

**A Test of Self-control Theory
Using General Patterns of Deviance**

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(ABSTRACT)

Gottfredson and Hirschi's (1990) General Theory of Crime has received extensive attention over the past decade. This dissertation explores the scope and limitation of the theory by testing a wide variety of behaviors against the causal effect of low self-control. Utilizing the attitudinal scale developed by Grasmick et al. (1993), self-control and involvement in fifteen different criminal, deviant, and risk-taking behaviors was measured to test the key aspect of Gottfredson and Hirschi's theory. The sample consists of 450 students from a research university and a liberal arts college. Analysis of the scale reliability reveals more support for the construct validity found in other studies. Furthermore, each of the six sub-components of the self-control scale are tested against each of the behavior indices to further assess scales limitations. In addition to self-control, gender, race, and parental education are used as control variables in the analysis to test the possible variation of the association between self-control and deviance throughout the population.

The finding from this research provide more caution to Gottfredson and Hirschi's theory. The behaviors analyzed in this study are only modestly associated with low self-control. Furthermore, gender has a strong impact on all three behavior types leading to the conclusion that self-control is not the sole causal variable in determining who will commit crime and deviance. Race and parental education were not significantly related to the behaviors studied, but the sample is homogeneous in regards to these two variables.

Dedication

I dedicate this work to Bethany, Brennan, Palmer, and Anna Grace. Without their love and support, I would never have been able to accomplish this goal. I love you all and thank you very much.

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CHAPTER I

INTRODUCTION

The evolution of criminal theory

The field of criminology is replete with theories explaining specific crimes as well as patterns of offending. One common factor theories share is the reliance on basic facts of criminal occurrences (Vold and Bernard 1986). However, the multitude of criminal theories—especially contemporary theories—have added more questions than answers to the study of crime. These questions arise, in part, because of the reliance on basic facts of criminal offending. What types of people are mostly likely to become involved in crime? Is this similar for all crimes or only specific types of crimes? What factors, social or within the individual, are most important in explaining criminal behaviors? Modern day criminologists are continually challenging old ideologies and testing existing ideas, uncovering problems with some theories and potential support for others.

According to Akers (1997), there are two main types of theory in the field of criminology. One strand of theory investigates the making and enforcing of laws and the second focuses on the explanation of criminal offending. Theories intended to explain occurrences of offending can further be separated into group level (why do males commit more crime than females?) versus individual level (why does one individual choose to commit crime in a given situation when another individual does not?) explanations (Akers 1997).

Among the theories that attempt to explain criminal offending, there exists a debate over the need for, and appropriateness of, general versus specific causes of crime and deviance. Some

theories (Gottfredson and Hirschi 1990; Agnew 1992) attempt to provide an explanation for crime that would be capable of explaining a full range of behaviors from vandalism to bribery to domestic violence, committed by individuals of all backgrounds. Other theories focus on narrow behavior patterns, for example Ogle et al.'s (1995) theory of homicidal behaviors among women, or stages of development (see Paternoster and Brame 1997 for a complete discussion of 'Multiple Routes to Delinquency'). But, can a general theory be developed? This question has yet to be answered affirmatively and unequivocally (Akers 1997; Paternoster and Brame 1997; Bartusch et al. 1997).

Criminological theories shifted toward generality with Edwin Sutherland's introduction of white-collar crime and his call for theorists to devote more attention to the occurrence of all crimes in criminological theorizing (Vold and Bernard 1986). Sutherland suggested that most of the criminological theories to that point had focused exclusively on the occurrence of lower-class, street-level criminality and that future theories should seek to explain all types of criminal behaviors (Sutherland 1973). Hence, the field of criminology became more sensitive to the criteria used to define crime as well as the measurement of criminal activities. Empirical validations of criminal theories have begun focusing on criminals of all classes and types (Vold and Bernard 1986).

This is not to say that there is consensus on support for general theories of crime. The ability of a theory to explain all actors and types of behaviors is still in doubt (Bartusch et al. 1997). Developmental theories (Moffitt 1990) and life-course theories (Sampson and Laub 1990; Settersten and Mayer 1992), among others, continue to receive attention in the literature. However, general theories, particularly Gottfredson and Hirschi's (1990) low self-control theory, have become very popular in contemporary journals and textbooks.

Control theories, which have existed for many years and endured many empirical tests, have also witnessed a shift in the direction toward inclusiveness. One of the most influential control theorists is Travis Hirschi, whose book *Causes of Delinquency* (1969) revolutionized this paradigm by introducing the multi-dimensional concepts of attachment, commitment, involvement, and belief. Bond theory, as it has come to be known, combines the social psychological (attachment, commitment, and belief) and social (involvement) elements to explain individual behaviors.

Hirschi did not suggest the directional or relational position of these elements and admits there may be interconnections between them (Shoemaker 1996). There are differences, however, in interpretation of the importance of the different elements. Shoemaker (1996: 165) states that “no component is theoretically more important than another,” while others (Curran and Rrenzetti 1994; Vold and Bernard 1986) state that attachment is the most important element. Regardless, the literature on bond theory does show support for differential importance of the components (Gibbons 1994; Shoemaker 1996; Vold and Bernard 1986).

Bond theory has been cited as one of the most frequently discussed and researched criminal theories, but it is not absent of criticism. “Some have noted that in practice, commitment and involvement are difficult to distinguish from each other” (Gibbons 1994: 34). Other critiques of bond theory contend that it provides better explanations of minor offenses and those committed by females rather than explaining a wide variety of offenses and offenders (Gibbons 1994). However, some theorists conclude that bond theory has received enough empirical support to validate continued investigation (Akers 1997; Shoemaker 1996).

More recently, Hirschi collaborated with Gottfredson to develop the general theory of crime (also referred to as low self-control theory), focusing on low self-control as the ultimate

cause of crime. In their book *A General Theory of Crime* (1990), the authors present a theory suited to explaining all criminal and deviant behaviors, focusing on one multi-dimensional trait. However, the authors do not provide an explanation of the connection between this theory and bond theory. Akers (1997:91) states, “bonding theory rejects the self-control concept as unobservable and subsumes it under the concept of attachment.”

Self-control is intended to be an inclusive theory, capable of explaining all criminal and deviant behaviors, regardless of seriousness or demographic factors. Gottfredson and Hirschi’s (1990:96) claim is that low self-control is developed through “ineffective or incomplete socialization.” The low self-control trait remains stable throughout life and, in combination with opportunity, is the ultimate cause of criminality (Gottfredson and Hirschi 1990). Like Hirschi’s bond theory, Gottfredson and Hirschi’s (1990) general theory of crime has received attention by researchers and theorists alike (Shoemaker 1996; Akers 1997).

The General Theory of Crime

Michael Gottfredson and Travis Hirschi’s general theory of crime challenges the belief that “age is the easiest fact about crime to study” (Hirschi and Gottfredson 1983:552).

Acknowledging the fact that age is an important variable in studying criminal offending, the authors stop short of claiming age as the critical variable in the success or failure of a theory.

Their view is that a theory of crime should not be discarded simply because it does not follow the trends of official criminal statistics, that being that crime is most common among young males, and that age and crime are inversely related.

This trend toward aging out (which is the tendency for crime and deviance to diminish as age increases) of crime is well documented in the literature, as well as in official crime statistics, although exceptions do exist (Shoemaker 1996). Some criminal opportunities may be more common among older individuals. Examples of crime and deviance among older populations include public drunkenness and shoplifting (Steffensmeier 1987), physical violence among married or cohabitating couples (Stets and Straus 1989), and white-collar offenses (Braithwaite 1989).

Gottfredson and Hirschi (1990:128) do address this proposition to some extent, stating that there are rare cases of criminal events continuing in the “primary-group context,” which is assumed to be the individual’s family of procreation. However, their argument is that these occurrences are not significant enough to negate the age effect; they only obscure the data on crime and age. Furthermore, the tendency for significant criminal activities to desist with age is seen across demographic subgroups (racial and gender categories), in different contexts (prison inmate infractions), and in different types of behaviors (automobile accidents). According to the authors, the existence of these circumstances further negates the impact and significance of isolated criminal behavior among older individuals.

The general theory of crime views the criminality trait as a constant throughout life. The authors suggest that individuals who engage in crime during adolescent years remain likely to possess the same motivation to commit crimes and deviance throughout life (Gottfredson and Hirschi 1990). This hypothesis contradicts the life-course theory (Sampson and Laub 1990;1992), which suggests that an individual’s decisions to commit criminal and deviant acts are directly linked to cultural expectations. Therefore, according to the life-course perspective,

individuals will feel more need to refrain from crime and deviance as they enter the stages of life where these behaviors are less acceptable by social norms.

According to Gottfredson and Hirschi (1990:88), “criminality suggests that people differ in the extent to which they are compelled to crime.” Furthermore, they assert that many different individuals may engage in criminal behaviors, but criminality is a unique condition that is likely to be the product of low self-control. It becomes clear that this theory is concerned with the continued patterns of crime and deviance, rather than the simple involvement in a certain act at one particular point in time.

Basing the theory on criminality rather than crime, Gottfredson and Hirschi (1990) utilize the concept of self-control as a latent trait leading to criminal or conformist behaviors.

Individuals who possess the low self-control trait are more likely to become involved in criminal, deviant, and accidental behaviors than those who possess high levels of self-control. However, it is stated that the simple level of self-control is not, in and of itself, the only necessary condition leading to criminality. As they state, “lack of self-control does not require crime and can be counteracted by situational conditions..., {but} high self-control effectively reduces the possibility of crime—that is, those possessing it will be substantially less likely at all periods of life to engage in criminal acts” (Gottfredson and Hirschi 1990:89).

Researchers and theorists disagree over the role opportunity to commit crime plays in the general theory of crime. As mentioned above, Gottfredson and Hirschi do stress the need to look at contextual factors, but are unclear as to the importance of these variables. Many of the tests have been careful to include opportunity to commit crime as a part of their test, but the major emphasis remains on the level of self-control (Akers 1991; Grasmick et al. 1993; Gibbs et al. 1998; Paternoster and Brame 1997). Paternoster and Brame (1998:636) state that, “the

explanatory weight of the theory must be borne by self-control, its effect should account for most of the variation in the joint distribution of criminal and analogous acts.” It is their assertion that since individuals with low self-control tend to engage in a wide variety of criminal acts, “the opportunities to commit some kind of criminal or analogous act must be abundant” (Paternoster and Brame 1998:636).

The theory outlines the parameters of self-control, specifically defining the characteristics that constitute low self-control. Individuals who lack self-control, according to Gottfredson and Hirschi (1990:90), tend to be “impulsive, insensitive, physical (as opposed to mental), risk-taking, shortsighted, and nonverbal.” Criminal and deviant behaviors tend to provide only short-term benefit, require little planning or skill, often resulting in pain or discomfort to the victim, while providing thrill and/or excitement for the perpetrator (Gottfredson and Hirschi 1990). Since criminal behaviors typically involve risk and immediate gratification, individuals who engage in criminal and deviant behaviors are motivated by these stimuli, according to this theory.

Utilizing UCR data pertaining to circumstances of crimes (time of day and areas of occurrence) as well as demographic variables, Gottfredson and Hirschi (1990:17) conclude that the majority of crimes do not involve “planning, preparation, or skill.” Furthermore, victimization data indicates that a majority of crimes against persons and property are not overly lucrative for the perpetrator. When looking at official and victimization data, the tendency is for crimes to be either unsuccessful, non-profitable, or both. One major reason criminals are not successful is because of the potential victim’s attempts to thwart victimization (Gottfredson and Hirschi 1990).

Furthermore, victimization data shows that, “the median loss for robbery is less than \$50, whereas the median loss for burglary is something like \$100” (Gottfredson and Hirschi 1990:18).

Even crimes of embezzlement and fraud are less lucrative than expected, especially when considering alternative income sources. The general theory of crime essentially states that people who routinely engage in risky and non-profitable activities are compelled to continually engage in crime due to some precipitating factor. Self-control is hypothesized to be the trait blocking continuous criminal behavior for those who refrain from criminality. Individuals in possession of higher levels of self-control will eventually realize the low probability of long-term benefit and high probability of apprehension associated with criminal enterprises.

Low self-control is a developed trait rather than an innate characteristic (Gottfredson and Hirschi 1990). Parental supervision and discipline for misbehavior are the first contributing sources for the development of low self-control. As the authors of the theory state, “the major cause of low self-control...appears to be ineffective child-rearing” (Gottfredson and Hirschi 1990:97). Proper parenting, according to Gottfredson and Hirschi (1990:97), involves “monitoring the child’s behavior, recognize{ing} deviant behavior when it occurs, and punish{ing} such behavior.”

However, there is a distinction between the concept of socialization and supervision. Socialization involves the ability to develop in the child a sense of right and wrong in the absence of direct supervision. Gottfredson and Hirschi (1990) claim that parents may likely supervise their children differently (referring to gender differences), but that does not necessarily mean that they socialize them differently. Hence, this theory focuses on the socialization of children, which impacts on one’s level of self-control, and not simply parental supervision.

Parents are not the sole defense against low self-control in today’s society. Schools play an important part in detecting and correcting self-control problems. Although schools may have some advantage over a parent in recognizing problem behaviors, school personnel may not

always have the ability to correct the problem. In fact, Gottfredson and Hirschi (1990:106) go so far as to say that in “contemporary American society the school has a difficult time teaching self-control.” In essence, the burden falls back on the family to discipline the child and assure the development of a higher level of self-control.

Gottfredson and Hirschi also hypothesize that criminality is a stable characteristic, contradicting much of the crime data which suggests that teenagers and those in their early twenties commit more crime. The terms “aging out,” “maturation reform,” “desistance effect,” and “maturation effect” have been used in the literature to refer to this alleged phenomenon (Gottfredson and Hirschi 1990). According to the general theory of crime, manifestations of low self-control may change over time, but the trait does not diminish with maturity or increased age. As Gottfredson and Hirschi (1990:133) state, “the argument that theories of crime must take age into account is itself a theory of crime.”

There is support for the idea that crime, not criminality, diminishes with age (Gottfredson and Hirschi 1990). “It seems more reasonable, and certainly more consistent with what we know about self-selection, to assume that delinquents will be attracted to situations or activities consistent with their delinquent behavior” (Gottfredson and Hirschi 1990:139). Therefore, individuals possessing low self-control will seek out others with similar traits, and consequently low self-control, as they grow older, while individuals with higher self-control will begin to associate with others like themselves. However, alternative explanations for the aging-out effect, or lack thereof, are offered in the criminological literature (see Bartusch et al. 1997 and Paternoster et al. 1997 for a complete discussion of this issue).

Gottfredson and Hirschi (1990) do address the issue of gender differences in crime and criminality. According to crime statistics, males are at all points more involved in crime;

however, that is not to say that one gender is more criminal or more likely to possess the criminality trait than the other. It is suggested that parents go to greater lengths to supervise their daughters than they do their sons. This is partly explained by the potential threat to life chance success resulting from sexual misconduct among adolescent females. But Gottfredson and Hirschi (1990) claim that factors such as attachment to parents, school performance, and lack of belief in the wrongfulness of crime are positively related to delinquency in both males and females. Therefore, there is no reason to believe that males and females differ in criminality and the etiological relation of self-control to criminal involvement. The factors explaining differences in criminal statistics are the opportunities available to boys versus girls (Gottfredson and Hirschi 1990).

The general theory of crime does not only address crime, for individuals who possess low self-control are also more likely to become involved in analogous behaviors. The behaviors Gottfredson and Hirschi discuss are also those that involve immediate gratification and lack of restraint, including things such as using tobacco, having sexual relations without courtship, even accidents (auto or otherwise) and employment absenteeism.

The general theory of crime asserts that there is a tendency for individuals to specialize in particular criminal offenses, which also contradicts many theories of crime. Gottfredson and Hirschi (1990:91) state, “most theories suggest that offenders tend to specialize, whereby such terms as robber, burglar, drug dealer, rapist, and murderer have predictive or descriptive import.” The general theory of crime is set further apart from the rest of the field by claiming that those possessing low self-control are likely to be generalists engaging in a variety of criminal and deviant behaviors.

Finally, as stated above, Gottfredson and Hirschi do not suggest that low self-control is the sole cause or explanation of crime. The general theory of crime includes criminal and deviant opportunities, suggesting that the combination of opportunity to commit crime and self-control are important in the analysis of criminality. Perhaps the clearest illustration of the need to analyze opportunity to commit crime is the incidence of white-collar and occupational crimes. However, Gottfredson and Hirschi choose to discuss these crimes in the context of non-offenders in similar positions, as opposed to street level criminals. Hence, the white-collar offender is an individual who possesses low self-control and utilizes the available opportunities to carry out crime and deviance. Furthermore, the lower incidence of white-collar offending in comparison to street level crime is attributed to the fact that those in white-collar positions most likely possess higher levels of self-control, which allowed them to achieve their position (Gottfredson and Hirschi 1990).

The general theory of crime makes assertions about crime and criminals that contradicts many of the currently held beliefs (for example that age is not at all points significantly related to crime). Furthermore, their theory sets forth the proposition that criminal and deviant behaviors can be explained by the same variable, low self-control. The implications for the general theory of crime are vast in practical application. If criminal and deviant behaviors are attributable to one common factor within the individual, society could potentially be much more efficient in controlling crime.

Testing of the hypotheses made by Gottfredson and Hirschi has been extensive, with good reason. As Evans et al. (1997:479) put it, “if Gottfredson and Hirschi are correct, most sociological theories can be relegated to the criminological dustbin.” However, very little has been done to examine the associations of non-criminal behaviors and the latent trait low self-

control. This dissertation will be an examination of the impact individual level self-control has on criminal as well as non-criminal, deviant behaviors.

Many questions remain in regard to the general theory of crime. Addressing the hypotheses of an all-inclusive theory in the field of crime and deviance must take precedence over subsequent challenges to the theory inculcated by Gottfredson and Hirschi. Hence, a preliminary discussion of the research question and the goals of this dissertation will be presented before moving to a discussion of what testing of the general theory of crime has been done to date.

Statement of the Problem

There have been many attempts to test the general theory of crime. However, the theory makes several assumptions that contradict what has been previously accepted as basic fact. Therefore, it is virtually impossible for a single investigation to address all aspects of the theory. Much of the literature to date focuses on isolated elements of the theory such as the effect self-control has on certain behaviors (Grasmick et al. 1993; Arneklev et al. 1993; Evans et al. 1997; Benson and Moore 1992; Cochran et al 1998; Creechan 1995; Keene et al. 1993;), the impact of opportunity to commit crime on self-control (Grasmick et al.1993; Evans et al. 1997), or stability of self-control over time (Arneklev et al. 1998).

This study will focus specifically on the hypothesis made by Gottfredson and Hirschi that low self-control can be used to explain all criminal and deviant behaviors. However, this investigation will address two particular aspects previously left out in much of the previous

research. This dissertation will broaden the breadth of behaviors tested against the general theory of crime.

First, the literature to date has focused on law-violating behaviors rather than those considered deviant. For example, body piercing for an individual above the age of eighteen would not be illegal, but may be considered a form of deviance. Likewise, climbing a mountain would almost never be an illegal offense, but to some individuals it would be considered a form of deviance, especially if one is not properly trained or prepared. Gottfredson and Hirschi (1990:117) state “we intend our theory...to explain all crime, at all times, and, for that matter, many forms of behaviors that are not sanctioned by the state.” Hence, testing of the general theory of crime must branch out to alternative behaviors to investigate the breadth of behaviors explained by self-control.

However, the behaviors investigated in this dissertation are not exhaustive. For example, white-collar crimes and violent crimes such as murder or rape are not included in this analysis. Ultimately, this research will provide a test of the general theory in regard to less serious types of crime and deviance. Additionally, some of the behaviors (i.e. sky diving) are not typically thought of in terms of crime and deviance.

Secondly, sufficient tests of the generality and consistency of self-control, as an explanation of criminality, across different demographic groups (gender, race, and SES) are relatively absent in the literature. If self-control is an important factor in explaining crime and deviance, how do race, gender and socioeconomic status impact on crime? If a person’s level of self-control is known, do any of these other factors matter? These questions remain to be answered in reference to the general theory of crime. Therefore, it is the intent of this dissertation to add to the investigation of the general theory of crime. This research is designed

to fill gaps in the literature; principally, testing the theory using deviant and risk-taking behaviors, and the direct effect of low self-control, controlling for demographic variables such as race, gender, and socioeconomic status.

As suggested above, the theories of criminal behavior are far from complete or conclusive. One of the major concerns in modern criminology is the need for, or appropriateness of, general versus specific theories of crime (Bartusch et al. 1997). There are many theories in existence today. However, none have completely stood the test of empirical investigation (Vold and Bernard 1986; Curran and Renzetti 1994). At best, some theories are given a vote of approval with recommendations for further research and testing .

Gottfredson and Hirschi's general theory of crime has received much attention since its inception, with varying degrees of support. "To date...there has not been enough research conducted to test self-control theory directly in order to come to any firm conclusions about its empirical validity" (Akers 1997:95). Therefore, the saliency of investigating this theory becomes apparent when reviewing the existing literature.

Although there are many aspects to the general theory of crime, and many questions remain to be answered, the focus of this dissertation will be on the ability of the theory to explain a wide range of behaviors. Can this theory be used to explain deviant and risk-taking behaviors as well as criminal behaviors and does a relationship exist between low self-control and deviance when controlling for gender, race, and SES?

These two questions carry great importance for the general theory of crime and the field of criminology. If Gottfredson and Hirschi's claim of the scope of this theory is not evidenced in the real world of crime and deviance, alternative singular causes of crime need to be investigated as well as the possibility of specific theories explaining individual behaviors or actors.

Conversely, if the general theory of crime is able to successfully explain all types of criminal, deviant, and risk-taking behaviors, and if it predicts behaviors equally well among all individuals, the need arises to test the numerous other hypotheses of the theory.

The hypotheses stated by Gottfredson and Hirschi (1990) are particularly important in the continued attempt to understand crime and deviance. Prevention of potential criminals and deviants as well as rehabilitation of known offenders could be impacted by the implications of this theory. Addressing self-control in child development and searching for ways to change self-control (if this is a possibility) could prove to be very important if Gottfredson and Hirschi are correct.

CHAPTER II

REVIEW OF THE LITERATURE

The general theory of crime has received a great deal of attention since its inception. Criminology textbooks now include discussions of the general theory of crime and many articles have been published in numerous journals investigating and challenging the many aspects of the theory. Thus far, little consensus has been reached as to the validity of the theory itself, or the most valid method of testing the theory. This presentation will be divided into three major focus areas where extensive research has been conducted and will pertain to studies done exclusively with the intention of testing Gottfredson and Hirschi's (1990) general theory of crime.

Methodological Concerns

To begin the discussion of the existing literature on Gottfredson and Hirschi's theory, one would be negligent to overlook the continuing debate over suitable methodological issues in testing the major independent variable—self-control. Many tests utilize an attitudinal scale, asking respondents to rate their agreement/disagreement with various questions or statements. Others have used alternative methods to measure self-control, including visible behaviors and/or information gathered for other measures, which serve as a proxy for a self-control scale. Ultimately, there is no consensus on the best, or most, appropriate method of measurement for the concept of self-control.

Adhering to the assumption made by Gottfredson and Hirschi (1990), that self-control is a unidimensional trait, Grasmick et al. (1993) devised a scale measuring the six different

components of a person's self-control outlined by Gottfredson and Hirschi (1990). The scale contains a total of 24 items, four questions for each of six sub-categories, (impulsivity, simple tasks, risk seeking, physical activities, self-centeredness, and temper). Questions pertaining to each sub-component were grouped together and the response set included 'strongly agree,' 'agree somewhat,' 'disagree somewhat,' and 'strongly disagree'.

The results from Grasmick et al.'s (1993) study show that the scale has a high level of reliability, with an alpha at .805. However, a more important consideration is the ability of the data to form a one-factor model, indicating a unidimensional scale (which self-control is supposed to be according to Gottfredson and Hirschi) as opposed to a multi-dimensional scale. Using factor analysis, their findings show the scale forms a five-factor model, but the authors conclude that the "Scree Discontinuity Test {is the} preferable strategy," because of the large number of items (Grasmick et al. 1993:16). Utilization of the Scree Test criteria, the data did produce a one-factor model.

However, there is reason to believe that certain components in the scale are stronger than others. "As a group, physical activities items tend to have the lowest loadings, suggesting that this might be the weakest component of the scale" (Grasmick et al. 1993:17). Additionally, single items in the risk-seeking and physical activities components have weak factor loadings. All other categories have some high and some low factor loadings, leading to the conclusion that they are of equal strength in measurement. Likewise, Arneklev et al. (1993) using the same scale, found an insignificant decrease to scale reliability resulting from the deletion of two entire components (simple tasks and physical activities).

Grasmick et al.'s scale was designed with all items stated in the same direction. Longshore et al. (1996) modified the scale by changing the response categories from a four-point

to a five-point scale ('never,' 'rarely,' 'sometimes,' 'often,' and 'almost always') and altering the direction of several statements. Their findings reveal that the five-factor model fit the data for the entire sample better than did the one-factor model. "In general, the one-factor model was an especially poor fit for women and juveniles" (Longshore et al. 1996:218). However, Piquero and Rosay (1998) re-analyzed the Longshore et al. data, using alternative methods, and found evidence to support a one-factor model.

Additional tests of the Grasmick et al. scale have uncovered other potential problems with its validity. Arneklev et al. (1993) found that the sub-scale measuring risk-seeking has a stronger predictive power than the scale in its entirety, particularly when the dependent variables are limited to drinking and gambling as opposed to drinking, gambling, and smoking. "Risk-seeking by itself explains a unique 8.7% of the variance in the Imprudence Index II¹...this is two and a half times the magnitude of the contribution of Low Self-control Composite I² to Imprudence I³" (Arneklev et al. 1993:239). Essentially, the findings show that the exclusion of cigarette smoking improves the ability of low self-control to explain deviance. Likewise, looking at only the risk-seeking items, or all items except physical activities and simple tasks can improve results.

In an attempt to test the consistency of low self-control, Arneklev et al. (1998) administered a survey containing the Grasmick et al. (1993) scale to college students at two separate times. Finding a high correlation between the scores at time one and time two, the researchers conclude that "the encompassing self-control scale seems to demonstrate stability, at least across...short periods of time" (Arneklev et al. 1998:118).

¹ Imprudence Index II included only drinking alcohol and gambling

² Composite I included all items in the Grasmick et al. (1993) scale

³ Imprudence Index I included the sum of all behaviors (alcohol, gambling, and smoking)

Other attempts to measure self-control via attitudinal scales or indices appear in the literature. Evans et al. (1997) used a self-control scale containing 11 items. Statements included “I’d rather spend money on something I wanted now than to put it in the bank,” “I really don’t care all that much about people who are homeless,” “Even if I’m not in a hurry, I like to drive at high speeds,” and “I like to read books” (Evans et al. 1997:502). Their findings show a modest reliability score ($\alpha=.61$) for the scale and very limited discussion of the testing procedure in comparison to the Grasmick et al. scale. For example, the authors discuss the “unitary concept” of self-control as defined by the theory and provide a footnote stating that factor analysis procedures were undertaken and “failed to identify distinct factors” (Evans et al. 1997:484).

Likewise, Cochran et al. (1998:240) devised a 38-item, 4-point scale with “items similar to the Grasmick et al. (1993) and Wood et al. (1993) low self-control scales.” The findings show strong support for a multi-dimensional scale rather than a unidimensional scale. The researchers question the physicality component of the scale, stating that “low self-control may be best represented by those items measuring all but the physicality component” (Cochran et al. 1998:247). However, they did include this component in their analysis.

Gibbs et al. (1998:55) also devised a scale intended to measure “cognitive, affective, and behavioral aspects of the tendencies related to self-control mentioned by Gottfredson and Hirschi, except physicality, which may have limited ability to discriminate in a sample of university students.” This scale contained 40 items and utilized a horizontal line with “totally agree” as one end point, and “totally disagree” at the other. The end result was a self-control scale that ranged from 0 to 400. Respondents were instructed to mark the line where they felt they would stand on each statement. Their findings show strong reliability and support for a one-factor model.

Finally, LaGrange and Silverman (1999:51) constructed a scale to measure self-control, including components to measure “impulsivity,” “risk-taking,” “carelessness,” “temper,” and “present oriented{ness}.” This scale contains elements adopted from the Grasmick et al. (1993) scale as well as other personality inventory scales. Analyses of the scale “support a unidimensional measure of self-control” (LaGrange and Silverman 1999:51).

There are alternatives to the attitudinal scale design methods in testing self-control. Creechan (1995) used various dichotomous variables to serve as a proxy for level of self-control. Questions related to school enjoyment and classroom participation were used in this study of individuals who left school early.

Likewise, Keane et al. (1993) used observations of individual behaviors to test self-control. Physical evidence obtained from the research site (i.e. subject’s use of a seatbelt and blood alcohol content) together with questions regarding alcoholic beverage consumption and attitudes toward police enforcement of DWI’s (Driving While Intoxicated) served as the proxy for self-control. Others have used select variables from existing data sets in an attempt to form a self-control index. Brownfield and Sorenson (1993) devised a measure of self-control from Hirschi’s bond theory data. Likewise, Polakowski (1994) amassed a measure of self-control using variables available in the Cambridge Study of Delinquency Development data set.

The research to date has used various methods to measure personal self-control, and all seem to find some support for their particular method. Hirschi and Gottfredson (1993) do suggest that their inclination would be to use the observational measurements as opposed to the more psychological types of measures. However, attitudinal scales have been found to have validity and have been used by many different researchers (Piquero and Rosay 1998).

Empirical Tests of Self-control and Crime and Deviance

One of the primary articles testing the general theory of crime was published by Grasmick et al. (1993). The dependant variables consisted of fraud, “distorted the truth or falsely represented something to get something you couldn’t otherwise obtain” and force, “used or threatened to use force against an adult to accomplish your goals” (Grasmick et al. 1993:18). Respondents were also questioned about opportunities to commit these types of crimes where avoiding apprehension would have been possible.

The findings from the Grasmick et al. (1993) study indicate that low self-control alone had little causal effect on either criminal fraud or force. But ability to predict behaviors improved when looking at the cases where an individual had both low self-control and ample opportunity to commit crimes of force or fraud. However, the findings revealed a weaker association between self-control and criminal opportunity and the incidents of criminal fraud.

There is also the suggestion from this research that criminal opportunity may be much more important than low self-control or even the interaction between them. “As a predictor of crime, crime opportunity in our data appears to be almost as strong as (in the case of fraud) or stronger than (in the case of force) the term representing the interaction of low self-control and crime opportunity” (Grasmick et al. 1993:24). Self-control alone was not found to be a strong predictor of crimes of force or fraud.

Another test of the theory using the same scale to measure self-control focused exclusively on ‘imprudent behavior’ (Arneklev et al. 1993:227). Imprudent behaviors included use of tobacco products, excessive consumption of alcoholic beverages (more than two or three a week), and gambling (specifically the desire to gamble “now and then”). Findings uncover some

weakness in the theory explaining non-criminal behaviors. Specifically, Arneklev et al. (1993) found low self-control to be a better predictor for drinking and gambling than for smoking. However, the authors did acknowledge methodological shortcomings—ambiguous wording and lack of information on the frequency of engagement in activities—as a possible explanation for their findings (Arneklev et al. 1993).

Wood et al. (1993) examined the predictive power of self-control on acts of theft, vandalism, interpersonal violence, and both legal and illegal substance use. Using the scale developed by Grasmick et al. (1993), findings showed self-control to have a significant impact on all behaviors in the study. However, the amount of unexplained variance across all behaviors remained quite large. Ultimately, self-control was the strongest predictor for imprudent behaviors, which included things such as tobacco use, alcohol consumption, excessive eating, not using a seatbelt, gambling, and waiting to the last minute to do homework.

In addition to looking at the impact of self-control as a composite measure, Wood et al. (1993) looked at the sub-components of the self-control scale as independent variables. Their findings showed the risk-taking and ability to control anger categories to have the most significant explanatory power across the behaviors. Risk-taking was significantly related to all behaviors except illegal substance use, while the anger coefficient was significant for theft and imprudent behaviors only. The physicality sub-scale tended to be the weakest predictor of deviance and imprudent behaviors. Additionally, “when self-control is treated as six independent dimensions the variance explained increases for each category of delinquency” (Wood et al. 1993:125).

Longshore et al. (1996) found a weak correlation between self-control (measured using the Grasmick et al. scale) and criminal behavior in a sample of convicted criminals. “We found

self-control to be associated, though modestly, with the number of recent crimes of fraud and crimes of force reported by this sample” (Longshore et al. 1996:222). Using a separate sample of convicted drug offenders, Longshore (1998) found a positive relationship between self-control and crime. Frequent criminal involvement by convicted drug offenders is highest when self-control is low and opportunity is high.

Polakowski (1994) used a panel study design and both official and self-report data to test the association between self-control and involvement in criminal and deviant behaviors. Using measures gathered from peers, mothers, teachers, and social workers in reference to the sample subjects, as well as from the subjects themselves, a scale was formed to measure level of self-control. These measures were the principal means of determining respondent’s level of self-control. Using official criminal data, the findings show that, “after age 14, low self-control and prior convictions strongly predict an increase in the number of convictions one experiences” (Polakowski 1994:69). The findings also support the general theory of crime in regard to the self-reported criminal and deviant behaviors⁴.

Polakowski (1994) was also able to show that level of self-control does remain moderately stable from age 8 to 14. Additionally, Polakowski (1994:65) found, “consistent with the suggestions of Gottfredson and Hirschi, low self-control is positively predicted by parent and sibling crime, authoritarian behavior of parents, and whether the family has received government assistance.” However, only parental crime and government assistance were significant.

Evans et al. (1997) examined the occurrence of 17 different crimes of force and fraud along with 18 different deviant behaviors, including smoking, accidents, skipping work, public

⁴Incidents included things such as trespassing, riding a bicycle without a light, using public transportation without paying the fare, fireworks violations, joyriding, marijuana use, drinking, burglary, buying stolen property, theft, weapons violations

urination, and drug use. Findings revealed strong support for Gottfredson and Hirschi's theory when the dependent variables are grouped into "crime" and "analogous behaviors." However, this research went beyond testing only low self-control as an explanation of crime and deviance. "We find that low self-control is related to diminished quality of interpersonal relationships with family and friends, reduced involvement in church, low levels of educational and occupational attainment, and possibly poor marriage prospects" (Evans et al. 1997: 493).

Keane et al. (1993) also found support for the general theory of crime using visible behaviors to measure the impact of self-control on DWI, measured by Blood Alcohol Content (BAC) at the time of the survey. Low self-control was found to have a positive and significant impact on drunken driving. Additionally, the findings show strong support for the risk-taking⁵ component as well as the impulsiveness⁶ component.

Brownfield and Sorenson (1993) found support for the relationship between self-control and both self-reported and official delinquency. Self-reported incidents were less significantly related to self-control than were official incidents. This is consistent with Gottfredson and Hirschi's hypothesis that riskier offenses are more strongly related to self-control. However, this raises doubts about the general applicability of the theory "regardless of seriousness (and across cultures, genders, age, etc.)" (Brownfield and Sorenson:1993:258).

Benson and Moore (1992) compared the level of self-control between 'common offenders'⁷ and white-collar offenders⁸. Looking at data spanning several years, their findings indicated that white-collar criminals "appear...{to be} much less involved in crime than common criminals" (Benson and Moore 1992:260). However, they do conclude that among

⁵ Measured by use of seatbelt and belief that large numbers of impaired drivers would be stopped.

⁶ Measured by a warning not to drive by friends.

⁷ Narcotics, postage forgery, and bank robbery.

⁸ Embezzlement, bribery, income tax violations, false claims, and mail fraud.

white-collar offenders, those who tended to have high levels of involvement in crime also had high levels of involvement in deviance and vice versa.

Using a sample of college students, Gibbs et al. (1998:41) set out to test “the main component of {the} primary proposition” of low self-control theory. In an attempt to measure and establish causal ordering in the development of low self-control, respondents were questioned about parental monitoring and discipline during their high school years. Level of self-control at the time of the test was compared to past experiences with parental discipline to establish a relationship between cause and effect of self-control. The dependent variable in this study consisted of an index of involvement in alcohol consumption, cutting classes in college and high school, academic cheating, and suspension or expulsion from school. The findings showed self-control to have a statistically significant impact on deviance. Furthermore, parental discipline had a strong effect on self-control, “but the influence of parental management on deviance, controlling for self-control, was negligible and not statistically significant” (Gibbs et al. 1998:61).

Burton et al. (1998) tested Gottfredson and Hirschi’s theory using self-reported measures of crime⁹ and imprudent behaviors¹⁰ as the dependent variables. Their findings showed a significant relationship between self-control and criminal/deviant offending. Low self-control and opportunity were both found to be highly correlated with criminal involvement, however the interaction variable, combining both factors, was not significantly related to crime (Burton et al. 1998).

Nagin and Farrington (1992) provide some evidence for the causal relationship between

⁹ False insurance claims, involvement in gang fighting, stealing from work, carrying a concealed weapons, destruction of property, and assault.

¹⁰ Auto accidents, unexcused absence from work, drunk driving, use of illegal drugs, and speeding.

parenting and the development of self-control in their children. Their findings reveal a consistent pattern of criminal activity between parents and children. Furthermore, there is a tendency for parents to be less insulating of criminal and deviant activity for their children, and criminal parents are “less adept at inculcating self-control” (Nagin and Paternoster 1991:256).

In an attempt to test the differences between general theories and developmental theory, Paternoster et al. (1997) looked at a sample of former training school youths. The findings showed more support for theories such as life-course over theories such as low self-control. Specifically, the authors state, “we...dissent from the thoughtful positions of Gottfredson and Hirschi with respect to both the idea that change is causally unimportant and its methodological implication that longitudinal research is unnecessary” (Paternoster et al. 1997:264).

Creechan (1995) tested several variables serving as proxies for self-control in a prediction model of self-reported arrest. Questions on issues such as school dropout, belief in school rules and usefulness, employment, having children, and personal commitments were used to test the general theory of crime. Findings showed variables measuring “family, gender, academic achievement, guardianship, attachments, commitments, employment, and family status” predicted who would steer clear of arrests (Creechan 1995:237). However, their overall conclusion is that, “the conceptualizations from the general theory of crime produce a *remarkably* accurate prediction of who is normal...but do an *unusually* poor job in predicting who is arrested” (Creechan 1995:238) (Emphasis in original).

Piquero and Tibbetts (1996) provide an extensive test of low self-control on two separate levels. First, the authors propose a model suggesting low self-control has a direct effect on intention to deviate, then they introduce the idea of situational factors playing an indirect effect on behaviors. According to the authors, “perceived pleasure associated with the act, the

possibility of sanctions as a result of committing the act, and the shame associated with committing the act” impact on the intention to drink and drive and shoplift (Piquero and Tibbetts 1996:487-8).

The Grasmick et al. (1993) scale is used to test self-control in Piquero and Tibbett’s study. Additionally, questions regarding perceived pleasure/shame associated with the commission of DWI’s and shoplifting, intentions to commit these behaviors in the future, and prior offending are used to test hypotheses stating that low self-control will play both direct and indirect roles on criminality. The authors conclude that self-control does have a direct effect on shame and perceived pleasure for both types of offenses examined, but no effect on perceived sanctions.

Utilizing a different framework, Woods et al. (1997) provide a test of the low self-control theory. Matza and Sykes’ (1960) concept of Subterranean Values, where juvenile delinquents operate in a subculture which advocates and encourages a fearless personality front, is used as a basis. In regard to confrontations with police or other delinquents, individuals showing submission become marked as weak. Furthermore, individuals who show fearlessness in their behaviors become recognized as superior individuals in their subculture. Similar findings were found among female gang members by Harris (1994:296) “the norms of the gang demand violence and violent acts....,being ‘bad,’ ‘crazy,’ or ‘wild’ earn respect and status.”

In an attempt to test learning theory, Woods et al. (1997) used the sensation-seeking framework as an independent variable to analyze individual reinforcements against intrinsic values. Prisoners were asked to describe feelings they felt while committing their crimes, and these were compared to the perceived pleasures associated from committing the same crimes among a non-criminal sample. Findings show that although most individuals possess strong

motivation for risk-taking activities, those engaging in illegal acts are significantly different in regard to personality traits. Additionally, “persons seem motivated to different kinds of delinquency for different reasons, and lumping all kinds of delinquency into one large delinquency scale...effectively masks real differences in causation at the individual level” (Wood et al. 1993:125).

Much of the literature to date is supportive of the general theory of crime. Furthermore, research is now beginning to look at some of the many hypotheses made by this theory, such as parental discipline (Gibbs et al. 1998) and continuity of self-control over time (Arneklev et al. 1998). However, there is enough doubt raised in the literature to validate continued attention to the basic association between self-control and crime (Akers 1991; Reed and Yeager 1996).

Impact of Control Variables on Self-control and Deviance

This literature review will be limited to the information pertaining to Gottfredson and Hirschi’s general theory of crime. There is certainly much more information about factors such as gender, race, and SES in regard to crime and deviance. However, this discussion will focus on those tests of demographic variables that have set out to test the general theory of crime only.

Grasmick et al. (1993) looked at the differences between forceful and fraudulent behaviors controlling for gender, race, and age. However, the results are not presented in their analysis, only the statement that their inclusion “results in..slight reductions” to the explanations in both types of criminal activities (Grasmick et al. 1993:21). Evans et al. (1997) also found that low self-control was significantly related to crime and deviance when controlling for age and

gender. Likewise, Arneklev et al. (1993) controlled for age, gender, and race and found no significant difference in the effect of self-control on imprudent behaviors.

Wood et al.'s (1993) study used four different control variables, including gender, age, religious attendance (measured by how many times one attended religious services within the last month), and school attachment (defined as educational attachment to the goals and behaviors of the school establishment). Findings revealed that when controlling for level of self-control, males were significantly more likely to report involvement in behaviors such as theft, vandalism, and illegal substance use. Age, when controlling for level of self-control, had a significant effect on legal and illegal substance use. Attachment to schools as a control variable for self-control was significantly related to all variables except interpersonal violence, and when controlling for religious attendance, self-control had a significant effect on theft and legal substance use only.

Longshore (1998) found low self-control's impact on deviance to be unaffected by either age or gender. However, the African-American dichotomous variable was statistically significant in the equations including criminal opportunity, while the Hispanic variable was not.

Keane et al. (1993) used control variables in their analysis of self-control and drunken driving. The findings support the theory in that there is consistency between the genders in levels of BAC and levels of self-control. However, they do find higher BAC levels in the middle-aged sample, contradictory of the theory (Keane et al. 1993). The authors dismiss the differences as being attributable to the lack of accessibility to alcohol by minors. Furthermore, the findings show that length of trip has a significant predictive effect on BAC for males but not females, which the authors dismiss without explanation.

Gibbs et al. (1998) found that males and females do not differ in self-reported measures of parental monitoring, measured by a series of questions regarding punishments and parental

knowledge of whereabouts in high school years. However, males and females did report significantly different levels of self-control and alcohol consumption, cheating, and class cutting. Likewise, Cochran et al. (1998) found age, gender, and urban/rural status had a statistically significant effect on academic cheating when included in the self-control model.

Burton et al. (1998) found that low self-control was significantly related to crime and deviance for both males and females. The relationship between self-control and crime was slightly stronger for males than for females. Additionally, opportunity and the interaction between low self-control and opportunity were both significantly related to crime for females, but not for males. Overall, the authors conclude that, “self-control holds promise in explaining both male and female offending behaviors and has generality across gender groups” (Burton et al. 1998:134). However, LaGrange and Silvermen (1999) found that controlling for the interaction between self-control and opportunity did reduce the impact of gender as a predictor of general delinquency, property offenses, and violence.

Creechan (1995) found age, gender, and family background to have little power in predicting those who would be arrested. The model did become stronger when additional variables were added (such as Social Bond theory measures such as attachment to parents and schools). “All of the information about family, gender, academic achievement, guardianship, attachments, commitments, employment, and family status achieve statistical significance and contribute to the results (that is, they can be left in future statistical models because they do contribute to the model fit)” (Creechan 1995:237).

The literature on the general theory of crime is vast but far from complete. Researchers have ventured in different directions, using different methodologies, testing different types of samples, and applying different parameters to the tests of the theory. Findings are largely

inconclusive, lending support to the self-control framework but cautioning for the need for more research.

The general theory of crime states that low self-control is the primary cause of crime and deviance, regardless of external factors such as race, gender, or class. Much research has been done to test the assumptions made by Gottfredson and Hirschi, but few have attempted to broaden the scope of behaviors and thoroughly address the issue of control variables. Therefore, it is the intention of the dissertation to test the following hypotheses.

Hypotheses

- 1) Consistent with the general theory of crime, low self-control is positively associated with reported involvement in criminal, deviant, and risk-taking behaviors.
- 2) Consistent with the general theory of crime, self-control will continue to provide a significant explanation of crime, deviance, and risk-taking when controlling for gender, race, and parental educational level.

CHAPTER III

METHODOLOGY

Data for this dissertation were collected from a sample of college students at two separate institutions—a large research-based university and a small liberal arts college, both located in the southwestern part of Virginia. All data included in this study were collected within one semester (approximately 1 and a half months). Questionnaires were distributed to students in attendance for various social science classes, consisting of predominately freshmen and sophomores. Participation in this study was voluntary. There is no way to accurately ascertain the rate of participation because of the absence of student attendance figures for the days of distribution. However, from the number of completed surveys obtained from each class and visual inspection of the classes, there is no reason to believe that participation rates fell below fifty percent.

A pretest of the survey instrument was administered to a sociology class, independent of those included in the sample, at the larger institution about three weeks prior to data collection. A class of approximately 60 students was asked to completely read the instructions and survey instrument. After completion, the class was briefed on the procedure and the content of the survey. The pretest uncovered minimal problems with the instrument. However, wording was changed on several items to provide clarity.

A total of 453 surveys were collected from students. However, only 415 surveys provided all of the necessary information. The first session yielded 183 completed surveys; an additional 118 surveys were collected from two other sociology classes at the large university. The remaining 152 (34%) cases in the sample came from various classes at the liberal arts college. Classes chosen for participation included sociology, psychology, and political science.

Course levels at both institutions ranged from freshman to junior, but the majority of those in the sample were freshmen and sophomores.

The survey instrument consisted of three different sections—in order of appearance: (1) demographic information, (2) the self-control scale, (3) and the behaviors serving as the dependent variables. (*See Appendix A for the complete survey.*) The demographic variables included on the survey were chosen based on theoretical considerations, particularly race, gender, and socioeconomic status¹¹. In addition to the survey, each respondent was given two copies of a consent form and instructed to read it carefully and sign both copies if they agreed to participate in the study. Individual respondents were asked to detach both copies of the informed consent, one copy was to be returned to the principal investigator, and the other was to be kept by the respondent. The consent form included an introduction to the study, as well as instructions of anonymity and the notification of freedom to withdraw from the study at any point.

Data were entered into a spreadsheet program and then entered a second time into a database program for the purpose of data cleaning. Comparisons were made between the data sets to assess data entry accuracy. Mistakes were checked against the original survey and correct responses were re-recorded. The data set originally consisted of 453 cases, however, 38 respondents refused to answer scale-item questions and were eliminated. A final data preparation process was the recoding of the scale items that had been changed. In an attempt to keep all variables in an orderly coding scheme (where higher values equal higher self-control

¹¹ Combined parental education was used as a proxy for SES due to lack of faith in student's knowledge of family income and possible confusion of meaning in cases where a family experienced divorce or if a student no longer considered them self a dependent of their family of procreation.

levels and higher levels of involvement in criminal, deviant, or risk-taking behaviors), the scale items that had not been modified were reversed.

The Dependent Variables

The dependent variable for this dissertation consists of various criminal and deviant behaviors. The behaviors chosen for inclusion were based on several criteria. First, there was an intention of including behaviors of both a criminal and deviant nature within differing degrees of severity. Additionally, behaviors of adventure and sport (skydiving and rock-climbing) were included in an effort to test the hypothesis that risk-taking activities are in some way aligned with criminal and deviant behaviors. Various findings have linked the connection between crime and risk-taking (Matza and Sykes 1960; Ellis 1991; Ellis and Coontz 1990; Farrington et al. 1990; Farrington 1992; Wood et al. 1993). Overall, 16 different items were included on the survey. *(See Appendix A for a complete list of behaviors included in the study as they appeared on the survey.)*

Analysis of the dependent variables is presented in two different ways. First, behaviors were grouped into three indices which include “criminal,” “deviance,” and “risk-taking” behaviors. The means of choosing behaviors to be included in these categories was done using a loose definition of what would be considered “criminal,” “deviant,” and “risk-taking” (or adventurous). Hence, behaviors such as “rock-climbing” or “leaving a car unlocked in an urban environment” would not be considered criminal or deviant, therefore, these behaviors were labeled risk-taking.¹² *(Analysis of each individual behavior is also presented in Appendix D.)*

¹² Some behaviors may fall into multiple categories, such as alcohol consumption or viewing pornography.

Factor analysis was conducted for the behaviors in the study, but no logical patterns emerged to use as a scheme for collapsing behaviors. Therefore, the groupings represent personal feelings of what constitute criminal, deviant, and risk-taking behaviors.

Independent Variables

Self-control is the primary independent variable in this study. Grasmick et al. (1993) devised a scale to measure six separate aspects of self-control. The scale consists of twenty-four total items, divided evenly into “impulsivity, simple tasks, risk seeking, physical activities, self-centered, and temper sub-components. Respondents were asked to report whether they “strongly agree,” “agree,” “disagree,” or “strongly disagree” to each individual item.

Based on the extensive testing and empirical support for this scale, it is particularly attractive for use in a sample of this age group. Perhaps the most convincing argument for using this scale comes from Piquero and Rosay (1998:170), who concluded that, “it appears...the scale can be an acceptable scale in terms of tapping into the components alluded to by Gottfredson and Hirschi.”

Scale reliability for this sample is not as high as has been found in previous research. (for example, Grasmick et al.’s $\alpha=.81$). The 24-item scale reliability for the present sample is .73 (N=415). Table 1 presents the descriptive statistics on each scale item.

Table 1: Range, Mean, Standard Deviations, and Alpha's if Item Were Deleted for Individual Self-control Scale Items (4=high self-control; 1=low self-control)

Item	Range	Mean	SD	Alpha if item deleted
1. I often act on the spur of the moment	3	2.58	.80	.7129
2. I devote much thought and effort to preparing for the future	3	3.11	.70	.7206
3. I often do what brings me pleasure here and now	3	2.74	.74	.7111
4. I am more concerned with what happens to me in the long run	3	2.93	.69	.7252
5. I frequently try to seek out projects that I know will be difficult	3	2.31	.66	.7268
6. When things get complicated, I tend to quit or withdraw	3	3.17	.65	.7346
7. The things in life that are easiest bring me the most pleasure	3	2.81	.67	.7339
8. I like really hard tasks that stretch my abilities to the limit	3	2.65	.69	.7299
9. I feel little need to test myself by doing something a little risky	3	2.45	.73	.7515
10. Sometimes I will take a risk just for the fun of it	3	2.13	.71	.7206
11. I find no excitement in doing things I might get in trouble for	3	2.32	.78	.7218
12. Excitement and adventure are more important than security	3	2.85	.71	.7172
13. I would almost always rather do something mental than physical	3	2.13	.67	.7280
14. I feel better when I am on the move rather than sitting and thinking	3	2.13	.74	.7313
15. I like to read or contemplate ideas more than I like to get out and do things	3	2.00	.67	.7282
16. I have more energy and greater need for activities than most people my age	3	2.46	.69	.7299
17. I try to look out for others first, even if it means making things difficult for myself	3	3.10	.66	.7300
18. I'm very sympathetic to other people when they are having problems	3	3.32	.65	.7278
19. If things I do upset people, it's their problem not mine	3	3.20	.66	.7207
20. I will try to get things I want even when it's causing problems for others	3	3.13	.64	.7210
21. I don't lose my temper very easily	3	2.69	.87	.7275
22. When I'm angry I feel more like hurting than talking about why I'm angry	3	2.96	.82	.7172
23. When I'm really angry, other people better stay away from me	3	2.60	.85	.7247
24. When I have a serious disagreement with someone, I can usually talk calmly about it without getting upset	3	2.58	.72	.7252

Control variables include gender, race, and socioeconomic status. Race was modified into a dichotomous, white vs. non-white variable due to the low response rate by minority group members. Finally, parental education is used as a measure of socioeconomic status.

Characteristics of the Sample

Table 2 shows the characteristics of the sample, which tend to be fairly homogeneous, particularly with respect to race (89% white) and age (83% are between the ages of 18 and 21). There are slightly more females in the sample than males, but there are significant numbers in each category. Parental education level was grouped into four categories including, “neither parent having beyond a high school degree” coded 1, “one parent with a college degree or some college” coded 2, “both parents with a college degree” coded 3, and “at least one parent with education beyond a bachelor’s degree” coded 4. The sample is fairly evenly distributed with respect to parental education.

Table 2: Characteristics of the Sample

Gender	%	n
Female	56	223
Male	44	182
Parent educational level		
Both parents with high school degree or less	18	73
One parent with a bachelor’s degree or some college	41	170
Both parents with a bachelor’s degree	10	43
One parent with education beyond bachelor’s degree	31	129
Race		
White	89	369
African-American	4	16
Hispanic	<1	3
Asian American	4	16
Other	3	11

Factor Analysis of Self-control Scale

Table 3 present eigenvalues for the ten-factor model formed using factor analysis on the self-control scale. The number in the second column is the difference between the value for the current factor and the value of the preceding factor. Grasmick et al. (1993) concluded that the scale forms a one-factor model using the criteria of the Scree Test, which suggests that the best cut-off point for the appropriate number of factors is where the largest differential between eigenvalues occurs. Using the Scree Test criteria, the data in this study do form a one-factor model, as does Grasmick et al.'s (1993).

Table 3: Eigenvalues for the First 10 Factors in the Analysis and the difference between the value and the previous value

Factor Number	Factor Loading	Difference between Factor and Previous Factor
Factor 1	3.78	--
Factor 2	2.42	1.36
Factor 3	2.21	0.21
Factor 4	1.71	0.51
Factor 5	1.57	0.14
Factor 6	1.28	0.29
Factor 7	0.97	0.31
Factor 8	0.92	0.05
Factor 9	0.89	0.03
Factor 10	0.81	0.08

Although the Scree Test does point to the possibility of a one-factor model, table 4 presents the varimax rotation matrix for the self-control scale indicating the data forms a five-factor model. The scale items intended to measure risk-seeking do not form a single factor in this data set. Column 6 has strong values associated with the first sub-component (impulsivity) along with one item associated with the second component (simple tasks) and one item associated with the third sub-component (risk-taking). All other sub-components do show strong

tendencies to factor together, lending support for their internal validity. The risk-taking sub-component (which consists of “I feel little need to test myself by doing risky things,” “Sometimes I take a risk for the fun of it,” “I find no excitement in doing things I could get in trouble for,” and “Excitement and adventure are important to me”) does not form a strong factor.

Table 4: Component Matrix of the Self-control scale (Varimax Rotation)

	1	2	3	4	5	6
I often act on the spur of the moment	0.413	0.083	0.124	0.179	0.161	0.476
I devote much thought to the future	0.524	0.071	0.403	0.004	0.055	-0.023
I often do whatever brings me pleasure here and now	0.491	0.179	0.141	0.065	0.078	0.511
I am more concerned with what happens in the long run	0.528	0.061	0.389	0.021	-0.068	-0.114
I try to seek out difficult projects	0.070	-0.005	0.765	0.120	0.047	0.035
I quit when things get complicated	-0.030	0.053	0.472	-0.197	0.066	0.354
The easiest things bring the most pleasure	-0.054	0.063	0.311	0.003	-0.080	0.566
I like really hard tasks	-0.021	0.066	0.792	-0.083	0.045	0.197
I feel little need to test myself by doing risky things	-0.095	0.139	0.002	0.029	-0.018	-0.433
Sometimes I take a risk for the fun of it	0.662	-0.125	-0.189	0.157	0.142	0.295
I find no excitement in doing things I could get in trouble for	0.740	-0.079	-0.065	0.038	0.184	-0.065
Excitement and adventure are important to me	0.681	0.234	-0.105	0.106	-0.090	0.272
If I had the choice, I would rather do something mental than physical	0.125	0.015	0.092	0.691	0.065	-0.188
I feel better on the move	-0.038	-0.005	-0.026	0.683	-0.022	0.293
I like to read and contemplate ideas	0.115	-0.067	0.072	0.766	0.099	-0.133
I seem to have more energy than others	0.081	0.188	-0.301	0.669	-0.014	0.141
I try to look out for others first	-0.014	0.694	0.243	0.058	-0.024	-0.287
I'm very sympathetic to others	-0.014	0.733	0.162	0.019	0.051	-0.215
If things I do upset people it's their problem	0.009	0.708	-0.124	0.053	0.220	0.237
I will try to get things I want even if problems arise for others	0.164	0.680	-0.088	-0.040	0.145	0.186
I don't lose my temper very easily	-0.002	-0.022	0.064	0.062	0.684	0.093
Often, when I get angry I feel more like hurting people	0.104	0.309	-0.012	0.026	0.669	-0.004
When I'm really angry, people better stay away	0.136	0.049	-0.145	0.052	0.715	0.053
When I have a serious disagreement, I can talk calmly	0.012	0.082	0.223	-0.021	0.662	-0.096

N=415

The composite self-control scale score ranges from a low of 24, indicating very low self-control, to a high of 96, indicating very high self-control. The lowest observed score in the sample is 39 and the highest observed score is 88. As seen in Table 5, the mean score for the self-control scale in the sample is 64.36, the standard deviation is 6.46, and the alpha reliability score is .73. Looking at the six sub-scale components (as presented by Grasmick et al. 1993), response averages to the self-centeredness sub-scale is the highest with a mean of 12.74, while the physical activities component is the lowest with a mean of 8.72. Further analysis of Table 5 reveals self-centeredness to have the highest level of reliability of all the sub-components (.7021), while risk-taking had the lowest level of reliability for all sub-scale measures (.4593).

Table 5: Range, Means, Standard Deviations, and Alpha's for the Scale and Sub-scale Components (4=high self-control; 1=low self-control)

	Total Scale	Impulsivity	Simple Tasks	Risk Taking	Physical Activities	Self-centeredness	Temper
Range	49	10.00	11.00	12.00	11.00	12.00	12.00
Observed Minimum	39	6	5	4	4	4	4
Observed Maximum	88	16	16	16	15	16	16
Mean	64.36	11.37	10.94	9.76	8.72	12.74	10.84
Standard Deviation	6.46	2.05	1.85	1.81	1.98	1.89	2.29
Alpha	.7343	.6434	.6380	.4593	.6797	.7021	.6578

Table 6 shows the mean and standard deviation for the self-control scale for each demographic variable. Respondents who are female, white, and have one parent with education beyond a bachelor's degree report the highest level of self-control. Additionally, the scale has the highest level of reliability among white males with parents who have at least a college education.

Table 6: Mean, Standard Deviation, Alpha, and N for the Self-control Scale Across Gender, Race, and Parental Education (4=high self-control; 1=low self-control)

	Male	Female	White	Non-White	HS	BA	Both w/BA	One beyond
Mean scale score	62.72	65.65	64.52	63.09	64.85	63.7	64.67	64.86
Standard deviation	6.89	5.81	6.42	6.73	6.10	6.71	6.26	6.39
Alpha	.7577	.6873	.7371	.7163	.6570	.7598	.7438	.7333
N	182	233	369	46	73	170	43	129

Involvement in the criminal, deviant, and risk-taking behaviors are distributed across the sample. Summing all behaviors for each respondent yields a composite score where a higher number indicates more, and more frequent, involvement in crime/deviance/risk-taking and a low score indicates less involvement in all behaviors. The lowest observed score for involvement in criminal, deviant, and risk-taking behaviors in the sample is zero, indicating no involvement in any of the behaviors. The highest observed score is 29, which indicates an individual reporting multiple and/or frequent involvement in the various behaviors on the survey. The mean for criminal, deviant, and risk-taking behavior involvement is 11.04 and the standard deviation is 5.32. The majority of individuals in the sample have been involved in deviance to some degree in the six months prior to administration of the survey.¹³

Behaviors are grouped into three categories according to personal conceptions of criminal, deviant, or risk-taking. Table 7 presents the behaviors comprising each of the three behavior indices. The factor analysis did not present a clear categorization of the behaviors and several behaviors crossed over several factors. Therefore, the statistical analysis method of categorizing the behaviors was abandoned for a more inferential categorization. (*See Appendix C for Factor analysis results of the behavior items.*)

¹³ All behaviors except 'ear piercing' were totaled for this summary.

The inferential categorization began with the conceptualization of the three types of behaviors this research was intended to analyze: crime, deviance, and risk-taking. Technically speaking, most of the behaviors could justifiably be put into a different category depending on the context. For example, some states have laws against riding a motorcycle without a helmet and driving a car without a seatbelt. Furthermore, consumption of alcohol under the age of 21 is illegal in most states and many of the respondents were under the age of 21 at the time of the survey administration.

Table 7: Behavior Indices

Criminal	Deviant	Risk-taking
Destruction of property	Alcohol consumption to the point of intoxication	Sky diving
Taking property not belonging to you without permission	Cigarette smoking	Rock climbing
Speeding 10 MPH over the posted speed limit	Body piercing	Leaving car unlocked in an urban environment
	Tattooing	Riding a motorcycle without a helmet
	Sexual intercourse with someone known for less than 24 hours	Driving or riding in a car without a seatbelt
	Viewing pornography	
	Fighting	

Involvement in the three behavior indices varies from the composite score. Observed criminal involvement in the sample ranges from 0 to 9, with a mean of 3.27 and a standard deviation of 1.55. For deviant behaviors, the observed range is 0 to 12, with a mean of 4.39 and a standard deviation of 2.62. Finally, the risk-taking involvement observed range is from 0 to 15, with a mean of 3.39 and a standard deviation of 2.62. (*See Appendix B for graphic representation of these statistics.*)

CHAPTER IV

RESULTS

Zero-Order Correlation's

Table 8 presents the Pearson correlation coefficients for the three behavioral indices and the control variables under investigation. The three behavioral indices (crime, deviance, and risk-taking) are all correlated with one another and significant at the .05 level. Additionally, gender is significantly correlated with all measures of offending, as well as level of self-control. The highest correlation is between crime and risk-taking (.424), which is significant at the .05 level.

Gender and self-control are the only two independent variables with a correlation of any strength or significance (.225). Although this correlation is higher than the correlation between gender and risk-taking behaviors (-.200), it is not strong enough to warrant concern for multicolleniarity (Bohrnstedt and Knoke 1994).

There are fairly consistent relationships between the control variables and the behavioral scales (self-control, crime, deviance, and risk-taking). Furthermore, none of the control variables are strongly related to another, yet there is correlation among the dependent variables in the sample (criminal behavior index, deviant behavior index, and risk-taking index).

Table 8: Zero-Order Correlation's for Gender, Race, Parental Education, Self-control, Criminal, Deviant, and Risk-taking Behaviors

	1	2	3.	4	5	6	7
1. Gender (Female=1)	1.00						
2. Race (White=1)	-.013	1.00					
3. Parent Ed.	-.026	-.002	1.00				
4. Self-control	.225*	-.070	.036	1.00			
5. Criminal behaviors	-.266*	-.041	-.055	-.376*	1.00		
6. Deviance behaviors	-.380*	-.004	.090	-.412*	.410*	1.00	
7. Risk-taking behaviors	-.200*	.013	-.064	-.320*	.424*	.407*	1.00

*p<.05

Table 9 presents correlation's among the control variables, the behavior indices, and the sub-components of the self-control scale. The impulse and simple tasks components are significantly related to race, while risk-seeking, physical activities, and self-centeredness are significantly related to gender. As seen in Table 9, impulsiveness is the component most strongly correlated with crime and risk-taking activities, while the risk-seeking component is most strongly associated with deviant behaviors.

Table 9: Zero-Order Correlation's for Individual Components of the Self-control, Gender, Race, Parental Education, Impulsiveness, Simple Tasks, Risk-seeking, Physical Activities, Self-centeredness, Temper, Criminal, Deviance, and Risk-taking

	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender (Female=1)	1.00											
2. Race (White=1)	-.013	1.00										
3. Parent Ed.	-.026	-.002	1.00									
4. Impulse	.085	-.142*	.076	1.00								
5. Simple	-.066	-.146*	.065	.322*	1.00							
6. Risk	.252*	.099	-.061	.395*	-.001	1.00						
7. Physical	.184*	.034	.014	.162*	-.076	.218*	1.00					
8. Self-cent	.284*	-.038	.015	.179*	.109*	.100	.076	1.00				
9. Temper	.019	-.028	.004	.203*	.069	.164*	.101*	.264*	1.00			
10. Criminal	-.266*	-.041	-.055	-.264*	-.030	-.361*	-.175*	-.169*	-.225*	1.00		
11. Deviance	-.280*	-.004	.090	-.375*	-.066	-.386*	-.170*	-.141*	-.205*	.410*	1.00	
12. Risk	-.200*	.013	-.064	-.313*	.022	-.280*	-.278*	-.058	-.133*	.424*	.407*	1.00

*p<.05

Bivariate Analysis

Table 10 presents the composite score across all behaviors, divided into quartiles, except ear piercing¹⁴ for males and females. The chi-square statistic for this association is 39.29, and is significant at the .05 level, indicating that males and females are unlikely to report similar levels of involvement in the behaviors included in this study. In this sample, female respondents reported lower levels of involvement in the behaviors than did males. Twenty-four percent of the females surveyed reported low involvement (0-6) in criminal, deviant, or risk-taking behaviors and 14.2% reported extensive involvement (15-29). Conversely, only 10.4% of the males in the sample reported low involvement and 39% reported high levels of involvement in criminal, deviant, and risk-taking behaviors.

Table 10: Total Behaviors Index Score by Gender

	Female	Male	Total
0-6 behavior score	(56)24.0%	(19)10.4%	(75)18.1%
7-10 behavior score	(85)36.5%	(47)25.8%	(132)31.8%
11-14 behavior score	(59)25.3%	(45)24.7%	(104)25.1%
15-29 behavior score	(33)14.2%	(71)39.0%	(104)25.1%
Total	(233)100%	(182)100%	(415)100%
Chi-Square=39.29*			
df=3			
*p<.05			

Table 11 presents the difference in reported involvement in the criminal, deviant, and risk-taking behaviors on the survey by racial category (white vs. non-white). For this measure of

¹⁴ Ear Piercing was asked on the questionnaire primarily as a way to distinguish this form of piercing from body piercing to respondents.

association, the chi-square statistic is 5.28, which is not significant at the .05 level. Therefore, the null hypothesis stating no differences in reported behaviors between whites and non-whites can not be rejected.

Table 11: Total Behaviors Index Score by Race (white vs. non-white)

	White	Non-white	Total
0-6 behavior score	(63)17.1%	(12)26.1%	(75)18.1%
7-10 behavior score	(115)31.2%	(17)37.0%	(132)31.8%
11-14 behavior score	(98)26.6%	(6)13.0%	(104)25.1%
15-29 behavior score	(93)25.2%	(11)23.9%	(104)25.1%
Total	(369)100%	(46)100%	(415)100%
Chi-Square=5.28 df=3 *p<.05			

Finally, Table 12 shows the differences in reported behaviors for respondents' parental education level. As with race, the relationship is not significant at the .05 level and the association is weak, with a chi-square statistic of 9.76.

Table 12: Total Behaviors Index Score by Parental Education

	Both HS or less	One parent with a BA	Both parents with a BA	One parent beyond BA	Total
0-6 behavior score	(14)19.2%	(29)17.1%	(11)25.6%	(21)16.3%	(75)18.1%
7-10 behavior score	(26)35.6%	(61)35.9%	(12)27.9%	(33)25.6%	(132)31.8%
11-14 behavior score	(14)19.2%	(37)21.8%	(12)27.9%	(41)31.8%	(104)25.1%
15-29 behavior score	(19)26.0%	(43)25.3%	(8)18.6%	(34)26.4%	(104)25.1%
Total	(73)100%	(170)100%	(43)100%	(129)100%	(415)100%
Chi-Square=9.76 df=9 *p<.05					

Regression Analysis

Analysis of the three behavior indices is presented in Tables 13 through 15. (*See Appendix D for analysis of all behaviors individually.*) The greatest degree of explanation is found when the dependent variable is deviance, followed by crime, and then risk-taking as seen in the R-square values in Tables 13, 14, and 15. Furthermore, gender is the strongest control variable in all prediction equations. However, parental education as a control variable does have a significant effect in the equations for deviance and risk-taking indices. Race has no significant effect on any of the equations for the three behavior indices.

Table 13 presents four prediction equations. Each equation in Table 13 presents an added variable to the prediction model for reported involvement in criminal behaviors. The R-square in equation 1 of Table 13 indicates that only 14.1% of the variance in criminal behaviors can be explained by self-control alone. The y-intercept for this equation is 9.075, which indicates that a respondent with a self-control score equal to zero (which is not possible) would have had a 9.075 on the criminal involvement index. The regression coefficient (b) is the amount of change in

self-control for each unit change in criminal behaviors. The beta coefficient is a standardized measure of the association between crime and self-control; therefore, each standard unit increase in self-control results in a .376 unit reduction in crime.

Equation 2 of Table 13 presents the coefficients if gender is taken into account. More of the variance in reported criminal behavior is accounted for by the addition of gender in the equation ($R^2=.176$). If gender is controlled, less predictive power is gained from the self-control variable as seen in the -.081 regression coefficient (as compared to -.090 in equation 1).

Alternatively, gender does have strong predictive power when self-control is held constant. Without self-control as a factor, males (coded 0) are more likely to be involved in criminal behaviors, as indicated by the -.595 coefficient in equation 2 of Table 13. Hence, a female respondent with the same self-control score as a male would likely report a .595 lower criminal involvement index score.

Equation 4 of Table 13 show that race and parental education level add little to the ability of self-control to predict criminal behaviors ($b=-.081$). The ability of the model, with all variables taken into account, to explain criminal behaviors is relatively unchanged from the model with only self-control and gender.

Table 13: OLS Regression Analysis of Criminal Behaviors on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.090*	-.367	-.081*	-.333	-.081*	-.338	-.081*	-.336
Gender (Female=1)	--	--	-.595*	-.191	-.595*	-.190	-.600*	-.192
Race (White=1)	--	--	--	--	-.329	-.067	-.329	-.067
Parental Education	--	--	--	--	--	--	-.067	-.049
y-intercept	9.075		8.747		8.855		8.999	
R^2	.141*		.176*		.18*		.183*	

* $p < .05$

Table 14 presents analysis of reported involvement in deviant behaviors by gender, race, and parental education. Self-control alone explains 16.1% of the variance in the sample population for reported involvement in deviance (17.091 compared to 9.075). The y-intercept in all four equations of Table 14 shows deviance to be more common than criminal behaviors. As with criminal behaviors, gender has the strongest predictive power in the three equations; the regression coefficients is equal to -1.4 (rounded) in all equations. Hence, no matter what other information is added to the equation, females reported 1.4 points lower on the deviance index than males.

Unlike equation 4 in Table 13 (criminal behaviors), parental education does have a significant effect in prediction of deviance. If self-control, gender, and race are controlled, each increase in parental education equals a .267 increase in reported deviant behavior incidents.

Table 14: OLS Regression Analysis of Deviant Behaviors on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.193*	-.412	-.169*	-.361	-.170*	-.363	-.172*	-.367
Gender (Female=1)	--	--	-1.383*	-.227	-1.383*	-.227	-1.361*	-.223
Race (White=1)	--	--	--	--	-.311	-.032	-.312	-.032
Parental Education	--	--	--	--	--	--	.267*	.097
y-intercept	17.091		16.327		16.430		15.867	
R ²	.169*		.218*		.219*		.229*	

p<.05

Table 15 presents analysis of reported involvement in risk-taking activities. Self-control is a weak predictor of involvement in risk-taking behaviors in comparison to criminal and deviant behaviors. As more control variables are added to the equation, the ability to explain

variance in the sample improves only slightly. Again the impact of gender is significant, as seen in equations 2 through 4 in Table 15. As with criminal and deviant behaviors, males are more likely to report involvement in risk-taking activities than females, but here, the difference is much larger.

Table 15: OLS Regression Analysis of Risk-taking Behaviors on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.130*	-.32	-.118*	-.291	-.118*	-.291	-.117*	-.288
Gender (Female=1)	--	--	-.711*	-.135	-.711*	-.135	-.722*	-.137
Race (White=1)	--	--	--	--	-.079	-.010	-.079	-.009
Parental Education	--	--	--	--	--	--	-.136	-.057
y-intercept	11.746		11.354		11.38		11.667	
R ²	.103*		.12*		.12*		.123*	

p<.05

Tables 16 through 22 present analyses of the three behavior indices, regressed on individual sub-scale components, controlling for gender, race, and parental education. Table 16 presents the analysis with the impulsivity sub-scale, Table 17 presents the simple tasks sub-scale, Table 18 presents the risk-seeking sub-scale, Table 19 presents the physical activities sub-scale, Table 20 present the self-centeredness sub-scale, and Table 21 presents analysis for the temper sub-scale as the dependent measure. Finally, Table 22 presents the regression model for all sub-components and control variables for each of the behavior indices.

Table 16 shows that the impulsivity sub-scale has the strongest impact for self-reported involvement in deviance as opposed to criminal or risk-taking behaviors. All variables in the equation explain 23.3% of the variance in deviance, compared to 13.7% of the variance in

criminal behaviors and 13.1% of the variance in risk-taking behaviors. Furthermore, the coefficients for the impulsivity sub-scale are higher for all three behaviors than the coefficients for the self-control scale in its entirety.

Table 16: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on the Impulsivity Sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Impulsivity sub-scale	-.191*	-.251	-.546*	-.368	-.383*	-.299
Gender (Female=1)	-.770*	-.246	-1.675*	-.274	-.930*	-.176
Race (White=1)	-.393	-.080	-.576	-.060	-.270	-.032
Parental Education	-.060	-.043	.304*	.111	-.109	-.046
y-intercept	6.062		11.1		8.571	
R ²	.137*		.233*		.131*	

p<.05

Table 17 indicates that controlling for gender, race, and parental education, the simple tasks sub-scale does not provide much explanation of involvement in criminal, deviant, and risk-taking behavior. The coefficient for simple tasks is statistically significant for deviance but not for criminal or risk-taking behaviors; gender is the only variable that has a significant impact on predicting criminal and risk-taking behaviors.

Table 17: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on the Simple Tasks Sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Simple Tasks sub-scale	-.043	-.051	-.157*	-.096	.021	.015
Gender (Female=1)	-.847*	-.271	-1.904*	-.312	-1.059*	-.201
Race (White=1)	-.255	-.052	-.211	-.022	.01	.012
Parental Education	-.083	-.059	.242	.088	-.167	-.070
y-intercept	4.451		6.857		4.164	
R ²	.079*		.111*		.045*	

p<.05

Table 18 presents the three equations for criminal, deviant, and risk-taking behaviors with only the risk-seeking component of the self-control scale as the independent variable. As with the analysis presented above, risk-seeking explains the greatest degree of variance for deviant behaviors. However, the beta coefficients for risk-seeking in the crime and deviance equations are somewhat stronger than for risk-taking.

Table 18: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on the Risk-seeking sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Risk seeking sub-scale	-.273*	-.317	-.550*	-.328	-.368*	-.254
Gender (Female=1)	-.587*	-.188	-1.362*	-.223	-.727*	-.138
Race (White=1)	-.058	-.012	.247	.026	.297	.036
Parental Education	-.112	-.080	.177	.064	-.197	-.083
y-intercept	6.545		10.32		7.854	
R ²	.169*		.201*		.104*	

p<.05

Table 19 presents analysis of the three behavior indices when the physical activities sub-scale is the independent variable, controlling for gender, race, and parental education. Again, gender has the strongest impact on behavior in all of the equations, and it has the strongest effect on deviant behaviors.

Table 19: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on the Physical Activities Sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Physical Activities sub-scale	-.100*	-.128	-.182*	-.119	-.329*	-.249
Gender (Female=1)	-.762*	-.244	-1.731*	-.284	-.821*	-.156
Race (White=1)	-.195	-.039	-.033	-.003	.158	.019
Parental Education	-.084	-.060	.231	.084	-.153	-.065
y-intercept	4.805		6.641		7.090	
R ²	.092*		.115*		.105*	

p<.05

In Table 20, criminal, deviant, and risk-taking behavior indices are regressed on self-centeredness, when gender, race, and parental education are control variables. The sub-scale variable is significant for criminal and risk-taking behaviors only when gender, race, and parental education are controlled. Gender is significantly related to all three behavior indices when self-centeredness, race, and parental education are controlled. However, only 4.5% of the variance is explained by the model for risk-taking, whereas 8.6% of the variance is explained by the model for crime, and 10.5% is explained for both deviant and deviant behaviors.

Table 20: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on the Self-centeredness Sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Self-centeredness sub-scale	-.083*	-.102	-.097	-.061	-.002	-.001
Gender (Female=1)	-.746*	-.239	-1.761*	-.289	-1.066*	-.202
Race (White=1)	-.235	-.048	-.095	-.010	-.082	-.010
Parental Education	-.085	-.060	.229	.084	-.164	-.069
y-intercept	4.987		6.316		4.372	
R ²	.086*		.105*		.045*	

p<.05

Table 21 presents the equations when temper is the independent variable. Again, gender has a strong impact on all three indices when control variables are entered. However, as with many of the other sub-scale components, over 89% of the variance is left unexplained for by the variables in the equation.

Table 21: OLS Regression Analysis of Criminal, Deviance, and Risk-taking Behaviors on Temper Sub-scale, Gender, Race, and Parental Education

	Crime		Deviance		Risk-taking	
	b	Beta	b	Beta	b	Beta
Temper sub-scale	-.150*	.221	-.264*	.200	-.147*	.129
Gender (Female=1)	-.823*	-.264	-1.843*	-.302	-1.051*	-.199
Race (White=1)	-.248	-.050	-.129	-.013	.051	.006
Parental Education	-.086	-.062	.228	.083	-.163	-.069
y-intercept	5.597		7.996		5.981	
R ²	.125*		.141*		.061*	

p<.05

Table 22 presents analysis of the regression models for all six sub-components of the self-control scale and the three control variables for the three behavior indices. This analysis presents the amount of impact each individual component has on crime, deviance, and risk-taking when controlling for all the other components along with gender, SES, and race. As with analyses presented above, impulsivity and risk-seeking are most significantly related to all three behavior indices, while temper is significantly related to crime, and deviance and physical activities is significantly related to risk-taking. However, the physical activities component did lose significance as a predictor of criminal behaviors when all other components are controlled. Additionally, beta values did decrease for all components.

Table 22: OLS Regression Analysis of Criminal, Deviant, and Risk-taking Behaviors on Temper, Simple Tasks, Risk-seeking, Physical Activities, Self-centeredness, Temper Sub-scales, Gender, Race, and Parental Education

	Criminal		Deviant		Risk-taking	
	b	Beta	b	Beta	b	Beta
Impulse	-.087*	-.115	-.392*	-.265	-.318*	-.248
Simple Task	.003	.003	-.006	-.004	.116	.082
Risk-seeking	-.199*	-.232	-.317*	-.189	-.158*	-.109
Physical Activities	-.042	-.054	-.051	-.034	-.239*	-.181
Self-centeredness	-.026	-.032	.039	.024	.080	.058
Temper	-.100*	-.147	-.158*	-.119	-.074	-.065
Gender (Female=1)	-.554*	-.177	-1.429*	-.234	-.683*	-.129
Race (White=1)	-.195	-.040	-.267	-.028	.04	.005
Parental Education	-.09	-.064	.256*	.094	-.139	-.059
Y-intercept	8.512		14.133		9.877	
Adjusted R ²	.197*		.264*		.177*	

p<.05

Discussion

Gottfredson and Hirschi's (1990) general theory of crime represents a pivotal point in the field of criminology. Is it possible for theories of crime to be all-inclusive? Do we need individual theories for individual behaviors and types of offenders? Addressing and testing current theories on either side of the debate is essential to reaching a consensus.

The assumptions made by Gottfredson and Hirschi's theory are broad and challenging. Among the most important challenges is the conceptual framework of self-control as an independent variable. What is the best way to determine who has low self-control? What are the acceptable and unacceptable levels of self-control? Another important issue to be addressed in regard to this theory is the role of exogenous variables such as race, gender, and socioeconomic status. If alternative variables help self-control to explain behaviors, at what point does the

theory lose strength and validity? If these or other variables do help to explain crime, can the theory be modified to include these variables in the conceptual framework? This dissertation provides a test of these two important elements of the general theory of crime.

Analysis of 15 different behaviors, combined into 3 separate indices (criminal, deviant, and risk-taking) is presented as a test of the low self-control theory. Findings from this dissertation show low self-control to have a significant impact on criminal, deviant, and risk-taking behaviors; however, the strength of the association between self-control and criminal, deviant, and risk-taking behaviors is not overwhelmingly strong. By itself, low self-control explains at most 17% of the variance in behavior (deviant) and as little as 10% (risk-taking).

Analysis of individual behaviors and self-control shows variation in ability of self-control to predict involvement in some behaviors. (*See Appendix D for analysis of individual behaviors.*) For example, controlling for gender, race, and parental education, reported level of self-control using the Grasmick et al. (1993) scale, decreases significantly as involvement in all behaviors increase, except sky diving.¹⁵ However, the amount of change is weak for many of the behaviors, but is particularly strong for alcohol (beta = $-.328$), sexual intercourse with someone known to you for less than 24 hours (beta = $-.267$), destruction of property (beta = $-.316$), participation in physical fights (beta = $-.249$), taking property not belonging to you (beta = $-.253$), and not wearing a seat belt (beta = $-.215$). Conversely, self-control and viewing pornography were significantly related when controlling for gender, race, and parental education, but is considerably weaker than other behaviors investigated in this dissertation (beta = $-.090$).

Gender, parental education, and race are used as control variables in all analyses. Gender has a significant impact on prediction of criminal, deviant, and risk-taking behaviors. Gender

¹⁵ Sky diving does follow the same pattern, and it is not significant at the .05 level. Very few respondents reported involvement in this behavior.

has the strongest predictive power in explaining criminal behaviors (beta = $-.595$), but it is not as strongly related (but still statistically significant) to involvement in deviance (beta = $-.227$) and risk-taking (beta = $-.135$) behaviors.

As parental education and race are entered in the prediction equation as control variables, the role of self-control in explaining crime, deviance, and risk-taking diminishes (a beta reduction of $.031$ for crime; $.036$ for deviance; and $.032$ for risk-taking). These findings suggest that although self-control, when controlling for gender, race, and SES is significantly related to involvement in crime, deviant, and risk-taking behaviors, other factors (gender) remain important in predicting who will engage in these behaviors.

Additionally, analysis is presented on the sub-components of the self-control scale when gender, race, and parental education are controlled. The impulsivity and risk-seeking sub-components are most significantly related to criminal, deviant, and risk-taking behaviors. The self-centeredness and simple tasks sub-scale are the weakest of all the components in predicting behaviors. As with the self-control scale in its entirety, analysis of the sub-components of self-control reveal gender to be significantly related to criminal, deviant, and risk-taking behaviors when self-control, race, and parental education are controlled.

Therefore, hypothesis one stating that self-control will be positively associated with involvement in criminal, deviant, and risk taking behaviors is supported. This research also provides support for hypothesis two stating that self-control will continue to have a significant explanation of crime, deviance, and risk-taking behaviors when controlling for race, gender, and parental education. However, the analysis presented in this dissertation shows that entering all variables into the equation leaves a good deal of the variation unexplained. Both self-control and gender are important factors in predicting self-reported involvement in criminal, deviant, and

risk-taking behaviors. Although race and parental education are not significantly related to crime (when controlling for gender and self-control), a sample with more racial and SES variance could produce alternative findings.

These findings add to previous fault-finding literature on low self-control theory. For example, LaGrange and Silverman (1999:62) found that gender “remains a significant predictor of differences in general delinquency, property offenses, and violence,” even when other variables are controlled. Likewise, the findings in this dissertation provide more support for Grasmick et al.’s (1993) finding of a modest predictive power between low self-control and criminal behaviors, and Arneklev et al.’s (1993) finding of a low association between low self-control and non-criminal, deviant behaviors.

Additionally, the data in this dissertation provide limited support for the self-control scale constructed by Grasmick et al. (1993). The impulsivity sub-scale has a higher coefficient for all three behavior indices than does the self-control scale in its entirety. This indicates that the impulsivity items are capable of telling more about who will engage in crime and deviance than all 24 items together. Again, this echoes prior research of imperfections with the Grasmick et al. scale (Grasmick et al. 1993; Arneklev et al. 1993; Wood et al. 1997).

All other sub-scale components (besides impulsivity) are weaker than the self-control scale in its entirety. However, all components are significantly related to criminal, deviant, and risk-taking behaviors when controlling for gender, race, and parental education, with the exception of simple tasks for crime and risk-taking, self-centeredness for deviance and risk-taking behaviors, and physical activities for deviance. Furthermore, as with the self-control scale in its entirety, gender is the only control variable that is significantly related to criminal, deviant, and risk-taking behaviors.

The general theory of crime hypothesizes criminal and deviant behaviors to be strongly correlated with low self-control. This dissertation provides evidence of gender being a contributing factor in the explanation of criminal and deviant behaviors when self-control is controlled. Tests of this hypothesis have been inconclusive. What is the acceptable level of explanation? Can other variables such as gender, race, and SES have a significant impact on behaviors for the theory to remain salient? These questions remain to be answered by theorists. The ultimate conclusion from the data presented here is that self-control does play a part in crime, deviance, and risk-taking behaviors. However, it is a stronger predictor for crime and deviance than risk-taking behaviors. Furthermore, gender and SES cannot be eliminated as possible explanations for involvement in all three types of behaviors.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary of the Study and Findings

Michael Gottfredson and Travis Hirschi's (1990) general theory of crime has received a substantial amount of attention in recent years. Consensus on the best measurement methods and variables to include has not been reached. Ultimately, there have been significant supportive findings paving the way for continued research and investigation (Akers 1997). However, there is still much to be done to identify the breadth of the theory.

This study has attempted to broaden the scope of the literature on the general theory of crime by looking at behaviors which are noticeably absent from the literature, namely body modification and adventurous behaviors such as rock climbing and sky diving. Additionally, this dissertation has attempted to examine the impact of control variables (gender, race, and socioeconomic status) on the association between self-control and deviant behaviors.

Data for the study were gathered from college students and pertain to involvement in recent (previous 6 months) acts of crime, deviance, and risk-taking behaviors. The sample consists of 415 college students who were racially homogeneous, but with some variation in regards to gender and parental educational level.

The findings from this research reveal self-control, as measured by the Grasmick et al.'s (1993) scale, does hold some predictive power in explaining crime, deviance, and risk-taking behaviors. However, there does not tend to be a consistent level of explained variance across the three behavior patterns that can be accounted for by self-control alone. Gender, as a control

variable, has just as strong (or stronger) of an impact on criminal, deviant, and risk-taking behaviors. Results from this dissertation are consistent with prior research, particularly Arneklev et al.'s (1993) conclusions of a weaker association between self-control and non-criminal behaviors. Additionally, Wood et al.'s (1993) and LaGrange and Silverman's (1999) findings of a significance controlling effect of gender on self-control and criminal and deviant behaviors is supported by this dissertation.

Analysis of the individual self-control components reveals a need to re-evaluate the multi-dimensional aspect of the self-control construct. From the analysis presented here, some of the self-control variable components hold more promise for explaining crime and deviance than others. In particular, impulsivity seems to be the strongest component of self-control across the three behavior indices. At the same time, the physical activities, simple tasks, and self-centeredness sub-components of the self-control scale do not significantly predict behaviors. Whether this is a construct validity problem with the self-control variable or the result of sampling is to be determined by future research.

Implications for Theories of Crime and Deviance

Upon conclusion of the analysis in this dissertation, it is important to point out that there may be significant considerations for future directions of research on the general theory of crime. First, it would appear as though criminologists cannot yet dispel the gender variable in studying crime and deviance. As far as self-reported involvement in crime and deviance is concerned, males are more likely to report involvement in more varieties of unconventional behaviors.

The impact of gender is strong enough to warrant further investigation into the possible gender differences in self-control as well as criminal, deviant, and risk-taking behaviors. A possible integration of Hagen et al.'s (1985) power-control theory and Gottfredson and Hirschi's (1990) low self-control theory could be plausible. Power-control theory hypothesizes gender to play a stronger role in delinquency among traditional families where power is more controlled by males. Egalitarian families are characterized by more equal distribution of power and more equal levels of delinquency among males and females. Much of the operationalization of power structure in families is viewed in terms of the role of husbands and wives inside as well as outside the family unit.

Gottfredson and Hirschi (1990) discuss the differences in socialization of young children by gender and the resulting levels of self-control that is developed. Hagen et al. (1985) suggest that parents in traditional families supervise and discipline children differently resulting in different levels of freedom to commit delinquency. Perhaps the level of self-control one possesses is directly related to factors identified by the power-control theory such as the occupational role of the head(s) of the household. Although the thesis of social class and gender being positively related to crime and deviance or level of self-control is not supported by the analysis presented here, possible modifications to the study design could provide support for this hypothesis.

Future research attempting to replicate the design of Gibbs et al. (1998), where gender differences in parental monitoring and supervision were investigated would be recommended. Additionally, more precise measures of SES would be recommended for such research endeavors. Factors such as parental occupations, reliable measures of family income, as well as parental education would be advisable. These measures, along with carefully operationalized

measures of parental socialization/supervision techniques, could serve as a pathway to an integrated general theory of crime and deviance.

Next, the operational definition of self-control is still in need of research and investigation. Consistent with the findings of Wood et al. (1993), the findings presented in this dissertation indicate that some components of the self-control scale do not provide as much predictive power in explaining crime and deviance and are not significant at the .05 level. The fact that impulsivity was the strongest predictor of all the sub-scale components, and the fact that it was the first to appear on the survey instrument, could signal a potential problem of respondent fatigue or diminished interest in the questions. Future research using this scale should attempt to further modify the structure of the scale in an attempt to test this proposition.

As has been suggested by others (Arneklev et al. 1993), possible operationalizations of self-control may be to combine elements of attitudinal scales and visible behaviors or other indicators of self-control. With a sample of college students, questions such as grade point average in previous semesters, number of classes skipped without justified reason, and number of hours spent studying could be useful to identify low self-control. Undoubtedly, the method of testing self-control is one area of this theory that still is in need of investigation and operationalization.

Finally, one of the most salient findings from this dissertation is the relation of involvement in risk-taking behaviors to involvement in criminal behaviors. These associations as a theoretical avenue to the explanation of crime have been examined in the literature with some support (Wood et al. 1997). Drawing on Sykes and Matza's (1960) idea of subterranean values of the delinquent subculture, Wood et al. (1993;1997) builds a case for the ability of a adventure/sensation seeking/risk involvement variable to be the underlying cause of crime.

These ideologies suggest that individuals who engage in crime have a motivation toward adventure and risk-taking, which is the major contributing factor for criminal behaviors. Since society enforces pressures against criminal activities, those who engage in the criminal lifestyle are said to be living on the edge. The strong correlation between risk-taking and crime in this study ($R^2=.424$) provides support for this argument.

Limitations of the Study

With the consideration of the above statements, it is important to discuss limitations to this study. First, the results presented in this dissertation are taken from a non-random and non-representative sample. Any attempt to generalize the findings to the larger population should be done cautiously. However, the use of sub-samples from different institutions, and classes from different disciplines, does add some degree of representativeness to the sample and the findings. Furthermore, there are examples in the literature on the general theory of crime that utilize similar sample designs as the one presented here (Arneklev et al. 1998; Gibbs et al. 1998; Wood et al. 1993).

Another limitation of this study is the lack of racial diversity in the sample. This factor is likely to be critical in the explanation of why race and SES do not significantly explain criminal, deviant, or risk-taking behaviors. Hence, simply because gender is the only control variable to show a significant relationship to behaviors does not mean that other variables (for example race and SES) should not continue to be used in evaluating the general theory of crime. Additionally, evidence of the lack of diversity and the possible limiting effects it has on results is exemplified

by the lower scale reliability for non-whites and respondents with parents below college level education.

Another explanation of the impact gender has on involvement in crime and deviance could stem from the homogeneity of the sample. The fact that almost all of the respondents were between the ages of 18 and 24 could have an impact on the gender variable. If the sample had some variation on age and race as well as gender, results for gender in this study may have been different.

As mentioned previously, this test only represents an examination of behaviors that are considered criminal or deviant to lesser degrees. The behaviors chosen for this study do represent a narrow range of behaviors. Principally, this research investigates the association between the self-control and less serious offenses in comparison to offenses such as murder, rape, tax evasion, or embezzlement.

Additional limitations exist in the way the behavior indices were conceptualized. It may be that different combinations of behaviors would produce different results. For example, there may be categorical differences between leaving one's car unlocked in an urban environment and sky diving, which could prove to be problematic when these two are combined in analysis. However, many of the tests of this theory (Grasmick et al. 1993; Arneklev 1993; Evans et al. 1993; Benson and Moore 1992; Polakowski 1994) have also used composites of behaviors. Researchers must choose between utilizing statistical analysis to form indices or prima facie conceptualizations of behaviors. An alternative would be to examine each behavior individually to test the general theory of crime. These situations pose problems of interpretation and questions as to how the results may look with the numerous combinations that could be made.

Further problems exist with the methodological decision of totaling behaviors to give respondents an overall composite number representing involvement in behaviors. In using this method, some of the intricacy in offending is lost. For example, a person who reported involvement in three behaviors one time would receive the same composite score as a person who reported involvement in only one behavior three or more times.

Finally, the use of an attitudinal scale to represent self-control is controversial. The circular reasoning between self-control and criminal behaviors becomes troublesome for any research attempting to test this theory (Akers 1992). Asking respondents about their involvement in behaviors to help explain the behaviors they have engaged in is tautological. Ultimately, the true test of this theory may be whether the problems of conceptualizing self-control can be overcome.

Gottfredson and Hirschi only point out what factors manifest low self-control in the individual. Researchers only have what they see as signs of low self-control as opposed to a clear, well-defined operationalization of self-control (high or low). The definition of self-control is crucial to the development of empirical validations. Without good conceptualization of what self-control is, Gottfredson and Hirschi's theory will continue to be the subject of critical evaluation.

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APPENDIX A
Coding and the Survey Instrument

Gender	0=Male 1=Female
Parental Education	1=Mother and Father have High School Degree or less 2=At least one parent with a Bachelor's degree Associates degree or some college education 3=Both parents with a Bachelor's degree 4=One parent with educational experience beyond Bachelor's
Race	0=White 1=Non-white
Self-control Scale	
Impulsivity	
1. I often act on the spur of the moment without stopping to think.	1=Stongly Agree 2=Agree 3=Disagree 4=Stongly Disagree
2. I devote much thought and effort to preparing for the future.	1=Strongly Disagree 2=Disagree 3=Agree 4=Stronlyl Agree
3. I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	1=Stongly Agree 2=Agree 3=Disagree 4=Stongly Disagree
4. I am more concerned with what happens to me in the long run rather than the short run.	1=Stongly Agree 2=Agree 3=Disagree 4=Stongly Disagree
Simple Tasks	
5. I frequently try to seek out projects that I know will be difficult	1=Strongly Disagree 2=Disagree

- 3=Agree
4=Strongly Agree
6. When things get complicated, I tend to quit or withdraw
1=Strongly Agree
2=Agree
3=Disagree
4=Strongly Disagree
7. The things in life that are easiest to do bring me the most pleasure.
1=Strongly Agree
2=Agree
3=Disagree
4=Strongly Disagree
8. I like really hard tasks that stretch my abilities to the limits.
1=Strongly Disagree
2=Disagree
3=Agree
4=Strongly Agree

Risk-taking

9. I feel little need to test myself every now and then by doing something a little risky.
1=Strongly Disagree
2=Disagree
3=Agree
4=Strongly Agree
10. Sometimes I will take a risk just for the fun of it.
1=Strongly Agree
2=Agree
3=Disagree
4=Strongly Disagree
11. I find no excitement in doing things for which I might get in trouble.
1=Strongly Disagree
2=Disagree
3=Agree
4=Strongly Agree
12. Excitement and adventure are more important to me than security.
1=Strongly Agree
2=Agree
3=Disagree
4=Strongly Disagree

Physical Activities

13. If I had a choice, I would almost always rather do something mental than something physical.
1=Strongly Disagree
2=Disagree
3=Agree
4=Strongly Agree

14. I almost always feel better with I am on the move than when I am sitting and thinking.

- 1=Stongly Agree
- 2=Agree
- 3=Disagree
- 4=Stongly Disagree

15. I like to read or contemplate ideas more than I like to get out and do things.

- 1=Strongly Disagree
- 2=Disagree
- 3=Agree
- 4=Stronlyl Agree

16. I seem to have more energy and greater need for activity than most other people my age.

- 1=Stongly Agree
- 2=Agree
- 3=Disagree
- 4=Stongly Disagree

Self-centeredness

17. I try to look out for others first, even if it means making things difficult for myself.

- 1=Strongly Disagree
- 2=Disagree
- 3=Agree
- 4=Stronlyl Agree

18. I'm very sympathetic to other people when they are having problems.

- 1=Strongly Disagree
- 2=Disagree
- 3=Agree
- 4=Stronlyl Agree

19. If things I do upset people, it's their problem not mine.

- 1=Stongly Agree
- 2=Agree
- 3=Disagree
- 4=Stongly Disagree

20. I will try to get the things I want even when I know it's causing problems for other people.

- 1=Stongly Agree
- 2=Agree
- 3=Disagree
- 4=Stongly Disagree

Temper

21. I don't lose my temper very easily.

- 1=Strongly Disagree
- 2=Disagree
- 3=Agree
- 4=Stronlyl Agree

22. Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry.

- 1=Strongly Agree
- 2=Agree
- 3=Disagree
- 4=Strongly Disagree

23. When I'm really angry, other people better stay away from me.

- 1=Strongly Agree
- 2=Agree
- 3=Disagree
- 4=Strongly Disagree

24. When I have a serious disagreement with someone, I can usually talk calmly about it without getting upset.

- 1=Strongly Disagree
- 2=Disagree
- 3=Agree
- 4=Strongly Agree

Alcohol Consumption

- 0=None at all
- 1=1 to 5 times
- 2=6 to 10 times
- 3=11 times or more

Cigarette Smoking

- 0=None at all
- 1=Occasionally
- 2=Several times a week
- 3=Daily

Ear Piercing

- 0=None at all
- 1=1 piercing (1 or both ears)
- 2=2 to 3 additional piercings
- 3=4 or more additional piercings

Body Piercing

- 0=None at all
- 1=1 piercing
- 2=2 to 3 additional, separate piercings
- 3=4 or more additional, separate piercings

Tattoos

- 0=None at all
- 1=1 tattoo
- 2=2 to 3 separate tattoos
- 3=4 or more separate tattoos

Sexual Intercourse

- 0=None at all
- 1=1 to 2 different encounters
- 2=3 to 5 different encounters

	3=6 or more different encounters
Viewed Pornographic Materials	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Destruction of Property	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Sky diving	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Rock climbing	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Fighting	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Speeding	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Left Car Unlocked in an Urban Environment	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Taken Property from another with permission	0=None at all 1=1 to 2 times 2=3 to 5 times 3=6 or more times
Ridden Motorcycle without a Helmet	0=None at all

1=1 to 2 times
2=3 to 5 times
3=6 or more times

Not Worn a Seatbelt

0=None at all
1=1 to 2 times
2=3 to 5 times
3=6 or more times

Criminal behavior index

destruction of property 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
taking property 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
speeding 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times

Deviance behavior index

alcohol 0=None at all; 1=1 to 5 times; 2=6 to 10 times; 3=11 times or more
cigarette 0=None at all; 1=Occasionally; 2=Several times a week; 3=Daily
body piercing 0=None at all; 1=1 piercing; 2=2 to 3 additional, separate piercings; 3=4 or more additional, separate piercings
tattoos 0=None at all; 1=1 tattoo; 2=2 to 3 separate tattoos; 3=4 or more separate tattoos
sexual intercourse with a stranger 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
pornography 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times

Risk-taking behavior index

rock-climbing 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
skydiving 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
left car unlocked 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
not worn a helmet 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times
not worn a seatbelt 0=None at all; 1=1 to 2 times; 2=3 to 5 times; 3=6 or more times

Informed Consent

Title: College student behaviors in contemporary society.

Investigator: John McMullen

The purpose of this research project is to find individual differences in behavior patterns. Therefore, this research project will be asking you to volunteer information about your engagement in various types of everyday behavior over the past 12 months.

Again, all you are asked to do is complete the attached survey with no other obligations. There is no risk of danger or harm to you, but if you feel threatened by this research project, you are not obligated to participate. Since there is little risk, there is also little benefit to you in this research. You should know that your participation does not guarantee any benefit to you, and no promise is being made to encourage you to participate.

This survey is completely anonymous, there will be no way to identify you or your answers by the researcher or anyone else. You will be asked to sign this statement if you agree to participate, but that will be detached from the survey before it is returned to the researcher. **You are not to put your name or identification of any type anywhere on the survey.**

There is no compensation, monetary or otherwise, for participating in this study. Again, your participation is completely voluntary. You reserve the right to refuse to participate, withdraw at any time, or not answer questions you feel make you uncomfortable. There will be no penalty incurred for withdraw or partial participation.

This research project has been approved by the Institutional Review Board for Research Involving Human Subjects at Virginia Polytechnic Institute and State University.

If you voluntarily agree to participate in this research project, your responsibility is simply to sign below and complete the attached survey.

I have read and understand the Informed Consent conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent for participation in this project.

If I participate, I may withdraw at any time without penalty. I agree to abide by the rules of this project.

Signature	Date
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Should you have any questions about this research or its conduct, you may contact:

John McMullen Investigator	(540)376-4538
-------------------------------	---------------

Donald Shoemaker Faculty Advisor	(540)231-6046
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H.T. Hurd Chair IRB Research Division	(540)231-5281
--	---------------

1. Age _____
2. Gender Male Female
3. Grade Level Freshman Sophomore Junior Senior Other
4. Mother's highest completed education level
 - less than High School Diploma
 - High School Diploma
 - Some College or Associates Degree
 - Bachelor's Degree
 - beyond Bachelor's Degree
5. Father's highest completed education level
 - less than High School Diploma
 - High School Diploma
 - Some College or Associates Degree
 - Bachelor's Degree
 - beyond Bachelor's Degree
6. Family income (if parents are divorced, combine incomes or use the parental income you feel is most accurate and representative of the environment you grew up in)
 - less than 10,000
 - 10,000 to 24,999
 - 25,000 to 39,999
 - 40,000 to 54,999
 - 55,000 to 69,999
 - 70,000 and above
7. Race/ethnicity
 - White
 - African-American
 - Hispanic
 - Asian American
 - Other
8. Which of the following best characterizes the area where you spent the majority of your childhood and adolescent years (suburban areas should utilize the entire Metropolitan area population)
 - less than 2,500 population
 - 2,500 to 5,000 population
 - 5,001 to 25,000 population
 - 25,001 to 99,999 population
 - 100,000 and above

9. For each of the following, please check the **ONE BOX** that represents your personality:

		Strongly Agree	Agree	Disagree	Strongly Disagree
a.	I often act on the spur of the moment without stopping to think	[]	[]	[]	[]
b.	I devote much thought and effort to preparing for the future	[]	[]	[]	[]
c.	I often do whatever brings me pleasure here and now, even at the cost of some distance goal	[]	[]	[]	[]
d.	I am more concerned with what happens to me in the long run rather than in the short run	[]	[]	[]	[]
e.	I frequently try to seek out projects that I know will be difficult	[]	[]	[]	[]
f.	When things get complicated, I tend to quit or withdraw	[]	[]	[]	[]
g.	The things in life that are easiest to do bring me the most pleasure	[]	[]	[]	[]
h.	I like really hard tasks that stretch my abilities to the limit	[]	[]	[]	[]
i.	I feel little need to test myself every now and then by doing something a little risky	[]	[]	[]	[]
j.	Sometimes I will take a risk just for the fun of it	[]	[]	[]	[]
k.	I find no excitement in doing things for which I might get in trouble	[]	[]	[]	[]
l.	Excitement and adventure are more important to me than security	[]	[]	[]	[]
m.	If I had a choice, I would almost always rather do something mental than something physical	[]	[]	[]	[]
n.	I almost always feel better when I am on the move than when I am sitting and thinking	[]	[]	[]	[]
o.	I like to read or contemplate ideas more than I like to get out and do things	[]	[]	[]	[]
p.	I seem to have more energy and a greater need for activity than most other people my age	[]	[]	[]	[]

		Strongly Agree	Agree	Disagree	Strongly Disagree
q.	I try to look out for others first, even if it means making things difficult for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r.	I'm very sympathetic to other people when they are having problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s.	If things I do upset people, it's their problem not mine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t.	I will try to get the things I want even when I know it's causing problems for other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u.	I don't lose my temper very easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v.	Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
w.	When I'm really angry, other people better stay away from me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
x.	When I have a serious disagreement with someone, I can usually talk calmly about it without getting upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. OVER THE PAST YEAR, please indicate how frequently have you engaged in the following:

Consumed alcohol to a point of intoxication

- none at all
- 1 to 5 times
- 6 to 10 times
- 11 times or more

Smoked cigarettes

- none at all
- occasionally
- several times a week
- daily

Had ear(s) pierced

- not at all
- 1 piercing (1 or both ears)
- 2 to 3 additional piercings (1 or both ears)
- 4 or more additional piercings

Had parts of the body, other than ears, pierced

- not at all
- 1 piercing
- 2 to 3 additional, separate piercings

4 or more additional, separate piercings

Had part of the body permanently tattooed

- not at all
- 1 tattoo
- 2 to 3 separate tattoos
- 4 or more separate tattoos

Had sexual intercourse with someone known to you for less than 24 hours

- not at all
- 1 to 2 different encounters
- 3 to 5 different encounters
- 6 or more different encounters

Viewed pornographic material including magazines, videos, or on the internet

- not at all
- 1 to 2 times
- 3 to 5 times
- 6 or more times

Destroyed or defaced someone else's property

- not at all
- 1 to 2 times
- 3 to 5 times
- 6 or more times

Been skydiving (parachuting)

- not at all
- 1 to 2 times
- 3 to 5 times
- 6 or more times

Been mountain (rock) climbing

- not at all
- 1 to 2 times
- 3 to 5 times
- 6 or more times

Participated in physical fights (not including organized boxing, wrestling, etc.)

- not at all
- 1 to 2 times
- 3 to 5 times
- 6 or more times

Exceeded the posted speed limit by 10 MPH or more

- not at all
- 1 to 2 times
- 3 to 5 times

6 or more times

Left your car unlocked in an urban environment

not at all

1 to 2 times

3 to 5 times

6 or more times

Taken, and kept, something of value that did not belong to you without the consent or knowledge of the rightful owner

not at all

1 to 2 times

3 to 5 times

6 or more times

Ridden a motorcycle without wearing a helmet

not at all

1 to 2 times

3 to 5 times

6 or more times

Driven, or ridden in the passenger seat of a car without the seat belt fastened

not at all

1 to 2 times

3 to 5 times

6 or more times

THANK YOU!

APPENDIX B

Figure 1: Distribution the reported Criminal behavior index scores in the Sample

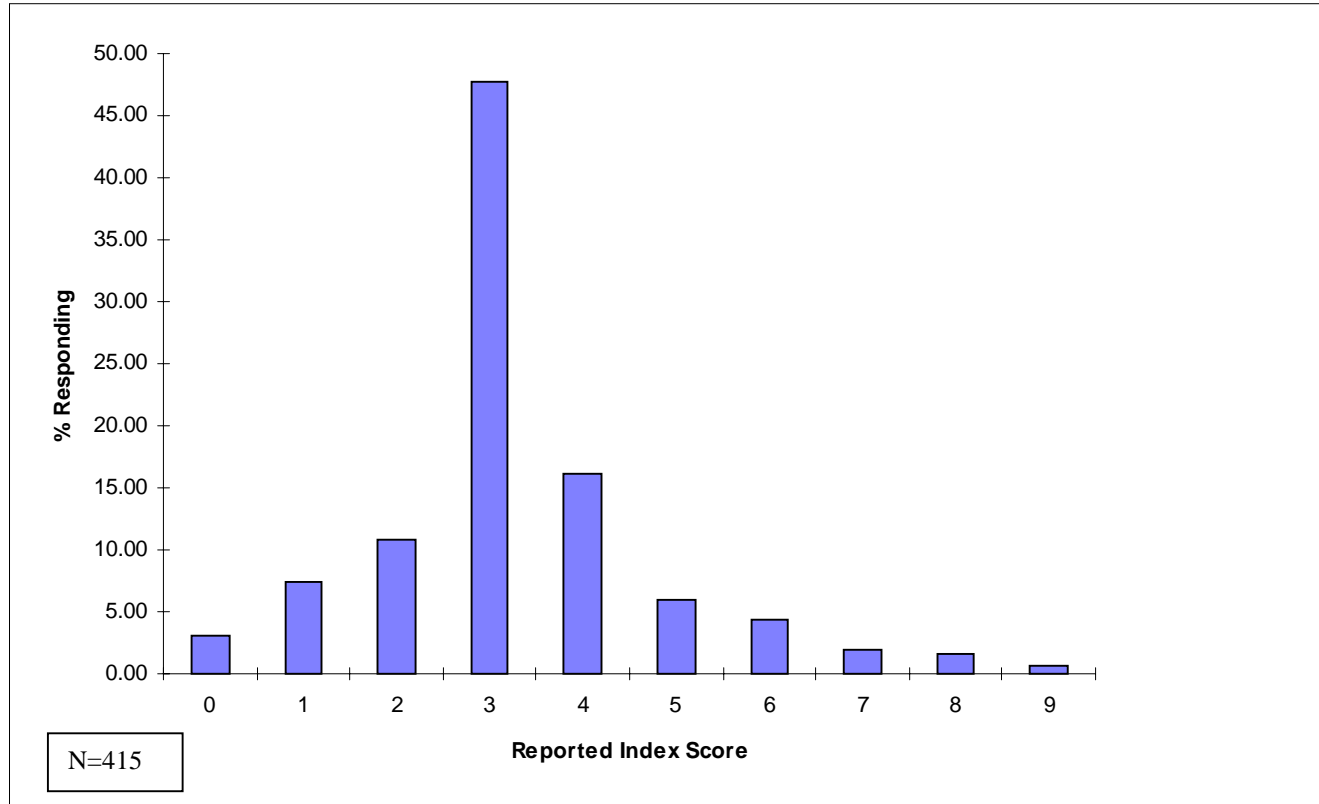


Figure 2: Distribution the reported Deviant behavior index scores in the Sample

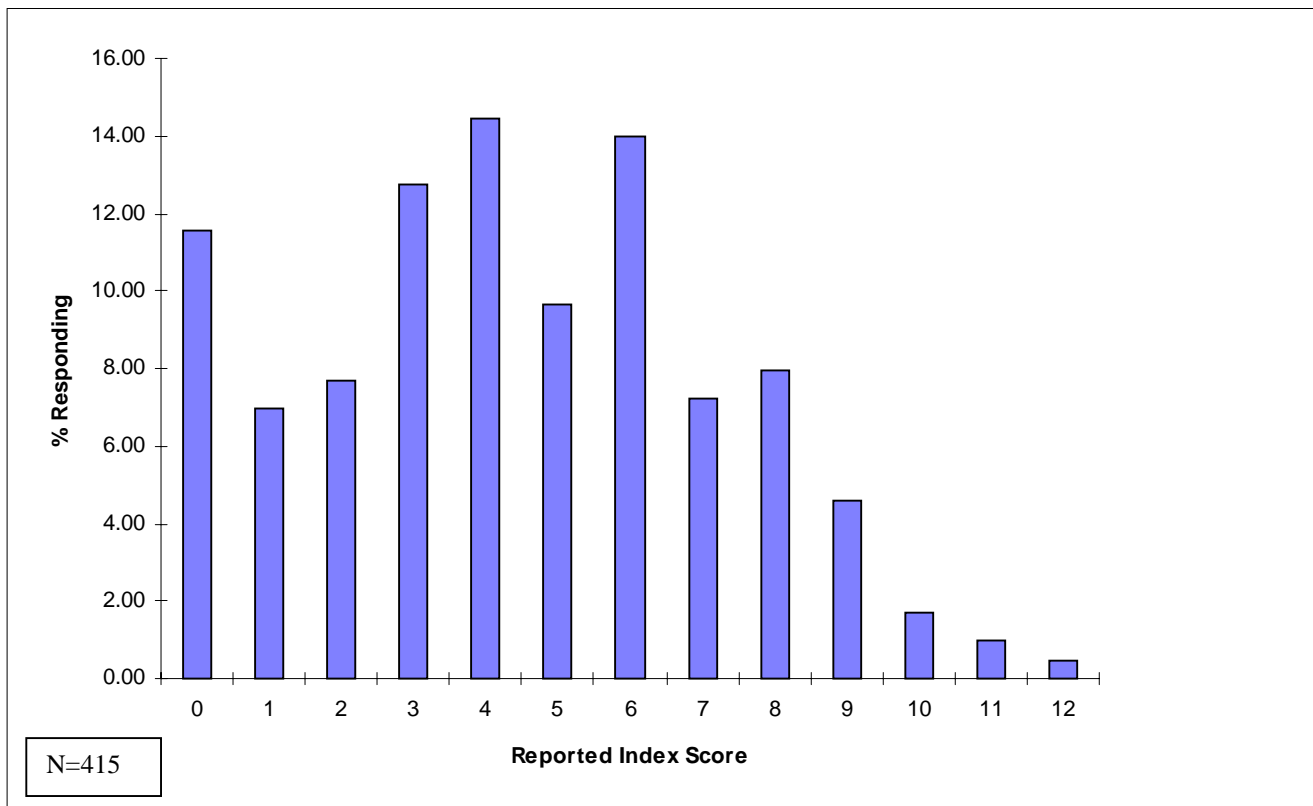
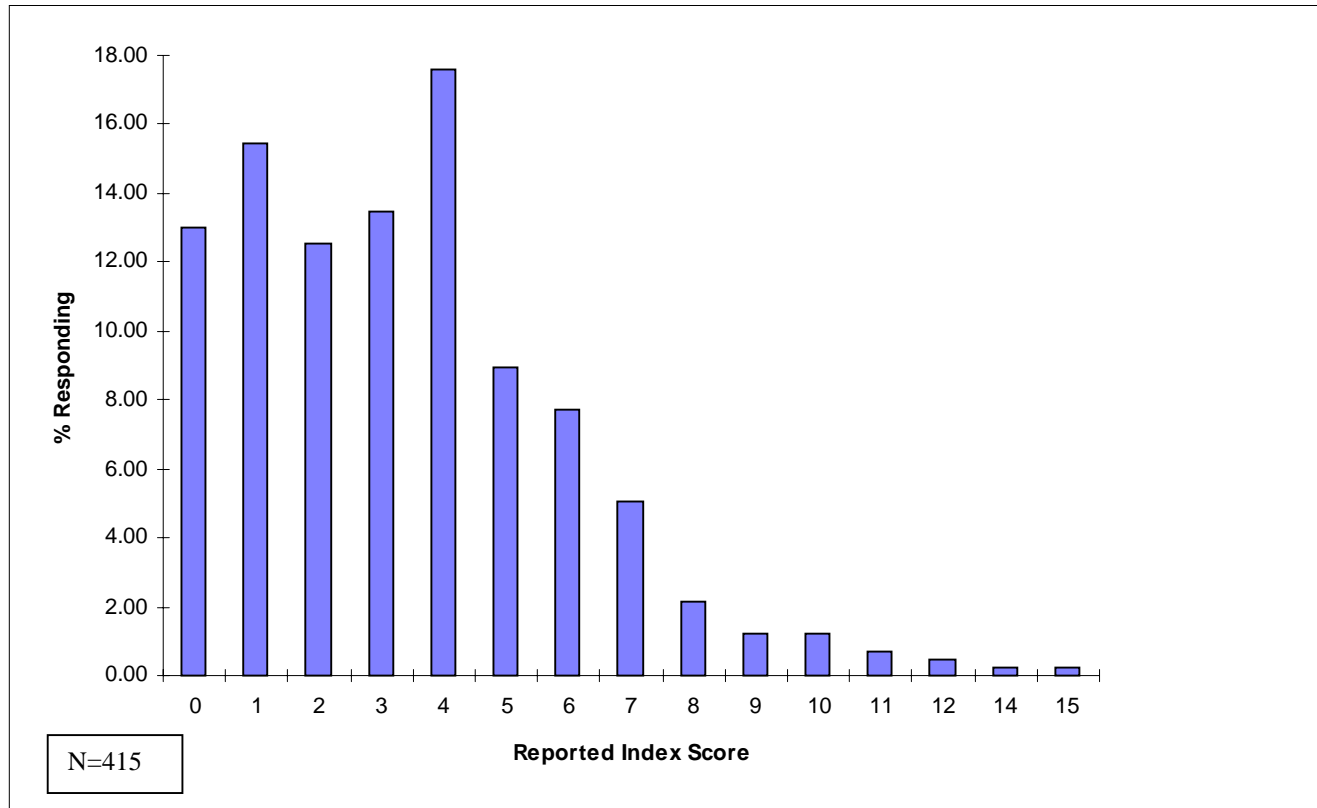


Figure 3: Distribution the reported Risk-taking behavior index scores in the Sample



APPENDIX C

Factor Analysis of Behaviors

As can be seen in Table 25 below, many of the behaviors (Alcohol, Intercourse, Pornography, Destruction of Property, Rock climbing, Fighting, Taken Property, No Helmet, and No Seatbelt) form the first component in the matrix. Alcohol and Cigarette smoking appear to form a second factor, while tattoo and body piercing form a third. Finally, car unlocked and not wearing a seat belt factor in the fourth component and rock-climbing is the only strong value in the fifth component.

Table 23: Factor Analysis of Behaviors in the Sample (No Rotation)

	1	2	3	4	5
ALCOHOL	0.464	0.597	-0.015	-0.256	-0.067
CIGARETTE	0.321	0.641	0.294	-0.088	-0.092
BODY PIERCE	0.263	0.303	0.495	-0.021	0.120
TATTOO	0.280	0.170	0.475	0.062	-0.346
INTERCOURSE	0.580	-0.322	0.277	0.048	0.000
PORNOGRAPHY	0.416	-0.042	-0.260	-0.538	0.024
DESTROY PROPERTY	0.677	-0.153	-0.281	-0.137	-0.303
SKY DIVING	0.158	-0.315	0.278	0.343	-0.249
ROCK CLIMBING	0.411	-0.135	0.027	-0.094	0.536
FIGHTING	0.679	-0.296	0.073	-0.078	0.023
SPEEDING	0.299	0.362	-0.435	0.157	0.327
CAR UNLOCKED	0.363	0.126	-0.177	0.695	0.020
TAKEN PROPERTY	0.592	-0.138	-0.341	-0.017	-0.429
NO HELMET	0.454	-0.336	0.326	-0.106	0.394
NO SEAT BELT	0.524	0.159	-0.133	0.421	0.181

N=415

APPENDIX D

Table 24: OLS Regression Analysis of Consumption of Alcohol to the Point of Intoxication on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.061*	-.319	-.061*	-.309	-.061*	-.320	-.063*	-.328
Gender (Female=1)	--	--	-.112	-.045	-.110	-.044	-.093	-.037
Race (White=1)	--	--	--	--	-.594*	-.150	.594*	-.151
Parental Education	--	--	--	--	--	--	.210*	.187
y-intercept	5.699		5.638		5.834		5.390	
R ²	.102*		.104*		.126*		.161*	

p<.05

Table 25: OLS Regression Analysis of Cigarette Smoking on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.024*	-.149	-.028*	-.175	-.029*	-.179	-.03*	-.184
Gender (Female=1)	--	--	.233*	.112	.234*	.112	.242*	.116
Race (White=1)	--	--	--	--	-.208	-.063	-.208	-.063
Parental Education	--	--	--	--	--	--	.097	-.103
y-intercept	2.348		2.477		2.546		2.342	
R ²	.022*		.034*		.038*		.049*	

p<.05

Table 26: OLS Regression Analysis of Body Piercing on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.005*	-.1	-.007*	-.139	-.007*	-.140	-.007*	-.141
Gender (Female=1)	--	--	.125*	-.183	.125*	.183	.126*	.184
Race (White=1)	--	--	--	--	-.013	-.012	-.013	-.012
Parental Education	--	--	--	--	--	--	.007	.024
y-intercept	.445		.514		.518		.503	
R ²	.01*		.042*		.042*		.042*	

p<.05

Table 27: OLS Regression Analysis of Tattoos on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.011*	-.153	-.011*	-.160	-.011*	-.159	-.011*	-.159
Gender (Female=1)	--	--	.027	.030	.027	.029	.028	.030
Race (White=1)	--	--	--	--	.022	.015	.027	.015
Parental Education	--	--	--	--	--	--	.005	.012
y-intercept	.866		.881		.874		.863	
R ²	.024*		.024*		.025*		.025*	

p<.05

Table 28: OLS Regression Analysis of Sexual Intercourse with Someone Known less than 24 Hours on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.023*	-.309	-.02	-.277	-.02*	-.269	-.02*	-.267
Gender (Female=1)	--	--	-.138*	-.144	-.139*	-.145	-.140*	-.146
Race (White=1)	--	--	--	--	-.170*	.112	-.170*	.112
Parental Education	--	--	--	--	--	--	-.012	-.028
y-intercept	1.614		1.538		1.482		1.507	
R ²	.096*		.115*		.128*		.129*	

p<.05

Table 29: OLS Regression Analysis of Viewing Pornography on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.04*	-.209	-.017*	-.091	-.017*	-.092	-.017*	-.090
Gender (Female=1)	--	--	-1.295*	-.523	-1.295*	-.523	-1.298*	-.524
Race (White=1)	--	--	--	--	-.004	-.001	-.004	-.001
Parental Education	--	--	--	--	--	--	-.013	-.026
y-intercept	3.977		3.262		3.263		3.324	
R ²	.044*		.303*		.303*		.304*	

p<.05

Table 30: OLS Regression Analysis of Destruction of Property on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.037*	-.373	-.032*	-.319	-.031*	-.317	-.031*	-.316
Gender (Female=1)	--	--	-.305*	-.236	-.305*	-.236	-.306*	-.237
Race (White=1)	--	--	--	--	.077	.038	.077	.038
Parental Education	--	--	--	--	--	--	-.013	-.022
y-intercept	2.7		2.532		2.506		2.534	
R ²	.139*		.192*		.193*		.194*	

p<.05

Table 31: OLS Regression Analysis of Sky Diving on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.001	-.048	-.001	-.055	-.001	-.047	-.001	-.045
Gender (Female=1)	--	--	.009	.028	.009	.028	.008	.026
Race (White=1)	--	--	--	--	.05*	.102	.05*	.102
Parental Education	--	--	--	--	--	--	-.008	-.060
y-intercept	.093		.098		.081		.099	
R ²	.002		.003		.014		.017	

p<.05

Table 32: OLS Regression Analysis of Rock-Climbing on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.014*	-.127	-.011*	-.096	-.011*	-.103	-.012*	-.105
Gender (Female=1)	--	--	-.198*	-.139	-.198*	-.138	-.196*	-.137
Race (White=1)	--	--	--	--	-.237*	-.105	-.237*	-.105
Parental Education	--	--	--	--	--	--	.025	.039
y-intercept	1.29		1.18		1.256		1.204	
R ²	.016*		.034*		.045*		.047*	

p<.05

Table 33: OLS Regression Analysis of Participation in Physical Fights on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.013*	-.302	-.013*	-.261	-.012*	-.250	-.024*	-.249
Gender (Female=1)	--	--	-.224*	-.179	-.225*	-.180	-.226*	-.180
Race (White=1)	--	--	--	--	.315*	.159	.315*	.159
Parental Education	--	--	--	--	--	--	-.012	-.020
y-intercept	2.141		2.017		1.913		1.938	
R ²	.091*		.121*		.147*		.147*	

p<.05

Table 34: OLS Regression Analysis of Speeding on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.02*	-.156	-.019*	-.150	-.021*	-.164	-.021*	-.162
Gender (Female=1)	--	--	-.05	-.030	-.049	-.029	-.051	-.031
Race (White=1)	--	--	--	--	-.54*	-.204	-.54*	-.204
Parental Education	--	--	--	--	--	--	-.028	-.037
y-intercept	3.879		3.851		4.03		4.089	
R ²	.024*		.025*		.067*		.068*	

p<.05

Table 35: OLS Regression Analysis of Leaving Car Unlocked in Urban Environment on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.022*	-.133	-.022*	-.131	-.022*	-.132	-.022*	-.131
Gender (Female=1)	--	--	-.02	-.009	-.02	-.009	-.022	-.010
Race (White=1)	--	--	--	--	-.038	.011	-.038	-.011
Parental Education	--	--	--	--	--	--	-.019	.019
y-intercept	2.213		2.202		2.215		2.254	
R ²	.018*		.018*		.018		.018	

p<.05

Table 36: OLS Regression Analysis of Taken Property not Belonging to You on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.033*	-.296	-.029*	-.259	-.029*	-.254	-.028*	-.253
Gender (Female=1)	--	--	-.24*	-.164	-.24*	-.165	-.243*	-.166
Race (White=1)	--	--	--	--	.134	.058	.134	.058
Parental Education	--	--	--	--	--	--	-.027	-.042
y-intercept	2.496		2.364		2.319		2.377	
R ²	.087*		.113*		.116*		.118*	

p<.05

Table 37: OLS Regression Analysis of Not Wearing a Helmet while Riding a Motorcycle on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.02*	-.201	-.018*	-.183	-.018*	-.183	-.018*	-.181
Gender (Female=1)	--	--	-.105	-.081	-.105	-.081	-.107	-.083
Race (White=1)	--	--	--	--	-.011	-.006	-.011	-.006
Parental Education	--	--	--	--	--	--	-.031	-.054
y-intercept	1.489		1.431		1.434		1.501	
R ²	.040*		.047*		.047*		.050*	

p<.05

Table 38: OLS Regression Analysis of Not Wearing a Seat Belt on Self-control, Gender, Race, and Parental Education

	Equation 1		Equation 2		Equation 3		Equation 4	
	b	Beta	b	Beta	b	Beta	b	Beta
Self-control	-.044*	-.231	-.041*	-.216	-.041*	-.218	-.041*	-.215
Gender (Female=1)	--	--	-.172	-.070	-.172	-.070	-.179	-.073
Race (White=1)	--	--	--	--	-.158	-.041	-.158	-.041
Parental Education	--	--	--	--	--	--	-.091	-.082
y-intercept	4.522		4.427		4.480		4.671	
R ²	.054*		.058*		.060*		.067*	

p<.05

John C. McMullen

Education

Doctorate of Philosophy, Sociology. Expected August 1999. Virginia Polytechnic Institute and State University, Blacksburg, VA 26041.

Master of Arts, Applied Social Research. May 1992. West Virginia University, Morgantown, WV 26506.

Bachelor of Science, Sociology with a Business minor. December 1988. Frostburg State University, Frostburg, MD 21532.

Affiliations

Alpha Kappa Delta
American Society of Criminology
Southern Sociological Society
Mid-South Sociological Association

Experience

Teaching

Instructor/mentor Clinch Valley College of the University of Virginia, Wise, VA 24293, August 1997 - present.

-teaching five undergraduate courses: social problems (sophomore level), deviant behavior (junior level), two criminology sections (junior level) and social psychology (junior level). I am tentatively scheduled to teach urban sociology, corrections, race and ethnicity, and another social problems in the spring.

-involved in the planning of the new Administration of Justice and Sociology majors.

Instructor Virginia Polytechnic Institute and State University, Blacksburg, VA 26041, May 1997 - June 1997.

-taught an undergraduate criminology course (junior level)

Instructor Radford University, Radford, VA 24142, January 1996 - May 1996.

-taught two undergraduate criminology courses (junior level)

Instructor Ferrum College, Ferrum, VA 24088, January 1995 - May 1995.

-taught an undergraduate cultural diversity course (sophomore level)

-taught an undergraduate deviant behavior course (junior level)

Instructor Potomac State College, Keyser, WV 26726, August 1992 - May 1993.

- taught two undergraduate introduction to sociology courses (freshman level)
- taught an undergraduate social problems course (sophomore level)

Teaching Assistant West Virginia University, Morgantown, WV 26506, January 1991 - May 1992.

- assisted professors with grading
- lectured on certain topics in juvenile delinquency courses

Advising

Academic Advisor Pre-major Advising Office, Radford University, Radford, VA 24142, 1995-96 and 1996-97 academic years.

- provided undecided students with University policies and procedures as well as study skills and career options
- maintained and analyzed data on student appointments

Research

Instructional Accountability Analyst Charlotte-Mecklenburg Public Schools, Charlotte, NC 28230-0035. November 1998 – present.

- responsible for conducting Student, Teacher, and Family Surveys including distribution, coding, analysis, and report writing.
- involved in evaluations of the Magnet program as well as After-school and Saturday tutor programs for TANF (Temporary Assistance for Needy Families) students.

Research Assistant UNC Charlotte Urban Institute, UNC Charlotte, Charlotte, NC 28223. May 1998 – November 1998.

- assisted with data analysis, questionnaire construction, database management and report writing

Research Assistant Virginia Tech Sociology Department, Blacksburg, VA 26041, October 1995 - August 1997.

- provided assistance on a study of female physicians depression and suicide potential
- performed services such as coding, data analysis, and maintenance of data set

Research Assistant Office of Crime and Justice Research, West Virginia University, Morgantown, WV 26506

- contacted police departments and attorney general's offices to gather information on gangs and hate crimes
- set up and maintained databases

-assisted with sampling and mailings

Telephone Interviewer Survey Research Center, West Virginia University, Morgantown, WV 25606.

-conducted surveys of households on cigarette smoking and seat belt use
-conducted surveys and assisted with instrument design and testing

Workshops

Teaching College Freshman Seminar. New Student Services, Radford University, Radford, VA 24142. Spring 1996.

GTA Training Workshop. Virginia Tech, Blacksburg, VA 26041. August 1994.

Publications

Robert Lilly, Richard Ball, and David Curry, and John McMullen. "Electronic Monitoring of the Drunk Driver: A Seven-Year Study of the Home Confinement Alternative." *Crime and Delinquency* 39, 1993.

Conference Presentations

Paper: "A Test of Low Self-control Theory using General Patterns of Deviance." Southern Sociological Society, Nashville, TN. April 1999.

Paper: "Tattooists and Body Piercers: An analysis of an occupation." Mid-South Sociological Association, Huntsville, AL. October 1997

Roundtable: Body Piercing and Tattoos as Presentation of Self. Southern Sociological Society, New Orleans, LA. April 1997