	.35
Agency B				2.08**	.68	9.24	1.50*	.70	4.56	2.03**	.75	7.20
LSC				2.68***	.68	15.54	--	--	--	1.60*	.77	4.23
RSC				--	--	--	-.01	.00	1.91	-.01	.00	2.07
χ^2		8.45			24.96**			14.00$^+$			18.30*	
-2LL		203.93			214.75			178.25			173.94	
Pseudo-R^2		.08			.23			.16			.21	

Future Misconduct: Speed when no emergency exists

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.01	.03	.11	.01	.03	.01	-.01	.03	.05	-.01	.03	.01
Sex	-.13	.60	.05	-.20	.61	.11	-.20	.62	.10	-.27	.63	.18
Race	1.14*	.48	5.78	1.29**	.48	7.13	.94$^+$	.51	3.40	1.09*	.51	4.46
Education	-.12	.14	.90	.01	.14	.01	-.18	.14	1.50	-.08	.16	.27
Service	-.13	.19	.50	-.05	.19	.08	-.13	.21	.39	-.06	.21	.09
Agency A	-1.27*	.55	5.37	-1.38*	.55	6.12	-1.44*	.62	5.29	-1.47*	.63	5.47
Agency B	.30	.60	.24	.81	.62	1.68	.30	.66	.20	.68	.70	.96
LSC	--	--	--	1.60**	.59	7.36	--	--	--	1.16$^+$	.70	2.80
RSC	--	--	--	--	--	--	-.01	.00	1.17	-.01	.00	1.30
χ^2		21.72**			28.70***			16.61*			19.27*	
-2LL		274.11			300.76			256.26			253.60	
Pseudo-R^2		.19			.24			.18			.20	

Future Misconduct: Fail to report an excessive force incident

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.17*	.07	5.07	-.15*	.07	3.84	-.17$^+$	.09	3.29	-.15	.09	2.48
Sex	-.40	1.02	.16	-.48	1.10	.19	-.23	1.25	.03	-.40	1.24	.10
Race	-.48	.94	.26	-.77	1.01	.57	-.77	1.15	.44	-1.07	1.17	.84
Education	-.26	.24	1.18	.07	.28	.06	-.02	.31	.01	.25	.37	.44
Service	.52	.46	1.27	.52	.47	1.21	.58	.57	1.04	.55	.56	.98
Agency A	-.62	1.27	.24	-1.40	1.53	.84	-.70	.66	1.10	-.80	.68	1.39
Agency B	3.03**	.88	11.70	4.47***	1.17	14.45	3.43**	1.15	8.85	4.30**	1.38	9.62
LSC	--	--	--	3.58*	1.43	6.26	--	--	--	2.36	1.80	1.72
RSC	--	--	--	--	--	--	-.01	.00	.74	-.01	.00	1.05
χ^2	26.94***			34.51***			26.34**			28.19**		
-2LL	64.00			60.83			46.45			44.61		
Pseudo-R^2	.38			.47			.46			.49		

Future Misconduct: Illegally stop and frisk a suspect

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age				-.01	.05	.03	.01	.05	.01	.02	.05	.14
Sex				-.52	1.08	.23	-.71	1.09	.43	-.98	1.18	.68
Race				.78	1.10	.50	1.05	1.34	.60	1.03	1.43	.52
Education				.15	.27	.29	.06	.27	.06	.64$^+$	.37	2.95
Service	Data did not fit model			.23	.37	.38	-.07	.41	.03	.31	.43	.51
Agency A				-1.56	1.49	1.11	-.61	1.25	.22	-1.48	1.41	.99
Agency B				3.18**	1.01	9.78	1.93*	.91	4.47	3.81**	1.33	8.17
LSC				4.50**	1.40	10.26	--	--	--	4.71**	1.80	6.87
RSC				--	--	--	-.01$^+$	.00	3.34	-.01$^+$	.00	3.51
χ^2	10.07			23.69**			16.98*			25.82**		
-2LL	77.92			74.71			62.75			53.91		
Pseudo-R^2	.15			.33			.29			.42		

Future Misconduct: Illegally search a suspect

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age				-.02	.05	.06				.03	.06	.30
Sex				-.61	1.02	.35				-.76	1.24	.37
Race				.74	1.07	.47				.62	1.43	.18
Education				.28	.26	1.14				.53	.36	2.12
Service	Data did not fit model			.06	.36	.03	Data did not fit model			.07	.42	.03
Agency A				-1.23	1.39	.77				-1.14	1.31	.75
Agency B				2.68**	.99	7.31				2.54^{+}	1.31	3.78
LSC				3.97**	1.33	8.89				3.34*	1.65	3.78
RSC				--	--	--				-.01*	.00	4.11
χ^2					16.97*			11.37			16.00^{+}	
-2LL		83.89			83.25			58.39			53.76	
Pseudo-R^2		.09			.24			.22			.30	

Future Misconduct: Falsify an arrest report

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age										-.28	.20	1.74
Sex										-.42	2.68	.03
Race										-7.99	4.89	2.70
Education										.90	.73	1.51
Service	Data did not fit model			Data did not fit model			Data did not fit model			-.02	.85	.01
Agency A										-16.78	9.91	.01
Agency B										6.20*	3.10	4.00
LSC										8.93*	4.46	4.01
RSC										-.03^{+}	.02	2.80
χ^2		7.05			11.01			12.20			18.10^{+}	
-2LL		34.24			34.67			25.03			37.23	
Pseudo-R^2		.06			.10			.12			.34	

***Past Police Misconduct* Index**

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.02^{+}	.47	2.81	-.01	.01	1.58	-.01	.01	1.67	-.01	.01	1.01
Sex	.19	.21	.86	.17	.21	.65	.14	.21	.40	.10	.22	.21
Race	.12	.16	.56	.13	.16	.66	.12	.17	.47	.16	.18	.78
Education	.02	.04	.15	.07	.04	2.36	.03	.05	.36	.09^{+}	.05	3.31
Service	.00	.06	.00	.02	.06	.15	.00	.07	.00	.03	.07	.20
Agency A	-.70**	.21	11.00	-.73**	.21	11.89	-.54*	.23	5.61	-.55*	.23	5.62
Agency B	.05	.19	.06	.22	.20	1.26	.08	.20	.14	.28	.22	1.67
LSC	--	--	--	.63**	.19	10.86	--	--	--	.72**	.23	9.93
RSC	--	--	--	--	--	--	-.01^{+}	.00	3.09	-.01^{+}	.00	2.79
Likelihood Ratio χ^2			25.48**			36.30***			18.36^{+}			28.38**
Pseudo-R^2			.06			.09			.05			.08

***Future Police Misconduct* Index**

	Model 1			Model 2			Model 3			Model 4		
Variable	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2	b	se	Wald χ^2
Age	-.03	.02	2.25	-.02	.02	1.20	-.02	.02	.93	-.01	.02	.40
Sex	.53	.41	1.67	.45	.42	1.15	.40	.42	.90	.30	.42	.49
Race	.64^{+}	.36	3.14	.70^{+}	.36	3.75	.61^{+}	.36	2.79	.63^{+}	.37	2.96
Education	.02	.08	.09	.13	.09	1.89	.03	.08	.09	.13	.09	1.89
Service	.10	.12	.59	.11	.12	.88	.07	.12	.35	.10	.12	.72
Agency A	-.08	.37	.04	-.11	.38	.08	-.08	.38	.05	-.08	.38	.04
Agency B	.50	.32	2.42	.76*	.34	4.92	.33	.33	.96	.61^{+}	.36	2.88
LSC	--	--	--	1.03**	.42	6.07	--	--	--	1.03*	.41	6.39
RSC	--	--	--	--	--	--	-.01**	.00	6.68	-.01**	.00	6.93
Likelihood Ratio χ^2			13.29^{+}			19.49**			19.82**			26.26**
Pseudo-R^2			.04			.07			.09			.11