IMPACTS OF SOCIAL BONDS ON CRIME IN THE TRANSITION BETWEEN ADOLESCENCE AND YOUNG ADULTHOOD

A Dissertation

Presented to

The Graduate Faculty of The University of Akron

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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August 2019

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Dissertation

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ABSTRACT

On any given day there are approximately 31 million youth under the supervision of the U.S. court system (Hockenberry and Puzzanchera 2018). In 2015 alone there were nearly 900,000 juvenile delinquency cases brought before the court. Currently, there are approximately 70 million juveniles in the United States, with this number expecting to continually rise based on projections into 2060. These numbers demonstrate the necessity of research to determine which factors and circumstances contribute to juvenile delinquency.

This research aims to predict juvenile delinquency by extending the understandings of Hirschi's (1969) social control theory. There is an extensive amount of research on social control theory which indicates the importance of social bonds with regards to deviance. However, despite the abundance of previous studies, there remain substantial gaps among the literature. First, previous literature has significantly relied upon cross-sectional data– measuring specific bonds and/or specific forms of deviance at one point in time. Second, the majority of research focuses only on one or two of Hirschi's (1969) social controls.

Utilizing Hirschi's (1969) social control theory, this research will do three things. First, it will predict juvenile delinquency in adolescence by measuring all four types of

social bonds (i.e. attachment, commitment, involvement, and belief). Second, it will examine the impacts of social controls on deviance in young adulthood. Third, it will assess whether early bonds have a lasting effect beyond adolescence into young adulthood.

Results indicate that early social bonds are significant in adolescence and in young adulthood. Moreover, findings show that bonds formed in adolescence have, at least, marginal lasting effects on deviance into young adulthood. This research demonstrates the importance and longevity of early social bonds in the crucial transition from adolescence to young adulthood. These findings could be essential to early intervention programs– as identifying broken or missing social bonds of troubled youth, at earlier ages, could greatly improve the success of deviance prevention and intervention practices.

DEDICATION

To my husband, Don. For being my beacon, my shelter, and my rock. You will forever be my always.

and

To my children, Zachary and Riley. “The test is not that [you] have lofty dreams, but that [you] strive mightily” (Hirschi 1969:178)... I hope you soar!

ACKNOWLEDGEMENTS

I want to thank my advisor and dissertation chair, Dr. Stacey Nofziger, who has stuck beside me from the very start. I could always depend on her to give me honest and candid advice, guidance, and feedback–traits that I hold in the highest regard. Without fail, she would answer every question I had and respond to every email I sent (and there were a lot). She challenged me to go outside of my comfort zone, without which none of this would have been possible. I am forever grateful for her support.

I would also like to thank my committee members: Dr. Kathryn Feltey, Dr. Robert Peralta, Dr. Shannon Zentall, and Dr. John Zipp. My committee offered invaluable advice and support throughout this entire process. I thank them for their time and efforts. However, most importantly, I thank them for taking a chance on me and this project. Each and every member has my sincerest gratitude.

Additionally, I would also like to thank my family, especially my sisters: Susan, Diane, and Cheryl. A ‘thank you’ does not seem to be enough for all of their support and encouragement. They have always believed in me, even when I doubted my own abilities. No matter the distance or time in between, I know that they are always in my corner; I can only hope that they know I will forever be in theirs.

Last, but certainly not least, I want to thank my parents who gave me the courage to chase my dreams, for instilling the value of hard work, and for teaching me to always give my best. Most importantly, I thank them for their unconditional love and support. There are no words to express my love and appreciation. I hope that I have made you proud.

TABLE OF CONTENTS

Page

LIST OF TABLES xii

LIST OF FIGURES xiv

CHAPTER

I. INTRODUCTION 1

Early Deviance 2

Risk Factors for Early Deviance 4

Concerns Regarding Juvenile Deviance 8

Early Intervention 14

Social Control Theory 16

This Research 17

Organizational Layout 21

II. SOCIAL CONTROL THEORY 22

Assumptions of Control Theory 22

Foundations of Social Control 26

Hirschi's Social Control 28

Support of Social Control 36

Critiques of Social Control 38

Contributions of Current Research 41
III. DATA & METHODS 45
Analytic Strategy 46
Social Bonds 49
Deviance 56
Conclusion 60
IV. FINDINGS 62
Factor Results for Bonds and Deviance 62
Bivariate Analyses 68
Structural Equation Models 74
V. CONCLUSIONS 100
Social Bonds in Adolescence 101
Social Bonds in Young Adulthood 107
Overall Effects of Social Bonds 113
Discussion 115
Contributions of this Research 117
Limitations 119
Future Research 123
REFERENCES 126

LIST OF TABLES

Table		Page
1	Descriptive Statistics of Sample Population	48
2	Social Bond Indexes & Descriptive Statistics	64
3	Deviance Indexes & Descriptive Statistics (Wave 1)	66
4	Deviance Indexes & Descriptive Statistics (Wave 3)	67
5	Correlation Analysis Between Bonds & Deviance (Wave 1)	70
6	Correlation Analysis Between Bonds & Deviance (Wave 3)	71
7	Descriptive Statistics for Error Term Covariances, Property (Wave 1)	76
8	Maximum Likelihood Estimation of Latent Variables, Property (Wave 1)	77
9	Descriptive Statistics for Error Term Covariances, Person (Wave 1)	79
10	Maximum Likelihood Estimation of Latent Variables, Person (Wave 1)	80
11	Descriptive Statistics for Error Term Covariances, Substance (Wave 1)	82
12	Maximum Likelihood Estimation of Latent Variables, Substance (Wave 1)	83
13	Descriptive Statistics for Error Term Covariances, Property (Wave 3)	85
14	Maximum Likelihood Estimation of Latent Variables, Property (Wave 3)	86
15	Descriptive Statistics for Error Term Covariances, Person (Wave 3)	88
16	Maximum Likelihood Estimation of Latent Variables, Peron (Wave 3)	89
17	Descriptive Statistics for Error Term Covariances, Substance (Wave 3)	91
18	Maximum Likelihood Estimation of Latent Variables, Substance (Wave 1)	92
19	Descriptive Statistics for Error Term Covariances, Overall Deviance	95

20 Maximum Likelihood Estimation of Latent Variables, Overall Deviance 97

21 Direct, Indirect, and Total Effects on Overall Deviance 99

22 Significant Social Bonds for Adolescence Models 101

23 Significant Social Bonds for Young Adulthood Models 108

24 Significant Social Bonds on Deviance in Adolescence & Young Adulthood 112

25 Significant Social Bonds for Overall Model 113

LIST OF FIGURES

Figure Page

1 Illustration of Social Bonds on Deviance in Adolescence (Wave 1) 19

2 Illustration of Social Bonds on Deviance in Young Adulthood (Wave 3).....20

3 Structural Equation Model of Effects on Property Offenses (Wave 1).....75

4 Structural Equation Model of Effects on Person Offenses (Wave 1).....78

5 Structural Equation Model of Effects on Substance Use (Wave 1) 81

6 Structural Equation Model of Effects on Property Offenses (Wave 3).....84

7 Structural Equation Model of Effects on Person Offenses (Wave 3).....87

8 Structural Equation Model of Effects on Substance Use (Wave 3) 90

9 Structural Equation Model of Effects on Overall Deviance.....94

CHAPTER I

INTRODUCTION

According to the National Center for Juvenile Justice, despite juvenile delinquency rates being on a continual decline since 2005, on any given day there are approximately 31 million youth under the supervision of the U.S. court system (Hockenberry and Puzzanchera 2018). In 2015 alone there were nearly 900,000 juvenile delinquency cases brought before the court. Currently, there are approximately 70 million juveniles—that is persons under 18 years of age—in the United States, with this number expecting to continually rise based on projections into 2060. These numbers demonstrate the necessity of research to determine which factors and circumstances lead to juvenile delinquency.

This research will extend understandings of juvenile delinquency by using Hirschi's (1969) social control theory to predict juvenile delinquency. More specifically, this current research will do three things. First, it will use social control theory to predict juvenile delinquency in adolescence by measuring all four types of bonds (i.e. attachment, commitment, involvement, and belief). Second, it will examine the impacts of social controls on deviance in young adulthood. Third, it will assess whether early bonds have an effect beyond adolescence into young adulthood.

EARLY DEVIANCE

Research indicates that delinquency in adolescence is often an antecedent to criminality in adulthood (Brookmeyer, Fanti, and Henrich 2006; Salvatore and Markowitz 2014; Salvatore and Taniguchi 2012; Wright et al. 1999). In fact, it is estimated that between 52%-57% of juvenile offenders will continue offending into adulthood (Loeber, Farrington, and Petechuk 2013). Sampson and Laub (1990) contend that "childhood delinquents are three to four times more likely to be arrested as adults" (p.616). Further, it is argued that the earlier a juvenile begins deviant behaviors (i.e. age of onset), the higher the likelihood of adult offending (Huesmann, Eron, and Dubow 2002; Laub and Sampson 2001; McCord 1991; White, Earls, Robins, and Silva 1990). As such, Loeber and Farrington (2001) indicate that juveniles that begin offending before the age of 12 are more likely to continue offending into adulthood.

The age-crime curve suggests that delinquent behaviors peak during adolescence and then sharply decline during early adulthood (Laub and Sampson 2001; Brame and Piquero 2003). Researchers vary in their description of precisely when the peak occurs. Some research simply utilizes the ambiguous time period of 'adolescence' (Sampson and Laub 2003). Other researchers commit to a specified time frame such as 13-17 years of age (Anderson, Holmes, and Ostresh 1999; Bahr and Hoffmann 2008; Benda and Corwyn 2002; Stolzenberg and D'Alessio 2008). Still others are extremely precise indicating a particular age (Moffitt 1993; Sweeten, Piquero, and Steinberg 2013); for example, 15 years of age is commonly used when specifying one particular year of age (Benda and Turney 2002).

Adolescents who follow the normal bell-shaped, age-crime curve are not of primary concern to research, as some deviance is considered a normal part of healthy developmental changes (Thornberry et al. 2013). Thus, it is the adolescents that stray beyond the normal crime curve, such as beginning deviant behaviors at an early age or continuing deviance past the normal decline during young adulthood, which is of primary concern in much of the literature and research on deviant behaviors. Researchers whom advocate the age-crime curve contend that it is essential to understand this time period in order to provide adequate intervention and prevention practices (Juon, Doherty, and Ensminger 2006; Piquero et al. 2013).

Much literature has been developed to look at these patterns of offending. For example, Moffitt (1993) contends that there are two specific types of offenders: adolescence-limited and life-course persistent. The adolescence-limited offender is the everyday, average adolescent where a normal crime peak is illustrated. Thus, adolescent-limited offenders would have a peak in criminality during adolescence that significantly decreases during young adulthood. On the other hand, life-course persistent offenders are a unique set of individuals that continue their criminality into adulthood and as the name suggests, throughout their entire life. Moffitt (1993) argues that life-course persistent offenders are the anomaly and represent an extremely small portion of individuals. As such, most adolescents progress through an aging-out process, resulting from maturation and development, which surpasses their criminal and reckless behaviors (Laub and Sampson 2001; Moffitt 1993; Sampson and Laub 2003).

It should be noted that all juvenile delinquency is not created equal. For example, early aggression in childhood has been linked with many serious criminal behaviors later in life, such as spousal abuse (Sampson and Laub 1990) and substance use (Kandel 1990). Further, the highest indicators of continuing deviant behaviors into adulthood are demonstrations of violent deviant behaviors, drug dealing, and carrying a weapon (Loeber et al. 2013; Rosenfeld, White, and Esbensen 2012). Holistically, research indicates that offense severity increases the longer a juvenile persists with deviance beyond the normal crime-curve trajectory (Loeber et al. 2013). Thus, if we are better at identifying the risks, signs, and processes that encourage delinquency at an early age, we can better address these issues when (or before) delinquency occurs in order to intervene in the trajectory of adult criminality (Huesmann et al. 2002; Laub and Sampson 2001; Mann and Reynolds 2006; McCord 1991; Moffitt 1993; White et al. 1990).

RISK FACTORS FOR EARLY DEVIANCE

Although complex and often intertwining, a large body of literature suggests patterns about what is important in predicting juvenile delinquency. Some of the past literature has focused on the importance of relationships with deviant peers (Huesmann et al. 2002; Laub and Sampson 2001; Stolzenberg and D'Alessio 2008; Sampson and Laub 1990; Sweeten et al. 2013) and the roles that attachment to school play (Laub and Sampson 2001; Moffitt 1993; Reynolds, Ou, and Topitzes 2004; Sampson and Laub 1990). However, a great deal of attention is on the family, such as the role of parental criminality (Huesmann et al. 2002; Mann and Reynolds 2006; McCord 1991; Watts

2016), poor parental monitoring (Huesmann et al. 2002; Mann and Reynolds 2006; McCord 1991), or lack of affection between parent and child (Laub and Sampson 2001; McCord 1991; Moffitt 1993; Watts 2016).

In order to gain a better understanding about juvenile risk factors for deviant behaviors, it is necessary to define what risk-factors actually mean. Latessa, Listwan, and Koetzle (2014) argue that there are two specific types of factors to consider when determining the risk-level of an individual: static and dynamic. Static risk factors are those that cannot be changed (e.g. prior arrests). Dynamic risk factors are those that are amenable to change, such as antisocial behaviors, drug/alcohol use, and association with deviant peers. To illustrate, Kandel (1990) argues that "conduct problems in childhood and early adolescence are thought to be one of the most important precursors of adolescent drug use [and] delinquency" (p.183). As such, Latessa et al. (2014) argue that it is imperative to address dynamic risk factors. Research suggests that there are two primary agents of future deviance: childhood behaviors and family characteristics (Juon et al. 2006).

Childhood Behaviors

There are many different behavioral indications in adolescence that are associated with increased risks of deviant behaviors in adolescence through young adulthood. Throughout the literature, one common theme that emerges is that early childhood aggression is one of the most predictable traits that most-often, accurately predicts deviant behaviors (Huesmann et al. 2002; Juon et al. 2006; Moffitt 2007; Sampson and

Laub 1990). To illustrate, Juon et al. (2006) conducted a longitudinal study of 1,242 African American children from first grade to age 32, they found that aggression was a key predictor of deviance for both males and females well into adulthood. The authors further added that even moderate levels of aggression were predictive of deviant behaviors in later ages. White et al. (1990) corroborate these findings adding that acts of aggression at age three is an indicator of potential, future deviant conduct.

Additional risks such as antisocial personalities (Juon et al. 2006; Latessa, Cullen, and Gendreau 2002; Moffitt 1993; Sampson and Laub 1990), hyperactivity, and/or impulsivity (Juon et al. 2006; Moffitt 1993) are also frequently found to be precursors to later deviance. Antisocial personalities are described as individuals that display behaviors such as: juvenile delinquency, conduct disorders, and violent temper tantrums (Sampson and Laub 1990).

No single, characteristic in childhood has been linked directly to later deviant behavior. However, combinations of characteristics are observed to increase the risks of deviance (Chen 2009; Juon et al .2006; Moffitt 1993). Prior literature provides an extensive list of potential behavioral indicators of later deviance; however, much of the literature suggests that these characteristics coexist with familial characteristics, such as: parental monitoring/discipline, parental criminality, and parent/child affection (Rahdert and Czechowicz 1995; Salvatore and Markowitz 2014; Salvatore and Taniguchi 2012).

Family Characteristics

Parental Monitoring/Discipline. The importance of parental monitoring is prevalent within deviance literature (Griffin et al. 2000; Huesmann et al. 2002; Latessa et al. 2002; Mann and Reynolds 2006; McCord 1991). In fact, parental monitoring has been noted numerous times as one of the most influential parental factors predicting delinquency (Griffin et al. 2000; Juon et al. 2006; Kandel 1990; Petrie, Bunn, and Byrne 2006). Delinquency is often linked with harsh punishment (Coombs and Landsverk 1988; Kandel 1990; Moore et al. 2017; Nofziger and Kurtz 2005), instability (Coombs and Landsverk 1988; Kandel 1990), and single-family homes, specifically single-mother homes (Griffin et al. 2000). Further, single-parent families have been associated with higher levels of aggression and delinquency (Griffin et al. 2000). To illustrate, harsh punishments are often unaccompanied with praise; thus, the only behaviors acknowledged by the parent(s) are deviant behaviors (Coombs and Landsverk 1988; Kandel 1990).

Parental Criminality. Another common theme echoed throughout the literature on delinquency is that often the parent(s) have a criminal history (Huesmann et al. 2002; McCord 1991; Mann and Reynolds 2006). As such, oftentimes deviance occurs in similar cycles (Hawkins, Catalano, and Miller 1992; Kandel 1990; Rahdert and Czechowicz 1995). For example, a parent that has a criminal record pertaining to substance use (e.g. drinking and driving, possession, sale of narcotics, etc.) is more likely to have a juvenile who is active in substance use, than a parent with no criminal record.

Parent/Child Affection. Finally, another common issue found within delinquency literature is parent/child affection (Griffin et al. 2000; Laub and Sampson 2001; McCord 1991; Moffitt 1993; Moore et al. 2017). Affection is measured in many different ways, such as parental time-spent with the child (Hawkins et al. 1992; Morton et al. 2001), parent–child communication (Coombs and Landsverk 1988), and parental nurturing (Coombs and Landsverk 1988; Kandel 1990; Neff and Waite 2007). Similar to childhood behaviors, oftentimes many of the parent/child affection-types coincide. For example, deviance is often linked to parents whom spend little quality time with the child and lack proper nurturing (Kandel 1990; Neff and Waite 2007). Additionally, Coombs and Landsverk (1988) found that parents whom practice harsh punishments are also less likely to praise their child.

CONCERNS REGARDING JUVENILE DEVIANCE

According to the National Center for Juvenile Justice, juvenile delinquency has been on a constant decline in the United States since 1996 (Puzzanchera 2018). Despite this, the prevalence of juvenile delinquency continues to be a concern. It is estimated that over 850,000 juveniles were arrested in 2016 alone. Property offenses, such as burglary and theft, are the most common offenses committed with estimates of 28% of juvenile arrests. Next, person offenses, such as assault and robbery, accounted for 21%, while drug and alcohol arrests account for 17% of juvenile arrests in 2016. It should also be noted that these estimates are based on crimes reported to law enforcement that resulted in an arrest. As such, the *exact* frequencies of juvenile offenses are unknown as many are unfounded,

go unreported, or are charged with a lesser offense (Brunelle, Cousineau, and Brochu 2005; Elliott, Huizinga, and Morse 1987).

The majority of statistical crime reports (i.e. UCR, NCVS) separate types of deviance into categories, commonly based upon their degrees of severity. Although many studies combine all forms of juvenile deviance, it may be beneficial to examine them separately. By differentiating offending categories, it provides a better understanding of trajectories/patterns of offenses, which can be used to identify predictors and concerns regarding these types of deviance. The most frequently used classifications are substance use, property offenses, and violent/person offenses.

Substance Use. Drug and alcohol use by youth has been a major concern in the public arena (Miech et al. 2019) as research indicates that such behaviors are the precursors to more problems later (Cottle, Lee, and Heilbrun 2001; Hallfors et al. 2002; Hawkins et al. 2000; Kilpatrick et al. 2000; Sampson and Lauristen 1990). To illustrate, juvenile drug and alcohol use has been credited with increases in suicide, homicide, and future substance abuse (Halifors et al. 2002). In their qualitative study of 62 individuals between the ages of 14 to 20, Brunelle et al. (2005) found that substance use follows sequential stages. More specifically, initial onset of substance use was contributed to factors such as curiosity, pleasure, and belonging to a group. However, those who continued quickly found themselves in a cycle consisting of more drug use and committing new/additional types deviance (i.e. theft in order to support their escalating substance use). Previous research supports these findings; for example, Sampson and Lauritsen (1990) argue that alcohol use is one of the most common precursors to violent

offending. Similarly, Elliott et al. (1987) found that marijuana use "may indicate a particularly high risk for *continued* violent offending" (p.501 emphasis added).

Property Offenses. As previously stated, property offenses are the most common type of deviance among juveniles. However, public sentiment towards these behaviors are not as pronounced as with substance use and violent offending. Perhaps the reason for this indifference is due to the varying degrees of property offenses; for example, property offenses include 'petty' acts such as painting graffiti and minor vandalism. However, property offenses also include more severe forms of deviance, such as burglary and larceny. Thus, concern arises when juveniles escalate into more severe forms of deviance and/or property offenses. As Alltucker et al. (2006) illustrate, "a youth's entry into juvenile delinquency [is] a series of incremental criminal acts that begin with relatively minor property crimes and, in some cases, progress to serious violent crimes" (p.480).

One of the strongest predictors of juveniles committing property offenses is prior deviance (see Cottle et al. 2001). Thus, as research indicates, "deviants in one type tend to transition into other types of deviance" (Hallfors et al. 2002:206). To illustrate, in their meta-analysis of 66 studies, Hawkins et al. (2000) found that a youths' involvement in deviance, such as property offenses, increases the risk of violent offending. Not surprisingly, these risks are heightened for boys compared to girls– as boys score higher on nearly all types of deviance (i.e. exceptions such as prostitution are higher for females) (Elliot et al. 1987; Hallfors et al. 2002; Hawkins et al. 2000).

Violent/Person Offenses. Despite it being the least common type of deviance, a great deal of attention is paid to violence by juveniles (Alltucker et al. 2006; Chung and

Steinberg 2006; Cottle et al. 2001; Elliott et al. 1987; Gottfredson and Soulé 2005; Hawkins et al. 2000; Sampson and Lauritsen 1990). Much of the concerns are likely due to the severity of violent offenses (i.e. no 'petty' acts of violence), which often result in labeling these offenders as the 'worst of the worst'. However, the focus and concerns may not be completely unfounded. To illustrate, Elliott et al. (1987) sampled 1,725 youth between the ages of 11 to 17, and found that "those arrested for serious violent offenses constitute only a fraction of youth actually involved in serious violent behavior" (p.472).

It is extremely rare that a juveniles' initial onset in deviance is with violent behavior(s). Instead, as research indicates, there is an escalation in deviant behaviors that lead to participating in violent offending (see Cottle et al. 2001). Further, juveniles involved in violent offenses are, most often, also involved in other forms of deviance. Thus, not only does violence committed by juveniles indicate an escalation in criminal behaviors, it also shows reciprocal effects. To illustrate, in their study, Elliot et al. (1987) found that approximately ¼ of violent youth offenders were also involved in the sale and/or use of drugs. In fact, they argue that "violent [youth] offenders are heavily involved in *all* forms of delinquency" (p.493 emphasis in original). More specifically, Elliot et al. (1987) found that these offenders, on average, committed 8 violent offenses and 132 delinquent acts annually. Thus, despite violent offending being the least common type of deviance, it is certainly a level of severity that many programs and policies aim to prevent and/or disrupt. However, in order to do so, it is not only the prevalence and type of offending that is of concern, identifying predictors of deviance and long-term consequences are also just as imperative.

Predictors of Deviance

It is not uncommon for youth to 'experiment' in illegal activities. In fact, it is more common than youth who do not partake in any forms of deviant behaviors. Thus, the 'normal' adolescent that delves into a bit of trouble once or twice is not the primary concern of most research. Instead, it is the juveniles that go beyond the 'normal-level' of deviant behaviors (i.e. life-course persistent offenders) that are of primary concern. As a result, a significant amount of research has been devoted to differentiating the patterns and trajectories that lead a juvenile to longer stents of criminal behaviors.

One of the primary contributing factors of excessive delinquency is the juvenile themselves experiencing victimization. In fact, McGrath, Nilsen, and Kerley (2011) indicate that approximately 81% of victims in the United States are juveniles between the ages of 12 to 17. Further, Eitle and Turner (2002) argue that juveniles who are exposed to victimization are at "heightened risks for a myriad of social problems, including post-traumatic stress disorder, depression, anxiety, memory and concentration deficits, poor academic performance, and antisocial behavior" (p.233). To illustrate, youth who are victims of sexual abuse show higher levels of deviance, in multiple types and degrees, than any other form of victimization (Chandy, Blum, and Resnick 1996; Widom 1995)

Agnew (1999) argues that witnessing violent behaviors significantly influences deviant behaviors. Further, Eitle and Turner (2002) echoed Agnew's (1999) findings and add that not only witnessing violent behaviors, but also "a history of receiving traumatic news were significant predictors of criminal behavior" (p.236). As a result, witnessing and/or experiencing violent behaviors significantly increases participation in deviant

behaviors, including violent crimes, property offenses, and drug use (Lin et al. 2011). More specifically, juveniles that witness *and* experience violence reported 36%-41% increases in criminal offending and substance abuse, compared to their peers who had not. These results support a perpetual cycle of violence which often results in a difficult determination of the temporal order of events.

Next, research indicates that socioeconomic status (SES), environmental factors, and familial characteristics increase the likelihood of deviance. To illustrate, Kilpatrick et al. (2000) found that familial characteristics such as parental drug/alcohol abuse is mirrored by juvenile participation in substance abuse. Further, research indicates that lack of emotional support and ineffective discipline from parents reported higher levels of deviant behaviors, overall (Henry, Tolan, and Gorman-Smith 2001). Similarly, Gatti, Tremblay and Vitaro (2009) indicate that parental supervision and income levels are inversely correlated; thus, juveniles with low parental supervision and low income, report higher levels of deviant behaviors (see also Gottfredson and Soulé 2005).

Long-Term Consequences

Experiencing, witnessing, and/or participating in deviant behaviors in adolescence is associated with a host of emotional and behavioral long-term problems. For example, a juveniles' chronic involvement in deviance has been linked to depression, low self-esteem, and/or low social control in adulthood (Eitle and Turner 2002; Gatti et al. 2009; Kilpatrick et al. 2000). Further, Eitle and Turner (2002) indicate that youth whom witness violent behavior are more likely to develop antisocial behaviors which can be

"manifested in many ways, including an increased risk of being involved in crime" (p.232). For example, Ireland and Smith (2009) found that these youths are also more likely to commit intimate partner violence later in life.

Research indicates that situational and familial factors are exacerbated for disadvantaged youth (i.e. low SES, urban/inner city, poor familial ties) which are more likely to be officially processed through the juvenile justice system (Gatti et al. 2009). Consequently, studies have found that *official* interventions (i.e. through the juvenile court system), especially for low-risk youth, can have iatrogenic effects thereby causing more harm than good (Gatti et al. 2009; Latessa, Gendreau, and Cullen 2002). In fact, research indicates that juvenile court interventions are linked to long-term effects such as mental illness, alcoholism, and recidivism (Gatti et al. 2009; Latessa et al. 2002; McCord 1978). Moreover, youth deviance that results in involvement from the juvenile court system increases the likelihood of involvement in the adult penal system (Gatti et al. 2009). Thus, it quickly becomes difficult to escape this perpetual cycle and often results in persistent criminal behaviors.

EARLY INTERVENTION

Cookie-cutter programs that are designed as a one-size-fits all approach to deviance are likely to be ineffective and inefficient. In fact, research suggests that the most effective approaches are ones which are tailored to the individual juvenile (Latessa et al. 2001). As such, an individuals' deviance level is measured on an overall probability of offending or reoffending (Lowenkamp and Latessa 2004). Thus, indicators that should

be considered when devising a treatment program include factors such as antisocial values, antisocial peers, poor self-control (i.e. impulsivity), poor problem-solving skills, family dysfunction, and past criminality (Latessa et al. 2002). Early intervention requires the use of proper assessments to determine the course of action and/or treatment. Andrews, Bonta, and Hoge (1990) argue that three principles must be considered in devising a proper, individualized intervention strategy: risk, needs, and responsivity. These three factors are dynamic risk factors and are sometimes referred to as criminogenic needs.

Risk, Needs, & Responsivity

Andrews et al. (1990) explain that the risk principle is based on predictions of future deviance centered upon individual characteristics and personal circumstances; thus, offenders should be classified using a combination of their static and dynamic risk factors. Next, the needs principle (often referred as criminogenic needs) indicates that an intervention program must be tailored to the individuals' "personal attitudes, values, and thinking styles favorable to violation of the law" (p.33). Finally, the responsivity principle indicates that styles and methods of treatment must incorporate the individuals' levels of receptiveness (i.e. responsivity) (see also Latessa et al. 2002).

Proper assessments of an individual are a crucial step as it determines the course of intervention (Latessa et al. 2002; Lowenkamp, Latessa, Holsinger 2006). It is argued that only high-risk offenders should be targeted for change and that targeting low-risk offenders can cause iatrogenic effects causing more harm than good (Gottesman and

Schwarz 2011; Latessa et al. 2002; Laub and Sampson 2001; Sampson and Laub 2003). To illustrate, when comparing a treatment program between low- and high-risk offenders, Latessa et al. (2014) found that the program reduced recidivism for the high-risk offenders by more than 30%. However, when low-risk offenders were placed in the same program it increased their recidivism rates by 7%. It is common consensus that low-risk offenders generally have prosocial personalities, and by placing them in a rigorous intervention program with high-risk offenders, it provides opportunities to learn antisocial behaviors. Thus, low-risk offenders acquire new deviant behaviors that likely would have never transpired if they had been able to desist from deviance naturally (Lambie and Randell 2013; Lowenkamp and Latessa 2004).

SOCIAL CONTROL THEORY

This study will use Hirschi's (1969) social control theory to examine the impacts of social bonds on crime in the period of transition between adolescence and young adulthood. Social control theory argues that a person's social bonds are the "key to delinquency control: if social bonds fail to develop or are broken, many will choose to engage in forms of delinquency which are rewarding to them" (Braithwaite 1989:27). More specifically, Hirschi (1969) argues that there are four social bonds that work simultaneously to determine a person's propensity to offend: attachment, commitment, involvement, and belief.

Further, social control theory argues that everyone is capable of deviant behaviors. In fact, Hirschi (1969) maintains that the important question is 'why don't we

do it' (p.34). This, Hirschi (1969) asserts, is due to the strength of social bonds, our beliefs in societal laws/customs, and our degrees to which we believe we should abide by societal laws/customs. As such, Hirschi (1969) contends that "we honor those we admire not by imitation, but by adherence to conventional standards" (p.152). Thus, intimate relationships (i.e. parents, school, and peers) significantly affect the likelihood of choosing deviant behaviors. This study examines whether social bonds influence not only deviance in adolescence, but if the effects are persistent for young adults.

THIS RESEARCH

This paper utilizes data from Wave 1 and Wave 3 of the National Longitudinal Study of Adolescent Health (Add Health) 1994-2008 to examine the impacts of social bonds on crime in the transition between adolescence and young adulthood (Harris and Udry 2018). As a result, it will trace these respondents through the key peak ages (Hockenberry and Puzzanchera 2018). This research will examine adolescents at 13-17 years of age (Wave 1) and young adults at 20-24 years of age (Wave 3). Thus, this paper will follow the trajectory of these individuals through a total timespan of 14 years. These ages were chosen because, as Benda and Corwyn (2002) indicate, "they are congruent with developmental stages identified in the literature as relevant to significant differences in social, cognitive, and moral development as well as to increases in various forms of delinquency" (p. 343; see also Moffitt 1993; Sampson and Laub 1990). The original dataset consists of 6,504 respondents. After reducing the sample to individuals that

participated in both Wave 1 and Wave 3 surveys, and to respondents that indicated they had a mother (discussed in chapter 3), the sample for this research is 3,742 respondents.

To say that Hirschi's (1969) social control theory has been extensively researched would be an understatement. In fact, it has been credited as being one of the most prominent cited works regarding delinquent behavior (Durkin, Wolfe, and Clark 1999). However, despite the nothing short of impressive list of research previously examining social control theory, there remains significant gaps in the literature. This dissertation will refocus attention to these areas with seven hypotheses (included in Figure 1 and Figure 2 for clarity):

Hypothesis 1: Increased social bonds in adolescence will result in decreased property crimes committed in adolescence.

Hypothesis 2: Increased social bonds in adolescence will result in decreased crimes against persons committed in adolescence.

Hypothesis 3: Increased social bonds in adolescence will result in lower substance use adolescence.

Hypothesis 4: Increased social bonds in adolescence will result in decreased property crimes committed in young adulthood.

Hypothesis 5: Increased social bonds in adolescence will result in decreased crimes against persons committed in young adulthood.

Hypothesis 6: Increased social bonds in adolescence will result in lower substance use in young adulthood.

Hypothesis 7: Increased social bonds in adolescence will result in lower overall deviance in young adulthood.

Along with the above hypotheses, this research offers other significant contributions to the literature on social control theory. First, this project examines all four social bonds in order to thoroughly examine the effects on deviance. Research contends that bonds formed in adolescence have a lasting effect throughout adulthood (Alarid, Burton Jr., and Cullen 2000; Benda and Corwyn 2002; Le Blanc 1994; Wright et al. 1999). Thus, by looking at all four social controls, this research will establish whether all four measures remain relatively consistent over this period, or if there are significant changes.

Next, this study examines multiple forms of deviance, categorized as: property offenses, person offenses, and substance use. Further, each form of deviance is observed at various levels. For example, in order to gain a better understanding of social control theory's effect on property offenses, this research looks at four different types/degrees of property offenses: burglary, stealing something worth more than $50, property damage, and stealing something worth less than $50. By breaking up overall deviance into offense

Figure 1: Illustration of Social Bonds on Deviance in Adolescence (Wave 1), Hypotheses 1-3

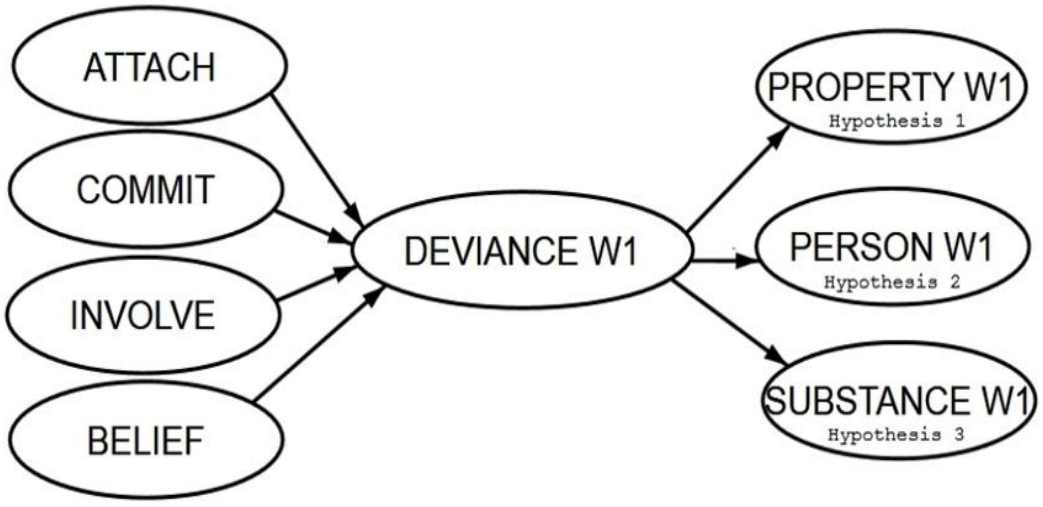
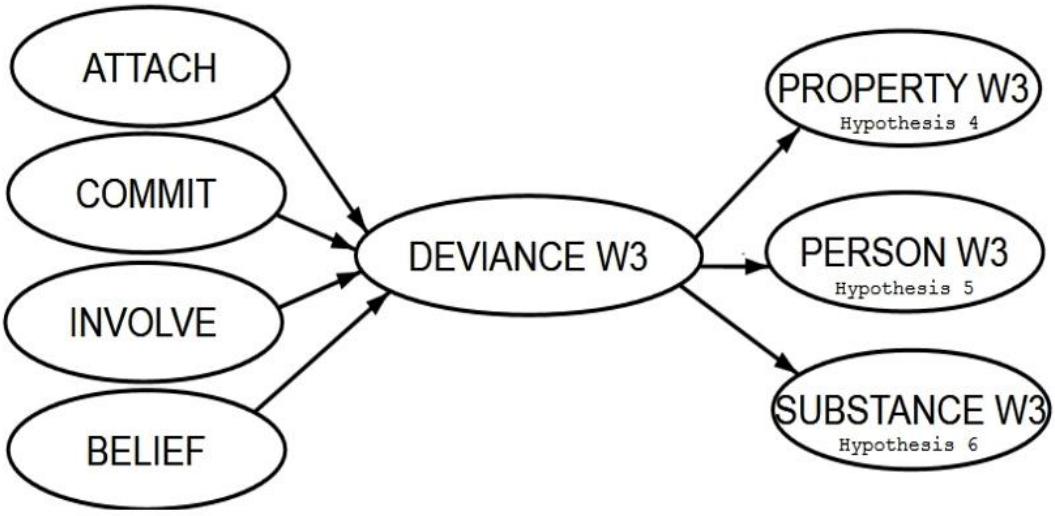


Figure 2: Illustration of Social Bonds on Deviance in Young Adulthood (Wave 3), Hypotheses 4-6



specific categories it provides significant advancement to the literature by examining the degree of the effects on varying levels of deviance. As a result, this research can be viewed both broadly (i.e. the effects of social control theory on overall deviance) and narrowly (i.e. the effects of social control on property crime in adolescence). As such, this project will add to the generalizability of social control theory for many types of offenses and on many levels.

Finally, it will add a longitudinal analyses of a nationally representative sample with a significant sample size (n= 3,742). More specifically, this study will examine the effects of social control in two time periods: adolescence and young adulthood. By utilizing a longitudinal study, it will not only provide a better understanding with regards to the significance of social controls throughout this critical timeframe, but it will also demonstrate their impacts and lasting effects. Further, this adds to the generalizability of social control theory by using a large representative sample.

ORGANIZATIONAL LAYOUT

The remainder of this project is separated into four sequential chapters. Chapter 2 consists of an extensive literature review with regards to Hirschi's (1969) social control theory. This includes a thorough discussion concerning the conceptual framework of the theory, what is known about the theory though previous research findings, and the gaps in the literature that this research will address. Next, Chapter 3 discusses the data and methods used in the research design of this project. Thus, it will include all coding and measurements, and provide a thorough description of all constructs. Subsequently, Chapter 4 will discuss the analyses and findings. Specifically, it will provide an in-depth description of the operationalized structural equation models and their findings. Finally, Chapter 5 will provide discussions of the findings and address whether the study found support for the investigated hypotheses. Here, the limitations of this study and suggestions for future research will also be considered.

CHAPTER II

SOCIAL CONTROL THEORY

ASSUMPTIONS OF CONTROL THEORY

Originating with Thomas Hobbes in the 17th century, control theory maintains that men are innately bad and the only means of compelling them to obey the law is by creating and enforcing strict punishments for disobeying it (Regoli, Hewitt, and DeLisi 2017). As Benda and Corwyn (2002) illustrate, "control theory rests on the Hobbesian assumption that persons are inherently self-gratifying, and what needs to be explained is control over natural impulses" (p.345). This focus on preventing naturally impulsive and hedonistic behavior shows the classical foundations of this theory.

One of the basic premises behind classical theory is that there are no distinguishable differences between criminals and non-criminals. Classical theorists argue that individuals have free-will, and with that, it is a cognitive choice to disobey laws and/or societal norms. As such, classical theory is in stark contrast to its counterpart, positivist theory. Positivist theory maintains that factors uncontrollable by an individual (e.g. physical, biological, sociological) cause individuals to partake in deviant actions.

One of the earliest and most well-known positivist theorists is Cesare Lombroso, with his theory of born-criminals, or the criminal man. Lombroso argued that the small percentage of individuals that commit the majority of criminal offenses, or particularly

heinous acts, were distinguishable from 'normal' individuals by physical characteristics. For example, Lombroso maintained that criminals were not as evolved as 'normal' individuals and displayed physical characteristics, such as the shape of the skull which resembled primitive features. Lombroso (1891) argued further, that "the step of the left foot of criminals is generally longer than that of the right" (p.188).

Lombroso was an early pioneer of positivist theory; however, modern-positivist theorists instead argue that biological, physiological, and/or sociological attributes predispose individuals to criminality. To illustrate, Caspi et al. (1994) found that constraint (i.e. self-control) and negative emotionality (i.e. aggressiveness, alienation, and stress) significantly impact an individuals' predisposition to criminality. Additionally, Rowe (2001) contends that chemical compositions in the brain effect ones' criminal propensity. For example, Rowe (2001) argues that neurotransmitters in the brain, such as dopamine and serotonin, influence the body's nervous system and the responses to external stimuli. Consequently, individuals with abnormal (more or less) chemical, brain compositions are more likely to exhibit impulsive and aggressive behaviors which are often associated with criminogenic behaviors (see also Cullen and Agnew 2011). Positivists theories have significantly progressed in complexity compared to the explanation of physical characteristics offered by Lombroso; however, what links these theories is the contention that individuals that commit deviant acts do so because of external forces outside of their control. Accordingly, positivist theorists argue that individuals whom are deviant are in need of help, not punishment.

Contrary to this, classical theorists contend that there are no 'born criminals'. Instead, they argue that through rational decision-making, individuals choose whether to deviate from conventional laws and norms by calculating risks versus rewards. For this reason, classical theorists argue that all people have the innate desire of self-gratification. However, what controls these impulses is 'what is at stake'. For example, most individuals wish to be wealthy, but most individuals do not rob a bank to do so. Why not? Classical theorists argue that 'what is at stake'– in this example going to prison, familial disappointment, and societal disapproval (to name a few) – control the actions of an individual. In other words, external factors serve as a source of control to the individual.

Rational choice theory is perhaps the epitome of classical theories. As the name indicates, rational choice theory contends that individuals use rational, mindful calculations to determine their behaviors—including their decisions to participate in criminal activities (Piliavin et al. 1986). In other words, individuals rely on a calculated cost-benefit analysis in order to determine the course of their actions. Thus, rational choice theory places emphasis, and blame, at the individual-level.

Another classical theory, routine activities theory, argues that in order for crime to occur, there must be a concurrence of three factors. Frist, there must be a suitable target; in other words, something of intrinsic value. Second, there must be a lack of capable guardians (i.e. not monitored). Finally, there must be the presence of a likely offender. With just one of these three elements absent, it is sufficient to prevent crime from occurring (Osgood et al. 1996). Thus, analogous to the classical school of thought, forces

external to the individual (i.e. suitable target, lack of guardians) are deterrents to criminal behaviors.

The nexus of classical theories is that individuals are innately hedonistic and rationally choose to commit crimes to their benefit. Thus, classical theories look for sources external to the individual to control natural impulses. One caveat to this simplified description is Gottfredson and Hirschi's (1990) general theory of crime, also known as self-control theory. As the name implies, the impetus of self-control theory is that an individuals' level of self-control is directly related to their criminal propensities. At first glance, this appears to be in stark contrast to the classical school of thought as self-control indicates that internal mechanisms are the driving factors– ideals that are normally found within the positivist school of thought. However, Gottfredson and Hirschi (1990) were certain to clarify that a major influence on an individuals' self-control is through effective parenting in childhood. Thus, in line with the classical school of thought, external factors are critical in the depiction of self-control theory. Gottfredson and Hirschi (1990) argue that "people who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, shortsighted, and nonverbal, and they will tend therefore to engage in criminal and analogous acts" (i.e. drinking alcohol, smoking, using illegal substances, etc.) (p.90). Thus, as people are naturally hedonistic, those lacking in self-control are more likely to seek immediate gratification, including criminal behaviors and deviance.

One of the original, classical control theorists was F. Ivan Nye. Nye was particularly interested in familial effects of social controls and limited much of his research to this topic. Nye contributed to social control theory in two ways. First, he was one of the first individuals to use self-report surveys of high school students– which was innovative at the time, as most information was obtained through official records of adjudicated youth (Wells 2010). Second, Nye identified four types of social controls: direct control, indirect control, internalized control, and availability of need satisfaction (Wells 2010). Nye (1958) indicates that direct control is simply the use of rewards and punishments for appropriate and inappropriate behaviors. Next, indirect control pertains to behavioral conformity based on what others might think of the actions (i.e. societal acceptance). Internalized control is essentially an individual's consciousness of right and wrong that influences behaviors by relying on self-constraint. Finally, availability of need satisfaction relates to possessing the means (i.e. money, education) and capabilities (i.e. transportation) of achieving personal needs and goals**.**

Nye's research paved the road for understanding deviance through social controls. He made several familial observations that significantly influence deviant behaviors. For example, Nye (1955) found that youth living in households where the parents frequently argued and disagreed influenced deviant behavior more than youth living in single-parent families. Next, Nye, Carlson, and Garrett (1970) discovered that youth living in larger families had higher rates of delinquency. Further, urban youth and instability (i.e. moving frequently) had significant effects on delinquent behaviors (see also Nye 1958). Nye

(1967) additionally found a reciprocal relationship between child-parent trust and affection (see also Nye and Weeks 1956). As such, youth that respected and felt close to their parents were less-likely to participate in deviant actions. Although Nye's research did not include rigorous, statistical measurements his work has remained relatively stable and provides significant insight into the dynamics of familial-deviance behaviors.

Another originating control theorist was Walter Reckless with his contamination theory. Reckless (1961) argued that deviance could be understood by the involvement of two control agents: inner and outer controls. Inner controls, as the name implies, are the inner consciousness of an individual, including their personality, goal orientation, and acceptance of societal norms. Outer controls are external factors influencing an individual, which includes socialization and one's social environment. Reckless (1961) further identified what he referred to as 'pushes and pulls'– which tempt individuals to participate in deviant behaviors. Pushes are pressures to participate in deviant behavior, while pulls draw an individual away from conventional behaviors. Therefore, an individual's inner and outer controls are used as defense mechanisms against pushes and pulls. Thus, the stronger an individuals' inner and outer controls, the less-likely the individual will be to engage in deviant behavior(s).

Reckless' (1960) containment theory was devised as a way to explain mid-level deviance. As a result, Reckless (1960) identified factors that are beyond the scope of containment theory. For example, he argued that containment theory does not explain deviance in the presence of strong physiological factors (i.e. inner pulls) such as compulsions, phobias, and personality disorders. Additionally, Reckless (1960) indicated

that containment theory was ineffective at explaining deviance in groups where deviance is expected (i.e. gangs). Further, it was not intended to explain petty, 'normal' deviance such as juvenile status offenses–those only applicable to juveniles, such as curfew and school truancy. Finally, Reckless (1960) argued that containment theory was not applicable to subcultural deviance, such as organized crime.

Nye and Reckless both looked for multiple sources of control; however, for both *external* controls were crucial. Thus, control needs to be external to individual in order to influence the rational process of decision making. This external emphasis is important for the most widely tested and most well-known version of control theory– Hirschi's (1969) social control theory.

HIRSCHI'S SOCIAL CONTROL

The ideals of social control have a very long history. However, Travis Hirschi's (1969) research in *Causes of Delinquency* greatly expounded upon the original tenets. Hirschi (1969) utilized data that was a part of the Richmond Youth Project which included 17,500 students from 11 different schools. After accounting for attrition for various reasons (i.e. nonresponses, denied by parents, etc.), Hirschi's research resulted in a final sample size of 4,077 juveniles. Hirschi (1969) relied upon self-report questionnaires which contained approximately 480 questions. The questions included related to the majority of areas and issues surrounding a juvenile's milieu, such as: parents, school, teachers, activities, discipline, friends, criminal involvement, and

aspirations. In order to test for validity, Hirschi (1969) corroborated the data with school records, completed questionnaires, and police records.

Hirschi (1969) based his research on common themes he found to continually emerge throughout the criminological literature. First, Hirschi (1969) identified three primary foundational relationships that are the most influential in a juvenile's milieu– family, school, and peer groups. These foundational relationships are external to the individual and serve as forms of control. From this, he argued that there is a certain degree of predictability with regards to delinquent behaviors. As such, Hirschi (1969) developed his version of social control theory which indicates that juvenile delinquent behavior can be assessed, on the individual-level, with four specific facets: attachments, commitments, involvements, and beliefs.

Attachment

First, *attachment* is the emotional bond to other individuals, which include the values that are placed on their opinions and/or approval of the individual's behaviors (Braithwaite 1989; Hirschi 1969). Simply stated, attachment can be thought of as the bond individuals have with influential people or groups that the person greatly respects and admires. Hirschi (1969) contends that the family is the fundamental institution wherein pivotal traits such as respect, trust, and admiration are formed. Despite arguments that families of lower classes encourage criminal behaviors (i.e. class-culture), Hirschi (1969) found regardless of social class the "effects of attachment are the same...the stronger the attachment, the less likely the child is to be delinquent" (p.229).

Thus, the relationships that a juvenile has with his or her family significantly shape the character of the individual. As such, when a juvenile is faced with the numerous opportunities to be deviant, those with strong attachments and bonds to family are more likely to consider the reaction and disappointment the act would cause to their family (Alarid et al. 2000; Anderson et al. 1999; Benda and Corwyn 2002; Coombs and Landsverk 1988; Erickson, Crosnoe, and Dornbush 2000).

Researchers contend that the bonds an adolescent form with their family have lasting effects on an individual well into adulthood, and perhaps the rest of his or her life (Alarid et al. 2000; Benda and Corwyn 2002; Le Blanc 1994; Wright et al. 1999). For this reason, the attachment bond is one of the most frequently used in research regarding deviance. To illustrate, Benda and Corwyn's (2002) research used attachment to examine the effects that abuse during childhood and adolescence had on violent behaviors. Through self-report surveys of 1,031 adolescents between the ages of 13 to 18, in five public high schools, Benda and Corwyn (2002) maintain that "the family seem[s] to remain a significant influence on violence throughout the span of adolescence" (p.359). As a result, weak familial attachments were predictive of delinquency in early adolescence. Additionally, Huebner and Betts (2002) reached similar conclusions in their study examining delinquency and academic achievement. Their study, which included 911, 7^{th}-12^{th} graders, found that attachment bonds have an overall protective function which is especially heightened for females.

Individuals can have attachments to many different groups. Two of the most commonly examined in the literature are peers and families. Although peer attachments

can significantly influence deviant behaviors, association with deviant peers is normally the result of weak attachments to the family. As such, research indicates familial bonds supersede those of peers when familial bonds remain stable and strong. In fact, Benda and Corwyn (2002) contend that peer bonds only become more significant than familial bonds when an adolescent is attempting to fill the void of weak familial bonds of attachments. Accordingly, the salience of the family bond cannot be overstated.

Commitment

The second bond examined by Hirschi (1969) is *commitment* which is the actual investment in socially recognized, conventional activities. Hirschi (1969) found that the individual's "*desire* to do well is more strongly related to delinquency than [their] hopes, plans, and prospects" (p.186, emphasis added). In other words, an individual's convictions regarding commitments to conventional goals (i.e. education, adulthood, high-status occupation) are more relevant to deviance than *actual* obtainments or achievements. Commitment, as Hirschi (1969) illustrates, is "when or whenever he considers deviant behavior, he must consider the costs of this deviant behavior, the risk he runs of losing the investment he has made in conventional behavior" (p.20). This not only applies to the individual bonds formed, but to all investments. For example, individuals invest a significant amount of time, money, and effort into furthering their education to prepare for a career or to move up the ladder. However, all of these investments would be lost if the individual were to be caught plagiarize their way through

college. Commitment, then, is the thought processes of considering 'what is at stake' if an individual chooses deviant behavior(s).

The importance of the commitment bond is so pronounced that in their study of substance use and deviance, Krohn and Massey (1980) found that commitment was the strongest predictor of deviant behaviors. Their self-report study, which included 3,065 adolescents in 7th through 12th grade, examined the influence of social bonds over four categories of substance use frequencies and delinquent behaviors (ranging from minor to severe). Krohn and Massey (1980) noted that in all but one category (minor substance use) commitment was the strongest social bond element. Interestingly, they found that the attachment bond was consistently the weakest predictor of all four categories analyzed in their research.

Similarly, research by Durkin et al. (1999) on control theory and binge drinking found that commitment to grades was one of the most important predictors of binge drinking. Their study of 247 college students (all under 21 years of age), found that belief and commitment variables accounted for nearly 25% of the variance in frequency of binge drinking. Relatedly, a study by Erickson et al. (2000) of social control theory on substance use and delinquency, found that attachment and commitment were the strongest predictive indicators. More specifically, Erickson et al. (2000) found that parental and teacher attachments and educational commitment were significantly associated with substance use and overall delinquency.

Involvement

The third bond, *involvement*, includes the time spent doing conventional activities– with more involvements leaving less time to partake in delinquent acts (Braithwaite 1989; Hirschi 1969). This element of the social bond theory is often explained as the "idle hands are the devils workshop" factor (Cullen, Wright, and Blevins 2008; Hirschi 1969). Hirschi (1969) illustrates that "a person may be simply too busy doing conventional things to find time to engage in deviant behavior" (p.22). It is important to note, however, that all conventional involvements may not bear the same weight, nor may not be identical for males and females. Further, Hirschi (1969) found that it is difficult to isolate "involvement from other aspects of the social bond" (p.189). As a result, Hirschi (1969) found that involvement bonds may have been overestimated; however, this does not negate the importance of involvement bonds as a *whole*. Thus, involvements in conventional activities impact overall deviance, despite their direct effects often proving to be difficult to discern.

Huebner and Betts (2002) found that involvement in school extracurricular activities, hours spent studying, and hours spent doing chores were the only activities that had a significant impact on deviance and academic achievement for both males and females. These activities accounted for up to 15% of the total variance in deviance (10% for females and 15% for males) and up to 16% of the total variance in academic achievement (15% for females and 16% for males). However, involvements such as volunteering or general unstructured activities were not significant with regards to deviance or academic achievement for either males or females.

The conflict in the importance of involvements can be demonstrated by two studies. Evans et al. (1995) found that the involvement bond was the most significant in their study regarding religiosity. More specifically, their study, which included 477 white respondents over 18 years of age, measured the effects of religion on adult criminality. They found that involvement in religious activities was the strongest predictor and deterrence on adult criminality. On the contrary, Jenkins' (1997) research of 754, $7^{th} – 8^{th}$ graders, found involvement to be the weakest predictor. More specifically, Jenkins (1997) found overall support for social control theory's ability to explain school delinquency (i.e. crimes, misconduct, nonattendance); however, involvement was the weakest predictor of social bonds in schools.

Belief

Finally, *belief* is simply an individuals' acceptance of societal norms and legal codes. Hirschi (1969) argues that social control theory was not intended to answer the questions pertaining to the motives and drives of deviant behavior. Instead, he contends that it was designed to address the question "Why don't we do it?" (p.34). Accordingly, Hirschi (1969) maintains that "delinquency is not caused by beliefs that require delinquency but is rather made possible by the *absence* of (effective) beliefs that forbid delinquency" (p.198, emphasis added). In other words, as individuals are unique, so too are their principles and values regarding deviant behaviors. Thus, the impetus to commit crime according to Hirschi (1969), is that individuals have varying degrees of belief in the law.

Social control theory maintains that the three primary intimate groups (i.e. parents, school, and peer groups) are the foundations that instill the degree to which an individual believes in and abides by the rules, norms, and conducts of society. However, similar to involvement bonds, Hirschi (1969) found that "belief in the moral validity of the law is consistently related to the measures of attachment and commitment" (p.203). Thus, Hirschi (1969) found that beliefs in conventional norms and legal codes are often displayed in a reciprocal effect regarding the individuals' other social bonds (i.e. attachment, commitment, involvement). In other words, those with low attachment bonds are less likely to be committed to conventional goals. As a result, these individuals are also less likely to hold strong beliefs with regards to societal norms and laws.

There is an array of research conducted on varying forms and types of delinquent behaviors that support the contention that belief is an essential factor in predicting deviant behavior (Alarid et al. 2000; Benda and Turney 2002; Chan and Chui 2013; Durkin et al. 1999; Gardner and Shoemaker 1989; Junger and Marshall 1997; Stewart 2003; Wiatrowski 1981). In fact, some have found that it was the most important factor. To illustrate, in an effort to determine the ethnic and cross-national generalizability of social control theory, Junger and Marshall (1997) examined four ethic groups in the Netherlands. Their results indicated that despite the differences with regards to ethnicity, belief was the principal factor that was consistently related to deviance. Similarly, in a study of 10th graders, Stewart (2003) found that belief in school rules was the strongest predictor of school misbehavior. Further, Longshore et al. (2004) found in their study of

1,036 male drug offenders, that moral belief and association with substance using peers fully mediated the effects of low self-control or drug use.

SUPPORT OF SOCIAL CONTROL

Social control theory has been used to explain a wide array of delinquent behaviors. For example, Le Blanc (1994) indicated that two out of the three most prevalent factors in predicting adult criminality are school performance and attachment to peers– both, elements of social bonds. Similarly, Durkin et al. (1999) found that all of the social control bonds were predictive of binge drinking, with nearly 25% of the variance in binge drinking explained by the model. Finally, in a study examining youth who have already committed acts of violence, Resnick, Ireland, and Borowsky (2004) illustrate that the introduction of *any* three protective factors that are linked to social control (e.g. parental expectations, connectedness with parents, connectedness with school, high GPA, etc.) can reduce male offending up to 28% and female offending up to 40%.

In addition to predicting different delinquent outcomes, social controls have also been used to examine other relationships, particularly parental relationships, that are key factors in predicting crime. For example, Hirschi (1969) indicates that, "the fact that delinquents are less likely than non-delinquents to be closely tied to their parents is one of the best documented findings in delinquency research" (p.85). Thus, due to the importance of parental bonds, social controls have also been successfully utilized in examining the effect of parenting styles on deviance. For example, Griffin et al.'s (2000) study of 228 6th graders, found that more parental monitoring was associated with lower

participation in delinquency. Similarly, Coombs and Landsverk's (1988) research, which used 443 respondents between the ages of 9-17, indicates that youth who are emotionally attached to parents, and understand what is un/acceptable behaviors, are less likely to engage in delinquent activities.

Finally, research consistently indicates that early intervention is crucial to preventing the escalation of juvenile deviance from minor acts into severe deviance (Banyard et al. 2006; Benda and Corwyn 2002; Benda and Turney 2002; Brookmeyer et al. 2006; Henrich, Brookmeyer, and Shahar 2005; Resnick et al. 2004; Wright et al. 1999). To illustrate, Wright et al. (1999) found that social bonds and adolescent deviance predict later adult crime. In other words, if acts of deviance in adolescence are precursors to adult crime, utilizing the tenets of social control theory could provide a crucial opportunity to intervene before deviant acts escalate to irreversible patterns. This becomes even more pronounced among juveniles with an early onset of delinquency, which research indicates is a consistent predictor of adult criminality (Huesmann et al. 2002; Laub and Sampson 2001; McCord 1991; White et al. 1990). In fact, Henrich et al. (2005) indicate that there may be a critical timeframe, that if delinquent behaviors continue to escalate, intervention becomes essentially ineffective. As such, these high-risk adolescents are the precise individuals that need early interventions (Latessa et al. 2002; Laub and Sampson 2001; Sampson and Laub 2003).

CRITIQUES OF SOCIAL CONTROL THEORY

As with any theoretical model, social control theory is not spared from its share of criticisms. There are three primary criticisms that dominate the literature on social control theory. These focus on the lack of attention to religion, sex differences, and the scope of behaviors the theory can predict.

First, and likely the most frequently contested, is Hirschi's (1969) decision to exclude religion as one of the primary bonding agents in social control theory (Bahr and Hoffman 2008; Benda and Corwyn 2002; Burkett and White 1974; Cretacci 2003; Desmond, Soper, and Kraus 2011; Hill and Pollock 2014). As Hill and Pollock (2014) illustrate, "since the theory was published in 1969, criminologists have debated (and continue to debate) whether the omission of religion was correct in the first place and whether that omission is empirically defensible" (p.786). An abundance of research has since emerged in attempts to validate the connection between greater religiosity resulting in less deviance (Allen and Lo 2010; Bahr and Hoffmann 2008; Bahr et al. 1998; Baier and Wright 2001; Benda and Turney 2002; Chu 2007; Desmond et al. 2011; Evans et al. 1995; Hill and Pollock; Hirschi and Stark 1969; Johnson et al. 2001; Longshore et al. 2004). To illustrate, in a study consisting of 1,725 youth between the ages of 11-17, Hill and Pollock (2014) examined religion affiliation and substance use. They found that involvement in religious services, and belief in religion, decreased substance use. Still others contend that religious affiliations do not influence deviant behaviors. For example, although not a specific study on social control theory, in "Hellfire and Delinquency", Hirschi and Stark (1969) found that involvement in religious activities and belief in

supernatural had no effect on delinquency. Further, Cochran and Akers (1989) maintain that "it is important to note, with few exceptions, the findings generated by these contemporary scholars suggest, at best, only modest associations between religiosity and deviance" (p.219).

Similar to the exclusion of religion, another frequent criticism of Hirschi's (1969) social control theory is the failure to consider the ways in which gender plays a role in social controls. For example, feminist criminologists have criticized Hirschi's (1969) methodological decision to account for gender differences. However, Hirschi (1969) argues that social control theory is essentially gender-neutral, contending that social bonds work similarly for males and females– as both being equally capable of bonding with intimate groups (i.e. parents, school, and peers). Therefore, because his theory rests upon the strengths of social bonds, Hirschi (1969) did not see the utility of adding gender-specific variables to the social bonds.

In spite of Hirschi's failure to examine social controls on females, other researchers have done so and found that the theory is applicable (Alarid et al. 2000; Anderson et al. 1999; Chapple, McQuillan, and Berdahl 2005; Huebner and Betts 2002: Özbay & Özcan 2008; Smith and Paternoster 1987). That is, for both males and females, the strength of social bonds has a direct effect on deviant behaviors. To illustrate, Anderson et al. (1999) conducted a study to determine if there were gender differences regarding the effects of attachments within the social bonds. Their study utilized self-administered questionnaires to 123 adolescents (72 boys and 51 girls) between the ages of 12 to 18 whom were remanded in juvenile facilities. They found that there was no

distinguishable difference in the level of attachments. In other words, males and females held similar strengths of attachments in their milieu of social bonds. However, they discovered that the severity of deviant behavior was substantially different between the two sexes. To illustrate, Anderson et al. (1999) found that for boys, attachment to parents and the number of parents in the household were the most significant mediating factors in the severity of deviance. However, for girls, attachment to peers and attachment to school were the most significant factors in the severity of deviance. Therefore, attachments remain significant for both boys and girls; however, there is a gendered distinction in the significance of who is the most important of the three primary intimate groups (i.e. parents, school, and peer groups).

Finally, the third most prevalent criticism is with regards to the scope of social control theory. Numerous studies have reported that social control theory is only applicable to predicting minor crimes or deviance (Agnew 1985, 1991; Benda and Turney 2002; Krohn and Massey 1980; Smith and Paternoster 1987). For example, Agnew (1985) found that the amount of variance explained by factors of social control is more predictive of a composite measure of deviance that focused on minor acts such as vandalism and status offenses (28.5%), compared to measures of serious deviance such as violence, theft, and arson (14.7%). Further, Agnew (1985) indicates that when longitudinal models were conducted the variances explained by social controls decreased dramatically. As a result, he contends that longitudinal models demonstrate that social control variables are only capable of predicting 1-2% of future deviance.

On the contrary, perhaps the reason that social control theory demonstrates more predictability for minor offenses (as opposed to severe offenses) is due to their sheer volume in numbers. In other words, adolescents are much more likely to commit minor, nonviolent deviant acts than they are to commit severe crimes (Jenkins 1997; Moffitt 1993). This is not to suggest that they do not partake in major criminal offenses, only that this is not the standard. In fact, data indicates that in 2015 nearly 60% of all juvenile delinquency cases were property and public order offenses (Gottesman and Schwarz 2011). Further, it is estimated that nearly a quarter of all detained youth are in confinement due to a status offense–those offenses applying only to juveniles (e.g. truancy, curfew, underage drinking, etc.)– or, for a technical violation of a status offense charge (Sawyer 2018).

CONTRIBUTIONS OF CURRENT RESEARCH

As illustrated, social control theory has an extensive amount of research which indicates the importance of social bonds with regards to deviance. However, despite the numerous studies on social control theory, there remain substantial gaps among the literature. First, a vast majority of research on social bonds are considerably dated. For example, Gardner and Shoemaker's (1989) study consisted of 733, 8^{th} -12^{th} graders in order to examine the effects of social control theory on rural and urban youth. They found that the belief and attachment bonds were the most significant influence on delinquency particularly for rural youth. Although research such as this does add additional

understandings to social control theory, the findings are rather negated with such a small sample size and dated research from 30 years ago.

Second, previous literature has significantly relied upon cross-sectional data by measuring specific bonds and/or specific forms of deviance at one point in time (e.g. Alarid et al. 2000; Benda and Turney 2002; Huebner and Betts 2002; Krohn and Massey 1980). However, this merely shows the impact of controls at one point in time and does not allow for assessment of how controls matter in the crucial transition period as individuals shift from juveniles to young adults. For this reason, this study will utilize longitudinal data from the same cohort of individuals at two points of age– adolescence and young adulthood. This will enable an examination of the trajectory of social bonds on varying forms of deviance from adolescence into young adulthood. As research suggests, this time period is critical because it is here that adult pathways are formed. As a result, this study will capture the salience of specific bonds, on specific forms of deviance, which prevail through an approximately 14-year timespan.

Third, there is a significant amount of research that only focuses on one or two of Hirschi's (1969) social controls (Allen and Lo 2010; Anderson et al. 1999; Baier and Wright 2001; Benda 1995; Benda and Corwyn 2002; Erickson et al. 2000; Huebner and Betts 2002). In fact, much of the previous literature focuses on attachments and beliefs, while commitment and involvement are not as frequently examined. To illustrate, Anderson et al. (1999) examined the attachment bond among male and female delinquents. Their study found that of the 123 adolescents (ranging from 12 to 18 years old) remanded to a juvenile correctional facility, there were no differences in male and

female attachments to parents, peers, or school. However, as previously noted, Anderson et al. (1999) did find that delinquency varied by the degree of specific attachments for males and females– indicating that boys' delinquency was reduced with increased parental attachments and girls' delinquency was reduced with increased peer and school attachments.

There is very little research that includes all four social bonds, and those that do are greatly limited in scope. To illustrate, Chan and Chui (2013) conducted research on school bullying using 365 male participants between the ages of 10-17. They found that organizational involvement, educational commitment, and belief in the laws were predictive of bullying behaviors. However, a sample size of 365 respondents, as well as only using male respondents, significantly reduces any generalizability outside of their target population. Likewise, Marcos, Bahr, and Johnson's (2001) study, which included 2,626 respondents between the ages of 14-19, examined the effects of social controls on adolescent drug use. They found that social control theory explains variations of lifetime substance use. More specifically, social control theory can explain lifetime uses ranging from cigarette use (27%) to overall drug use (50%). Again, this study provides further understandings regarding the utility of social control theory; however, their research was specifically regarding substance use– which limits the generalizability of social control theory predicting other deviant behaviors (i.e. property offenses, person offenses).

The current study does not refute the importance or significance of previous research focusing on specific forms of deviance; however, by researching singular types of offenses, past work fails to provide a total or overall effect (i.e. scope) of social bonds

regarding multiple forms of deviant behavior. As a result, this study will examine the effects of attachments, commitments, involvements, and beliefs on property offenses, offenses against persons, and substance use. By including all four elements of social control in the examination of multiple forms of deviance, it is the aims of this research to provide a more thorough understanding of which bond(s) effect differing types and degrees of deviance.

Although prior research, such as those discussed above, are important additions to the literature and understanding of social controls, examining only one or two types of social controls provides an incomplete assessment, at best. Further, the studies that do include all four bonds either have very small sample sizes, are limited in scope, or are significantly dated. Without properly addressing all of the bonds, confirming or refuting social control theory is piecemeal. This research will add further understandings of social control theory by utilizing all four social bonds in order to achieve three objectives. First, it will examine the ability of social control theory to predict juvenile deviance. Second, it will assess social control theory's ability to predict young adult crime. Finally, it will determine if there are any lasting impacts of social bonds from adolescence through young adulthood.

CHAPTER III

DATA & METHODS

This research utilizes data from the National Longitudinal Study of Adolescent Health (Add Health) 1994-2008 (Harris and Udry 2018). Add Health is a U.S. representative, longitudinal study of 6,504 adolescents which began with Wave 1 when the respondents were between 11-21 years of age (grades 7-12) through Wave 4 when the respondents were between 24-32 years of age. Add Health progresses through four in-home interviews as well as parent in-school interviews. The Add Health dataset was chosen for this study due to its breadth of measurements and its highly regarded reputation among researchers in academia.

This research aims to determine the effects of social bonds in adolescence through young adulthood, relevant to deviance. In doing so, this research will rely upon all public-available data for Waves 1 and Waves 3. As a result, it will permit measurements in adolescence and young adulthood. This provides a tremendous advantage by observing the timespan that literature indicates is the most prevalent with regards to beginning and desisting from delinquent behaviors (Brame and Piquero 2003; Hirschi 1969; Laub and Sampson 2001). It should be noted that the exclusion of Wave 4 was due to the age of the respondents (26-32 years of age) as this research is specifically interested in adolescence through young adulthood. Further, the age of respondents in Wave 3 (18-28 years of age)

are more likely to still be influenced from early social bonds (Banyard et al. 2006; Benda and Turney 2002).

Waves 1 and 3 were combined by merging the datasets on a one-to-one key variable with the respondent's identification number; this method was chosen so that the merged dataset includes only those respondents that participated in both Wave 1 and Wave 3 surveys. The merged dataset yielded n= 4,882 respondents. Subsequently, because this research is interested in a specific age category, the dataset was reduced to only those respondents born between the years of 1977-1981. This results in a timespan wherein the respondents were 13-17 years of age (YOA) in Wave 1 and 20-24 YOA in Wave 3. By narrowing the dataset to age-specific respondents it resulted in an n=3,984. Finally, preliminary factor analyses indicated that relating to attachment bonds (discussed below), only adolescent's maternal bonds were statistically significant; therefore, respondents that indicated that they had 'no mother' were excluded from the study. Hence, the final sample for this study is n= 3,742 respondents.

ANALYTIC STRATEGY

This research employs multiple confirmatory factor analysis (CFA) techniques in order to generate seven structural equation models (SEMs). By utilizing CFA techniques, it provides greater confidence in the variables selected and the final models produced (Marcos et al. 2001). Accordingly, it is used as a method of verifying the parameters for the final structural equation models. Structural equation models are used in this research due to the complexity of the model and the size of the population sample. By using

SEM's it permits the inclusion of multiple indicator variables to operationalize the latent variables; this, in turn, reduces measurement error (Acock 2013; Kline 2011). Additionally, SEM's also provide the ability to model error terms in order to reduce the likelihood of over/under estimation of population parameters (Acock 2013; Alaviafar, Karimimalayer, and Anuar 2012; Kline 2011; Johnson et al. 2001). Next, by using the maximum likelihood with missing values (MLMV) method, all variables will be included– despite missing values. In fact, MLMV was specifically developed for such data as it "assumes joint normality and that the missing values are missing at random" (Acock 2013:15). Additionally, in order to verify that data was missing at random, a series of dummy variables were created which indicated that none of the dummy variables checked were significant. Finally, SEM's offer the benefit of being able to test entire models, to test them overall, and to observe the influences of specific variables. (Asher 1976; Kline 2011; Long 1983)

Structural equation models 1-3 will examine social bonds and deviance of respondents in Wave 1 (13-17 YOA). Next, SEM's 4-6 will examine social bonds in Wave 1 and deviance in Wave 3 (20-24 YOA). Resultantly, models 4-6 will include their own control and deviance variables; however, because this research aims to examine the impacts of social bonds formed in adolescence on deviance in young adulthood, the SEM's will include the same social bonds from Wave 1. The seventh SEM will examine social bonds and overall deviance in both adolescence and young adulthood. The models and variables are discussed in great detail below.

Sample Characteristics

The control variables used are age, sex, race, and income (Table 1). Age was restricted to respondents born between the years of 1977-1981. The sample includes 46% males and 54% females. Race is coded as: non-Hispanic white (62%), non-Hispanic black (24%), Hispanic (10%), non-Hispanic race-other (4%). All race controls are coded as dichotomous variables (0=no and 1=yes). It should be noted that non-Hispanic whites are not included in the analyses as they are used as the reference group.

Finally, due to the skewed differences, income was standardized by the log in both waves in order to make comparisons across time periods. There was a significant amount of missing/non responses in both waves. In Wave 1, there were 800 (469 missing and 331

Table 1: Descriptive Statistics of Sample Population

Age	Wave 1	Wave 3
Mean	14.92	21.96
Min	13	20
Max	17	24
Variable	Freq.	%
Male	1720	45.96
White	2488	66.61
Black	927	24.77
Hispanic	387	10.34
Race- Other	232	6.20

'refused') missing responses totaling a 79% response rate. In Wave 3, there were 786 missing responses (67 'missing', 80 'refused', 627 'don't know', 12 'not applicable'), totaling a 79% rate. With this said, Hirschi (1969) himself did not find a statistically significant correlation between social class (which includes income) and deviance. In fact, Hirschi (1969) contends that "regardless of the class…of the parent, the closer the boy's ties to him, the less likely he is to commit delinquent acts" (p.97). He further argues that research does not support a 'class culture' wherein lower-class parents encourage delinquent behaviors. For these reasons, in this research, it was decided that utilizing the income control variable with a large number of missing responses was not paradoxical or imperative to the reliability of findings.

SOCIAL BONDS

Hirschi's (1969) social control theory consists of four separate social bonds: attachment, commitment, involvement, and belief. Correspondingly, this study will measure each bond individually. For all SEM's, social bonds will be operationalized utilizing four indicator variables per bond, for a total of 16 social bond variables. As previously noted, because this research is concerned with the long-term effects of social bonds formed in adolescences on deviance into young adulthood, the four social bonds will only be operationalized in the Wave 1 dataset. As a result, it will demonstrate the strength between bonds formed at ages of 13-17 to deviance in both adolescence and young adulthood (20-24 YOA).

Attachment

Hirschi (1969) identified attachment as the emotional bonds individuals form with those in their social milieu. Accordingly, in adolescence these consist of family, school, and peers. This research does not refute the importance of peer influences on deviant behaviors–which is especially apparent with regards to deviant peers. That said, much literature suggests that adolescents commonly associate with deviant peers as a causal reaction from low/broken parental bonds in their lives; in other words, it creates a reciprocal effect (Agnew 1985; Griffin et al. 2000; Hirschi 1969; Jenkins 1997; Paternoster 1983). Further, research indicates that the bonds an adolescent forms with their family have lasting effects on an individual well into adulthood, and perhaps the rest of his or her life (Alarid et al. 2000; Benda and Corwyn 2002; Le Blanc 1994; Wright et al.1999). As a result, this research thus focuses exclusively on parental attachments.

The Add Health dataset measures maternal and paternal bonds separately. Additionally, it does not provide information regarding one or two parent households. For example, variables are separated as "lives with father" and "lives with mother"; however, there is no way to discern if the respondent lives with *both* parents. Through preliminary factor analyses it was discerned that only an adolescent's maternal bonds exhibited statistical significance concerning attachments. One reason that paternal bonds did not load on the parental attachment factor is likely due to the high number of 'no father' responses—with response rates indicating that 1,036 (28%) respondents did not have father-figures in their household. However, in comparison, only 370 (6%) of respondents indicated that they did not have a mother-figure present in their home. For this reason, the

dataset was amended to include only respondents that indicated they had a mother, resulting in excluding 370 respondents from the analyses.

Factor analyses were used to determine the best indicators to generate a scale of attachment (note: the factor analyses are discussed in great detail in Chapter 4). In total, there were four maternal variables used to operationalize attachment– all of which are supported by empirical research (Agnew 1985; Agnew 1991; Alarid et al. 2000; Bahr and Hoffmann 2008; Bahr et al. 1998; Benda 1995; Benda and Corwyn 2002; Benda & Turney 2002; Brendgen et al. 2001; Brookmeyer et al. 2006; Chan and Chui 2013; Chapple et al. 2005; Coombs & Landsverk 1988; Cretacci 2003; Durkin et al. 1999; Gardner and Shoemaker 1989; Griffin et al. 2000; Hirschi 1969; Huebner and Betts 2002; Krohn and Massey 1980; LeBlanc 1994; Longshore et al. 2004; Marcos et al. 2001; Özbay and Özcan 2008; Resnick et al. 2004; Smith and Paternoster 1987; Wiatrowski et al. 1981; Wright et al. 1999). All maternal variables were coded on a five-point Likert scale (ranging from 1-5). When necessary, variables are reverse coded so that higher number responses indicate a stronger agreement.

The first three variables included the same responses coded as (1) strongly disagree to (5) strongly agree. These three variables include: *Most of the time, your mother is warm and loving toward you*; *You are satisfied with the way your mother and you communicate with each other;* and; *Overall, you are satisfied with your relationship with your mother*. The final attachment variable is: *How close do you feel to your {mother/adoptive mother/step mother/foster mother/etc.}* and included the response categories of (1) not at all to (5) very much. A variety of variables were used to measure

attachment in order to obtain a more detailed level of the attachments. For example, it would be conceivable for a respondent to feel that his or her mother is warm and loving toward them, still nevertheless, not feel close to their mother. By including a thorough range of different forms of attachment it provides a *strength* of attachment that can be used to measure its impact on various factors, such as deviance.

Commitment

Commitment is described as the personal investment into socially recognized, conventional behaviors (Hirschi 1969). In other words, the energy and effort that one puts into abiding by societal standards. Due to the age category (13-17 years of age) in Wave 1, the respondents are not likely to have too many commitments (e.g. work, children, spouse, etc.). Accordingly, the commitment indices only include items related to the energy and effort put into school commitments- as these are likely the most pressing during this timeframe.

Similar to existing research (Agnew 1985; Agnew 1991; Bahr et al. 1998; Chapple et al. 20005; Cretacci 2003; Desmond et al. 2011; Durkin et al. 1999; Huebner and Betts 2002; Krohn and Massey 1980; LeBlanc 1994; Marcos et al., 2001; Özbay and Özcan 2008; Paternoster et al. 1983; Resnick et al. 2004; Stewart 2003; Wiatrowski et al. 1981; Hirschi 1969) the respondents' letter grades in multiple subjects are utilized as an indication of the invested efforts in these commitments. Analogously, commitment is operationalized with four questions which ask: *What was your most recent grade in {English/Math/History/ Science}*. In order to correspond with the direction of the scales

of other variables included in the model, grades were reverse coded on a four-point Likert scale, as (1) D or below to (4) A.

Involvement

Involvement can be rationalized simply as 'time spent'. Hirschi (1969) argues that more involvement (i.e. time spent) in conventional activities will result in less deviant behavior. The involvement latent construct is operationalized with four variables that all measure the amount of time the respondent spent involved in the activities. As Hirschi (1969) indicates, involvement consists of time spent partaking in conventional activities; in other words, activities which keep an individual busy so that they do not have time to be involved in delinquent behavior. For example, time spent hanging out with friends is more likely to lead to delinquent behavior than time spent playing a sport. As such, the variables included are related to traditional, physical and/or mental exertion.

All of the variables included to operationalize involvement are supported both theoretically and empirically (Agnew1985; Chapple et al. 2005; Gardner and Shoemaker 1989; Hirschi 1969; Huebner and Betts 2002; Krohn and Massey 1980; LeBlanc 1994; Paternoster et al. 1983; Stewart 2003; Hirschi 1969). The first two questions are coded on a four-point Likert scale as (1) not at all to (4) 5 or more times, and were asked of all respondents. These questions ask: *During the past week, how many times did you play an active sport, such as baseball, softball, basketball, soccer, swimming, or football*, and; *During the past week, how many times did you do exercise, such as jogging, walking, karate, jumping rope, gymnastics or dancing*. The last two questions were coded on a

four-point Likert scale; responses for these variables range from (1) never to (4) 5 or more times. These two questions ask the respondents: *During the past week, how many times did you do hobbies, such as collecting baseball cards, playing a musical instrument, reading, or doing arts and crafts*, and; *During the past week, how many times did you do work around the house, such as cleaning, cooking, laundry, yardwork, or caring for a pet*.

Belief

Hirschi (1969) was interested in why individuals choose *not* to be deviant. For this reason, he argued that it was an individuals' acceptance and respect of societal norms (e.g. laws, police, persons of authority, etc.) that prevented them from breaking norms and codes. Similar to the commitment construct, due to the age of the sample population in Wave 1, their ideals concerning things such as legal codes and persons of authority are likely to be limited and not fully developed. Consequently, this research will include items that mimic these elements on an adolescents' milieu. Although some items may not be identical to those used by Hirschi (1969), they will mirror the original items and are supported both theoretically and empirically (Agnew 1985; Brookmeyer et al. 2006; Chapple et al. 2005; Cretacci 2003; Durkin et al. 1999; Gardner and Shoemaker 1989; Hirschi 1969; Jenkins 1997; LeBlanc 1994; Özbay and Özcan 2008; Stewart 2003; Wiatrowski et al. 1981).

The belief construct is operationalized with four variables on five-point Likert scales. All variables included use the same scale of measurements ranging from (1) strongly

disagrees to (5) strongly agree. The first variable asks the respondents: *When you get what you want, it's usually because you worked hard for it*. This question was included because it indicates to what degree the respondents believe in the classic 'American Dream' of achieving anything you want through hard work. The second question asks: *How much do you agree or disagree with the following statement: You feel like you are doing everything just about right*. This item demonstrates the respondents' understanding of societal norms and values by being able to rate their own actions against what society deems correct and/or appropriate. Similar questions are found within the literature. For example, Hirschi (1969) and Özbay and Özcan (2008) asked respondents if they believed: *in order to get ahead you have to do some things which are not right*– this question, reversed, essentially asks about the respondents' self-assessment of doing right or wrong. Similarly, the third question included asks respondents: *How much do you agree or disagree with the following statement: You feel socially accepted*. Again, this question exemplifies the respondents' discernment of acceptable behaviors. This question was chosen as it is similar to Hirschi's (1969) original question, which asked respondents how much they felt that "*most people like me*" (p.297). Finally, the last question asks: *How much do you agree or disagree with the following: The teachers at your school treat students fairly*. This question is supported theoretically and empirically for two primary reasons. First, it illustrates the respondents' adherence to authoritative figures. Second, it expresses the respect and acceptance of rules of conduct established to maintain order and fairness.

DEVIANCE

As this research aims to observe the long-term effects of early social bonds on deviance into young adulthood, deviance will be measured in both Wave 1 and Wave 3. It is necessary to measure deviance in both waves of data in order to establish a starting point that will be used to follow deviant behaviors throughout this timespan. By doing so, it will establish patterns of deviance that can be followed from adolescence through young adulthood. Subsequently, this research will identify which formations of early bonds remain the most relevant with regards to deviant behaviors.

The deviance latent construct will be operationalized in SEM's 1-6 as three manifest variables: property crime, crimes against persons, and substance use. Due to the complexity of the model, for SEM 7, additive indexes for deviance subscales, generated for bivariate analyses (discussed in chapter 4) are used. However, previous research demonstrates that deviance indices are utilized frequently (Agnew 1991; Alarid et al. 2000; Anderson et al. 1999; Benda 1995; Brookmeyer et al. 2006; Chan and Chui 2013; Durkin et al. 1999; Erickson et al. 2000; Evans et al. 1995; Gardner and Shoemaker 1989; Huebner and Betts 2002; Johnson et al. 2001; Krohn and Massey 1980; Marcos et al. 2001; Paternoster 1983; Wiatrowski et al. 1981). Further, due to differences in the original coding scales and the complexity of the model, all variables used to operationalize the deviance additive indexes were standardized by their averages in both waves.

In order to maintain reliability throughout the longitudinal timeframe, variables were only included if they were present in both. Therefore, status offenses—those only

applicable to minors (i.e. curfew, truancy, underage consumption)—will not be included in the primary analyses. Next, all deviance offenses in Wave 3 originally included a 'not applicable' response which were collapsed into the 'no/none' (0) categories. Finally, when necessary, variables were coded so that higher numbers on the response scale equal higher frequency. In total, there are 13 variables included to operationalize the deviance latent construct, with at least 4 variables per subscales.

Property Crime

The property crime construct was operationalized with four variables which were coded on a four-point Likert scale ranging from (0) never to (4) 5 or more times. All variables included are supported both theoretically and empirically in a variety of research (Agnew 1985; Agnew 1991; Alarid et al. 2000; Benda 1995; Benda and Corwyn 2002; Benda and Turney 2002; Chapple et al. 2005; Chu 2007; Desmond et al. 2011; Evans et al. 1995; Gardner and Shoemaker 1989; Griffin et al. 2000; Hirschi 1969; Hirschi and Stark 1969; Huebner and Betts 2002; Johnson et al. 2001; Junger and Marshall 1997; Krohn and Massey 1980; LeBlanc 1994; Paternoster et al. 1983; Wiatrowski et al. 1981).

The property crime variables include: *In the past 12 months, how often did you deliberately damage property that didn't belong to you*; *How often did you go into a house or building to steal something*; *In the past 12 months, how often did you steal something worth less than $50*; *In the past 12 months, how often did you steal something worth more than $50*. The property crime construct includes multiple degrees of severity

in order to obtain a greater in-depth understanding in a range of offenses. However, one must keep in mind that nearly all property offenses are generally considered, by law, to be less severe than person offenses (discussed below). To illustrate, if a person were to steal something worth $50 from a clothing store this would be considered a 'petty theft', and in most States is considered a misdemeanor. However, if the same person were to steal *any* item from a person (with or without a weapon), in most States, this is a robbery and would constitute a felony.

Persons Crimes

The crimes against person's latent construct was operationalized with four variables. The original variables were coded substantially differently; therefore, in order to maintain consistency, all variables were coded as dichotomous with (0) no and (1) yes. Due to the variances in the original scales used, variables were transformed from 'how often' to 'have you ever' responses. To illustrate, all 'never' and 'not applicable' responses were coded as (0) no, while all numerical response (e.g. '1 or 2 times', '3 or 4 times', '4 or more times') were collapses into a single (1) yes response. However, due to the uncertainty of 'don't know' and 'refused' responses, these were coded as missing.

All person crimes variables have been used numerous times in previous literature (Agnew 1985; Agnew 1991; Benda and Turney 2002; Brookmeyer et al. 2006; Chapple et al. 2005; Gardner and Shoemaker 1989; Junger and Marshall 1997; Krohn and Massey 1980; LeBlanc 1994; Resnick et al. 2004; Wiatrowski et al. 1981). The person crimes construct includes: *How often did you hurt someone badly enough to need bandages or*

care from a doctor or nurse; *How often did you use or threaten to use a weapon to get something from someone; During the past 12 months, how often did you pull a knife or gun on someone*, and; *During the past 12 months, how often did you shoot or stab someone*. Again, a diverse selection of person offenses was included in order to obtain more information regarding these types of crimes.

Substance Use

The substance use latent construct was operationalized with five variables, which were all coded on a six-point Likert scale ranging from (0) never to (5) 31 or more times. Further, substance use variables were recoded so that respondents who answered 'never have used' each substance as 'no' (0). It should be noted that in Wave 3 there was 1 response missing from the original dataset, thereby reducing the n=3,741 for the substance use manifest, variable. Similar to the other deviance subscales, the substance use indices include multiple degrees of severity. Additionally, all variables included are supported both theoretically and empirically (Alarid et al. 2000; Allen and Lo 2010; Bahr and Hoffmann 2008; Bahr et al. 1998; Benda 1995; Benda and Turney 2002; Bernburg and Thorlindsson 2005; Cochran and Akers 1989; Desmond et al. 2011; Durkin et al. 1999; Evans et al. 1995; Ford and Hill 2012; Griffin et al. 2000; Hill and Pollock 2014; Hirschi 1969; Jenkins 1997; Junger and Marshall 1997; Krohn and Massey 1980; Marcos et al., 2001; Paternoster et al. 1983; Resnick et al. 2004; Smith and Paternoster 1987). To illustrate, in their study of binge drinking, Durkin et al. (1999) relied upon a single-item that asked respondents "how often in the last semester they had consumed five or more

drinks in a sitting" (p.455). They found that nearly all social controls were negatively correlated with binge drinking. Thus, as social controls increase, binge drinking decreases.

The substance indices include: *During the past 12 months, on how many days did you drink alcohol*; *Over the past 12 months, on how many days have you gotten drunk or 'very, very high' on alcohol*; *During the past 30 days, how many times did you use marijuana*; *During the past 30 days, how many times did you use other types of illegal drugs {LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills without a doctor's prescription}*, and; *How often did you sell marijuana or other drugs*.

CONCLUSION

Analyzing Hirschi's (1969) social control theory in its entirety is no small feat. Much of the difficulty arises due to the latent, and often ambiguous, constructs. For example, the overall latent 'social bonds' construct also needs to operationalize the latent constructs for commitment, attachment, involvement, and belief. For SEM 7, in order to simplify the model for both statistical analyses and theoretical comprehension, indices were created to operationalize the deviance constructs (i.e. property offenses, person offenses, and substance use) into manifest variables. The use of indices is well supported in the literature, and proved to be vital to model convergence in the data analyses.

This research has attempted to utilize variables that are original to the theoretical model presented by Hirschi (1969). Nevertheless, at times, when questions were not asked in the exact manner as the original analyses, this study relies upon theoretical

knowledge and empirical research as a guide to acceptable alternatives. In this chapter all variables in the SEM's are identified– with the social bonds constructs consisting of 16 variables and the deviance constructs consisting of 13 variables. Additionally, supporting evidence for each variable was also included. Finally, this chapter provides an in-depth description of the coding processes for all of the variables included.

The next chapter (Chapter 4) provides much more detail with regards to the statistical analyses of the included variables (i.e. descriptive statistics, frequencies, factor analyses, etc.). When necessary, it will also provide tables and/or graphs to illustrate descriptions. Next, it will demonstrate the individual findings for all models (i.e. Wave 1 and Wave 3). Finally, it will use these analyses to determine the applicability of social control theory in relation to the effects of social bonds on deviance over this timespan.

CHAPTER IV

FINDINGS

This chapter first presents the findings from the measurement models of the key variables of social bonds and deviance. It then examines the bivariate relationships between social control and deviance, and finally examines the full model. This study includes six structural equational models (SEM's) which measure the effects of social bonds in adolescents and in early adulthood. Each latent construct and the corresponding subscales will be addressed separately with corresponding tables which illustrate the findings. Finally, a seventh SEM is included to illustrate the effects of social bonds formed in adolescence on deviance at two-points of time, adolescence and young adulthood.

FACTOR RESULTS FOR BONDS AND DEVIANCE

In order to conduct univariate and bivariate analyses, additive indexes (scales) of each social bond were created. Research indicates Cronbach alpha scores are likely to be considerably underestimated in scales with a small amount (<6) of indicator variables (Huysamen 2006; Yang and Green 2011). Thus, Cronbach alpha scores were not used as test of reliability for the additive indexes due to the low number of indicators for each scale- all scales have 4 indicators, with the exception of substance use which has 5 indicators. Thus, additive indexes were developed using two steps. First, factor analyses

were conducted for the items that were theoretically identified as representing each bond in order to determine if the items loaded on one underlying trait. This was done in order to create weighted, standardized measures of the dependent variables for some of the bivariate analyses. Second, the preliminary results were used to guide the inclusion of items in the structural equation models. In order to represent the increasing strength of the bond, the indexes were created by adding together the items representing the bond. The factor loadings, as well as the statistics for each index, are displayed in Table 2**.**

Bonds

The four items representing attachment all loaded very strongly on one factor. Each item had a factor loading over .70 on the first factor, and the eigenvalue was 2.84. The additive attachment variable included 3,733 observations with a mean of 17.14 and a standard deviation of 3. The high mean indicates that most of the sample feels highly attached to their mothers. In fact, 27.97% of the respondents had an attachment score of 20, which indicates that all of the items were selected at the highest level. Further, only 1.31% had an attachment score of 10.

The four items representing commitment loaded very strongly on one factor. Each item had a factor loading over .70 on the first factor, and the eigenvalue was 2.27. The additive commitment variable included 2,884 observations with a mean of 11.49 and a 2.98 standard deviation. The commitment mean indicates that nearly a quarter (22.8%) of the sample maintains a C grade average. However, 51.6% had commitment scores

ranging from 12 to 16, which indicates that over half of the sample reported grades of at least a B or above.

Three out of the four items that represent belief loaded moderately well (exercise, sport, hobbies), obtaining a factor loading above .60. The fourth item (housework) loaded relatively poorly on the first factor at .38. However, taking the housework item out of the model made no statistically significant changes to the SEM outcomes. Thus, it was decided to follow the literature with regards to the involvement construct and retain the housework item. The involvement index included 3,739 observations with a mean of

Table 2: Social Bond Indexes & Descriptive Statistics

INDEX/ items	Mean	Std. Dev.	Min.	Max.	Fact. Load
ATTACHMENT	17.14	3.00	4	20	
mom warm & loving	4.36	0.79	1	5	.78
good communication w/ mom	3.99	1.05	1	5	.88
good relationship w/ mom	4.26	0.92	1	5	.90
close to mom	4.51	0.79	1	5	.79
COMMITMENT	11.49	2.98	4	16	
English grade	2.86	0.95	1	4	.78
math grade	2.69	1.03	1	4	.71
history grade	2.94	1.00	1	4	.77
science grade	2.88	0.99	1	4	.76
INVOLVEMENT	8.57	2.53	2	14	
exercise	1.65	1.05	0	3	.69
play sport	1.39	1.14	0	3	.68
hobbies	1.48	1.08	0	3	.62
housework	2.05	0.88	0	3	.38
BELIEF	15.18	2.29	4	20	
accomplishments w/ hard work	3.89	0.87	1	5	.49
do things right	3.73	0.88	1	5	.79
feel socially accepted	4.08	0.75	1	5	.76
teachers are fair	3.46	1.08	1	5	.48

6.57and a 2.53 standard deviation. The involvement mean illustrates that half of the sample reported at least one type of physical or mental exertion 3 or more times a week.

Finally, the four items used to operationalize the belief additive index appear to be tapping into two separate subscales. The factor analysis indicated that two of the items load at .75+ and the other two items load at .48. However, it was decided to retain all four items as they represent a much wider range of items that reflect belief. The additive belief variable included n=3,734 observations with a mean of 7.81 and a standard deviation of 1.40.

Deviance

The aim of this research is to determine the effects of early social bonds on deviance from adolescence to young adulthood. Therefore, unlike the social bonds constructs, the deviance constructs are operationalized in both Wave 1 and Wave 3 (Table 3 and Table 4, respectfully). In order to conduct univariate and bivariate analyses, additive indexes of three types of deviance were created: property offenses, person offenses, and substance use. These were developed by conducting factor analyses for the items that were theoretically identified as representing each form of deviance. The factor loadings, as well as the statistics for each index, are displayed in Table 3 and Table 4. In order to address the fact that deviance is low in this sample, all deviance subscales used in the

univariate and bivariate analyses were standardized based on their respective weightings from factor analyses.

The four items used to generate the property offense additive index loaded strongly on one factor. Each item had a factor loading over .65 on the first value and the eigenvalues were 2.09 in Wave 1 and 2.05 in Wave 3. The additive property offense index included 3,719 observations. As illustrated in both Table 3 and Table 4, the levels of deviance are very low for this sample. For example, in Wave 1 property offenses (Table 3), stealing something worth more than $50 is the most common property offense; however, it has a mean that is less than one (.31). To illustrate, a summary statistic showed that 95.22% of the respondents indicated that they have never stolen anything

Table 3: Deviance Indexes & Descriptive Statistics (Wave 1)

INDEX/ items	Mean	Std. Dev.	Min.	Max.	Fact. Load
PROPERTY OFFENSES	0	1	-0.42	8.73	
property damage	0.24	0.56	0	3	.65
steal something worth > $50	0.07	0.37	0	3	.75
burglary	0.06	0.34	0	3	.73
steal something worth < $50	0.31	0.75	0	3	.76
PERSON OFFENSES	0	1	-0.33	7.49	
badly injure a person	0.17	0.38	0	1	.52
threaten person with weapon	0.04	0.19	0	1	.72
pull knife/gun on a person	0.05	0.21	0	1	.78
shot/stabbed someone	0.01	0.12	0	1	.74
SUBSTANCE USE	0	1	-0.53	10.74	
alcohol use	1.05	1.42	0	6	.73
frequency drunkenness	0.61	1.19	0	6	.78
marijuana use	0.28	0.91	0	6	.79
other drug use	0.08	0.54	0	6	.63
sell drugs	0.11	0.49	0	3	.65

worth more than $50; therefore, despite it being the most common occurrence, only 4.79% of the sample indicated that they have ever stolen something worth more than $50.

Three out of the four items used to operationalize the person offense subscale loaded strongly on one factor (threaten person w/ weapon, pull knife/gun on someone, and shot/stabbed someone), with factor loadings greater than .70 in Wave 1 and greater than .50 in Wave 3. However, in both waves the eigenvalue dropped significantly from the first to second factor, indicating that there is only one underlying construct. In Wave 1 the eigenvalue on the first item was 1.93 and 0.86 on the second. In Wave 3 the eigenvalue on the first item was 1.71 and 0.89 on the second item. Thus, all four items

Table 4: Deviance Indexes & Descriptive Statistics (Wave 3)

INDEX/ items	Mean	Std. Dev.	Min.	Max.	Fact. Load
PROPERTY OFFENSES	0	1	-0.28	12.12	
property damage	0.10	0.35	0	3	.60
steal something worth > $50	0.04	0.25	0	3	.75
burglary	0.02	0.20	0	3	.70
steal something worth < $50	0.10	0.41	0	3	.80
PERSON OFFENSES	0	1	-0.19	15.46	
badly injure a person	0.05	0.23	0	1	.55
threaten person with weapon	0.02	0.13	0	1	.52
pull knife/gun on a person	0.01	0.11	0	1	.77
shot/stabbed someone	0.00	0.06	0	1	.75
SUBSTANCE USE	0	1	-0.96	8.87	
alcohol use	2.22	1.76	0	6	.74
frequency drunkenness	1.14	1.43	0	6	.79
marijuana use	0.59	1.39	0	6	.71
other drug use	0.09	0.53	0	6	.51
sell drugs	0.15	0.58	0	3	.59

were retained in order to capture a greater range of person offenses and to remain consistent with Hirschi's (1969) theory. For example, if hurting a person was dropped from the analysis, the remaining items would all relate to weapon use. This would result in a dramatic change in the underlying meaning of the variable from a person offense index to a weapons offense index. The low deviance rate among this sample is again illustrated in the results of Table 3 and Table 4. For example, in Wave 1 (Table 3) badly injuring someone was the most common occurrence; however, it has a mean much less than 1 (.17) and summary statistics indicated that only 4.7% of the sample had pulled a knife or gun on someone.

The five items that are used to generate substance use loaded strongly together. In Wave 1, all factor loadings are above .60 and with an eigenvalue is 2.65 on the first factor. In Wave 3, all factor loadings are above .50 with an eigenvalue at 2.27 on the first factor. The substance use additive index includes 3,664 observations in Wave 1 and 3,674 in Wave 3. In both waves, alcohol use was shown to be the most common substance use item and overall deviant item. However, despite this item being the most prevalent deviant item, the low deviance rate of the sample indicated that 52.92% of respondents in Wave 1 and 27.09% in Wave 3 indicated they had not drank alcohol in the past 12 months. Overall, these descriptives indicate very low levels of deviance in this sample.

BIVARIATE ANALYSES

Bivariate analyses were conducted in order to assess whether there were any associations between the key variables of interest in this study. The analysis showed

several interesting correlations between demographics and social bonds. As Table 5 (Wave 1) and Table 6 (Wave 3) indicate, males show a positive correlation with all social bonds ($p<.001$), with the exception of commitment. The Pearson coefficients indicate a significant negative correlation between males and commitment in both Wave 1 and Wave 3 ($p< -0.15$ both waves). Thus, males show higher levels of attachment, involvement, and belief; while females have higher levels of commitment.

There are notable correlations between race and social bonds. For example, there is a negative, statistically significant ($p<.001$) correlation between the commitment subscale and Blacks and Hispanics in both Wave 1 and Wave 3. These correlations indicate that Blacks and Hispanics show lower levels of commitment compared to the rest of the sample. For Hispanics in both waves, there is also a negative, statistically significant ($p<.01$) correlation with the involvement subscale. However, there is a small, positive correlation ($p<.05$) between involvement and Whites in both waves. None of the social bonds in Wave 1 or Wave 3 are correlated with any statistical significance for the 'race other' category.

Bivariate analyses between demographics and deviance indexes also include several interesting correlations. In both Wave 1 and Wave 3 the Pearson coefficients indicate a positive, statistically significant ($p<.001$) correlation between males and all forms of

Table 5: Correlation Analysis Between Bonds and Deviance, Wave 1

	MALE	WHITE	BLACK	HISPANIC	RACE-OTHER	ATTACH	COMMIT	INVOLVE	BELIEF	PROPERTY	PERSON	SUBST.
MALE	1.00											
WHITE	0.04*	1.00										
BLACK	-0.04*	-0.75***	1.00									
HISPANIC	0.01	-0.15***	-0.15***	1.00								
RACE-OTHER	-0.02	-0.08***	-0.12***	0.59***	1.00							
ATTACH	0.14***	0.00	0.03	-0.01	-0.02	1.00						
COMMIT	-0.15***	0.11***	-0.12***	-0.08***	-0.02	0.08***	1.00					
INVOLVE	0.11***	0.04*	-0.02	-0.05**	-0.02	0.09***	0.17***	1.00				
BELIEF	0.10***	-0.00	0.00	-0.00	-0.02	0.35***	0.23***	0.14***	1.00			
PROPERTY	0.13***	0.02	-0.05*	0.04*	0.18	-0.17***	-0.17***	0.00	-0.19***	1.00		
PERSON	0.14***	-0.07***	0.06***	0.05*	0.25	-0.08***	-0.20***	0.01	-0.11***	0.37***	1.00	
SUBST.	0.08***	0.09***	-1.01***	0.04*	0.02	-0.17***	-0.21***	-0.08***	-0.16***	0.36***	0.32***	1.00

*p<.05, **p<.01, ***p<.001

Table 6: Correlation Analysis Between Bonds and Deviance, Wave 3

	MALE	WHITE	BLACK	HISPANIC	RACE-OTHER	ATTACH	COMMIT	INVOLVE	BELIEF	PROPERTY	PERSON	SUBST.
MALE	1.00											
WHITE	0.03*	1.00										
BLACK	-0.04*	-0.82***	1.00									
HISPANIC	0.01	-0.01	-0.15***	1.00								
RACE-OTHER	-0.02	-0.01	-0.12***	0.59***	1.00							
ATTACH	0.14***	-0.00	0.03	-0.01	-0.02	1.00						
COMMIT	-0.15***	0.11***	-0.12***	-0.08***	-0.02	0.08***	1.00					
INVOLVE	0.11***	0.03*	-0.12	-0.05**	-0.02	0.09***	0.17***	1.00				
BELIEF	0.10***	0.01	0.00	-0.00	-0.02	0.35***	0.23***	0.14***	1.00			
PROPERTY	0.12***	-0.01	-0.01	0.02	0.02	-0.04*	-0.00	0.02	-0.06**	1.00		
PERSON	0.12***	-0.07***	0.07***	0.01	0.01	-0.01	-0.12***	0.04*	-0.01	0.13***	1.00	
SUBST.	0.22***	0.19***	-0.17***	-0.04*	-0.03*	-0.03*	-0.01	0.06**	-0.03	0.28***	0.15***	1.00

*p<.05, **p<.01, ***p<.001

deviance. In other words, females are less likely to participate in all forms of deviance compared to their male counterparts.

There are notable correlations between race and deviance in both waves. In Wave 1 there are significant correlations between Blacks and Hispanics and property offenses. Blacks show a negative correlation ($p<.05$) with property offenses, while Hispanics show a positive correlation. Thus, indicating that Black respondents show higher levels of property offenses than other races in the sample; while Hispanics show lower levels of property offenses than other races. Both Blacks ($p<.001$) and Hispanics ($p<.05$) show positive correlations with person offenses, while Whites ($p<.001$) show a negative correlation. Thus, Blacks and Hispanics commit more person offenses than whites in the sample. For substance use in Wave 1, both Whites ($p<.001$) and Hispanics ($p<.05$) show positive correlations with substance use, while Blacks ($p<.001$) show a negative correlation. Therefore, Whites and Hispanics are less likely to indicate substance use than other races in the sample. There are no correlations with statistical significance between the race 'other' and any form of deviance in Wave 1. In Wave 3 there were no races with statistically significant correlations between property offenses. Whites ($p<.001$) show a negative correlation with person offenses while Blacks ($p<.001$) show a positive correlation. This indicates that Blacks show lower levels of person offenses than other races in the sample. Finally, in Wave 3, Whites ($p<.001$) show a positive correlation with substance use, while Blacks ($p<.001$), Hispanics ($p<.05$), and race 'other' ($p<.05$) show negative correlations. As such, Whites show higher levels of substance use than other races in the sample.

There are significant correlations between the social bonds and deviance indexes in both Wave 1 and Wave 3. In Wave 1, the Pearson coefficients indicate a negative, statistically significant ($p<.001$) correlation between property offenses and person offenses with the attachment, commitment, and belief indexes. Therefore, as attachment, commitment, and/or belief bonds increase, property and person offenses decrease. Attachment, commitment, involvement, and belief all show negative correlations ($p<.001$) with substance use; therefore, indicating that an increase in any of the social bonds correlates with a decrease in substance use.

In Wave 3, the attachment ($p<.05$) and belief ($p<.01$) indexes have negative correlations with property offenses; which indicates that as attachment and/or belief bonds increase, property offenses decrease. Person offenses show correlations with commitment and involvement in Wave 3. However, commitment ($p<.001$) is negatively correlated with property offenses, while there is a small positive correlation with involvement ($p<.05$). This indicates that as commitment bonds increase there is a correlated decrease in property offenses. However, unexpectedly, the involvement bonds and property offenses indicate correlations in the same direction–as involvement bonds increase property offenses increase, and vice versa. Finally, in Wave 3 there are statistically significant correlations between substance use and the attachment and involvement indexes. Attachment ($p<.05$) shows a negative correlation with substance use, while involvement ($p<.01$) shows a positive correlation. Thus, as attachment bonds increase substance use decreases. However, akin to person offenses, the positive

correlation between involvement bonds and substance use indicates a correlation in the same direction (i.e. as involvement bonds increase substance use increases).

STRUCTURAL EQUATION MODELS

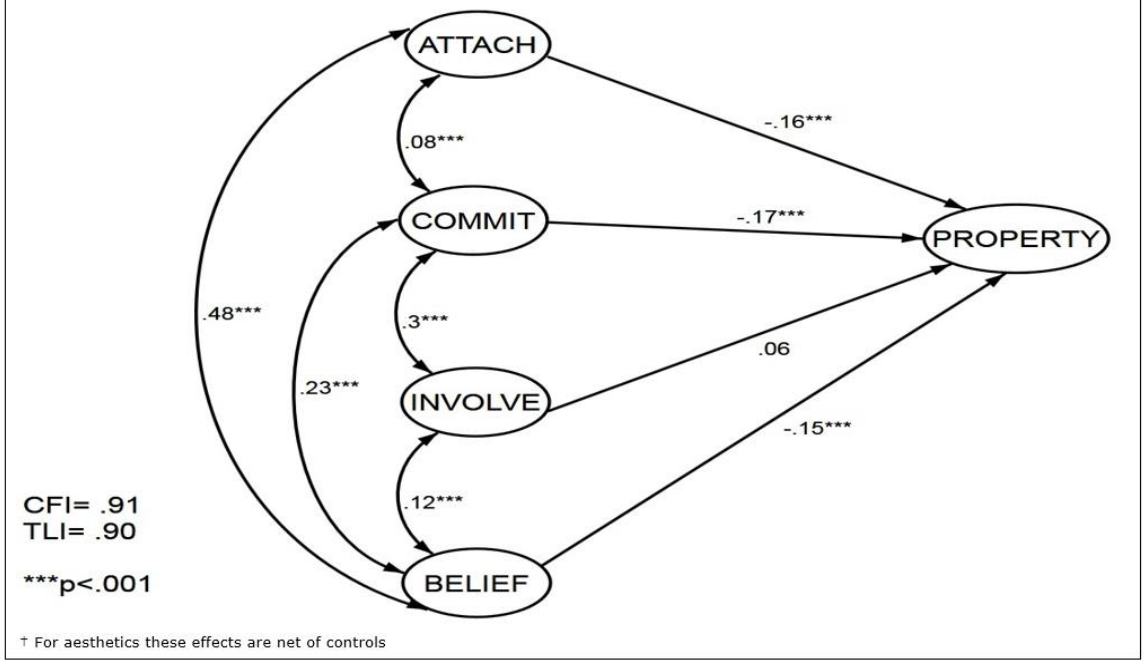
In this section structural equation models (SEM's) between the latent measures of social bonds and each type of deviance will be addressed separately. The following will include six SEM's and tables to illustrate the findings. This section will first discuss the findings for Wave 1 for all forms of deviance prior to moving to Wave 3. Finally, a seventh, full-model will be presented that combines all of the concepts and their respective findings for both waves

Utilizing STATA to generate SEM's provides the option to standardize coefficients and values before running the models which eliminates the constrained first value at 1.00. Next, all control variables were freely allowed to be correlated in all models. Additional covariances were generated one at a time based on modification indices reports for path coefficients and covariances that were constrained or omitted in the fitted model (Acock 2013). The covariances added were done so with theoretical support. For simplicity only estimates for structural path and correlations between the independent and dependent latent constructs are included in the figures of the path models; however, tables are included with each model providing a list of all coefficients of measured variables to their related latent concepts as well as additional controls in the models.

Results for Wave 1

Property Offenses. The first SEM is between social bonds and property offenses in Wave 1 and is illustrated in Figure 3. Listings of all coefficients of measured variables to their related latent concepts appear in Table 8. The model generated acceptable goodness of fit statistics. The RMSEA was .04 which is below the recommended .05 threshold. Further, the comparative fit index (CFI) and Tucker-Lewis index (TLI) were .91 and .90, respectfully; thereby meeting the recommended .90 guidelines. This model indicates that there are clear effects of social bonds on property offenses in Wave 1. For example, the attachment, commitment, and belief latent concepts are statistically significant at p< .001. Thus, Figure 3 indicates that as the attachment, commitment, and belief bonds increase, property offenses decrease. These effects remain even when race, sex, and income

Figure 3: Structural Equation Model of Effects on Property Offenses, Wave 1†



† For aesthetics these effects are net of controls

controls are included (not shown in model for clarity). Thus, hypothesis one is supported with this examination of social control effects on property crime.

Table 7 illustrates the descriptive statistics for error term covariances. The modification report indicated that the respondents' communication with their mother and the strength of their relationship are strongly correlated with a coefficient score of .37 ($p<.001$). This covariance is reasonable as one would expect the strength of a relationship to be significantly influenced by the communication between the individuals. Further, the five covariances between the latent social bonds are theoretically supported as social bonds often overlap and complement each other (Hirschi 1969). However, per modification fit indexes, there was not a statistically significant correlation between attachment and involvement.

Table 7: Descriptive Statistics for Error Term Covariances, Property Offense Model (Wave 1)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Communication–Mom Relationship	.37	.03	12.51	0.000	.31	.43
Exercise–Sport	.18	.02	9.24	0.000	.15	.22
Sport–Socially Accepted	.12	.02	6.63	0.000	.09	.16
Steal > $50–Burglary	.20	.02	10.16	0.000	.16	.24
Attachment–Commitment	.08	.02	3.91	0.000	.04	.12
Attachment–Belief	.48	.02	24.94	0.000	.44	.52
Commitment–Involvement	.30	.03	10.04	0.000	.24	.36
Commitment–Belief	.23	.02	9.66	0.000	.18	.28
Involvement–Belief	.12	.03	3.80	0.000	.06	.19

Table 8 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. As the table indicates, that there is a small statistically significant ($p<.01$), negative relationship between Black respondents and property offenses. Thus, compared to Whites, Black individuals commit less property offenses. Further, there is a statistically significant ($p<.05$) positive relationship between Hispanic respondents and property offenses. As illustrated, compared to Whites, Hispanics commit more property offenses. Next, there is a statistically significant,

Table 8: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Property Offenses, Wave 1

Structural Paths	MLE
Controls	
Male	.17***
Income	.04*
Black	-.06**
Hispanic	.47*
Race Other	-.01
Social Bonds	
Attachment	-.16***
Commitment	-.17***
Involvement	.06
Belief	-.15***

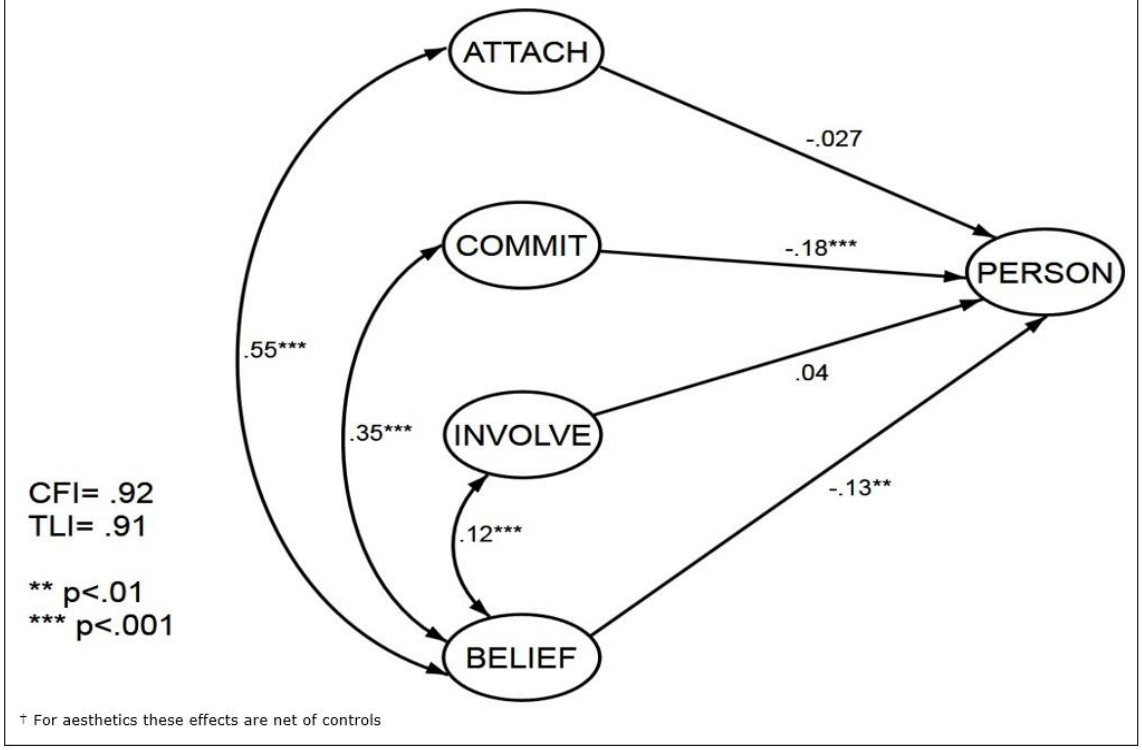
Latent Measures	MLE
Attachment	
mother loving/caring	.70***
communication w/ mother	.80***
relationship w/ mother	.85***
close to mother	.72***
Commitment	
English grade	.69***
math grade	.56***
science grade	.66***
history grade	.69***
Involvement	
exercise	.31***
sports	.33***
hobbies	.56***
housework	.24***
Belief	
hard work	.30***
do things right	.71***
socially accepted	.61***
teacher fair	.31***
Property Offenses	
property damage	.55***
steal > $50	.56***
burglary	.52***
steal < $50	.71***

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

positive relationship between males (p< .001) and income (p< .05) on property offenses. Although the effect income on property offenses is small, this finding is interesting as it indicates that higher income levels lead to higher property offense commissions, which is perhaps opposite of what might be expected.

Person Offenses. The second SEM is between social bonds and person offenses in Wave 1 and is illustrated in Figure 4. A listing of all coefficients of measured variables to their related latent concept appears in Table 10. The model generated acceptable goodness of fit statistics. The RMSEA was .04, while the CFI and TLI were .92 and .91, respectfully. This model indicates that there are clear effects of social bonds on person offenses in Wave 1. More specifically, commitment and belief are statistically significant

Figure 4: Structural Equation Model of Effects on Person Offenses, Wave 1†



† For aesthetics these effects are net of controls

at p<.01 and p<.001, respectfully. Thus, Figure 4 indicates that as commitment and belief bonds increase, person offenses decrease. These effects remain even when race, sex, and income controls are included (not shown in model for clarity). Thus, hypothesis two is supported with this examination of social control effects.

Next, Table 9 illustrates the descriptive statistics for error term covariances in the model for person offenses. The covariances between social bonds and control variables were correlated per modification reports. Further, the modification report indicated that the respondents that feel they do things right and feel socially accepted are strongly correlated with a coefficient score of .30 (p<.001). This covariance is expected since a person's self-assessment of doing things the right way would impact their assessment of feeling socially accepted.

Finally, Table 10 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. As the table indicates, higher levels of

Table 9: Descriptive Statistics for Error Term Covariances, Person Offense Model (Wave 1)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Loving/Caring–Mother Closeness	.14	.02	7.87	0.000	.10	.17
Do Right–Socially Accepted	.30	.02	14.49	0.000	.26	.34
Sex–Commitment	-22	.02	-12.66	0.000	-.26	-.19
Sex–Involvement	.30	.02	14.09	0.000	.26	.35
Attachment–Belief	.55	.02	22.85	0.000	.50	.60
Commitment–Belief	.35	.03	11.77	0.000	.29	.40
Involvement–Belief	.12	.03	4.81	0.000	.07	.17

person offenses are committed by males than by females. Next, the effects of race show that there is a small statistically significant (p<.001), relationship between Black respondents and person offenses. Thus, Black individuals commit more person offenses than Whites in this sample.

Table 10: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Person Offenses, Wave 1

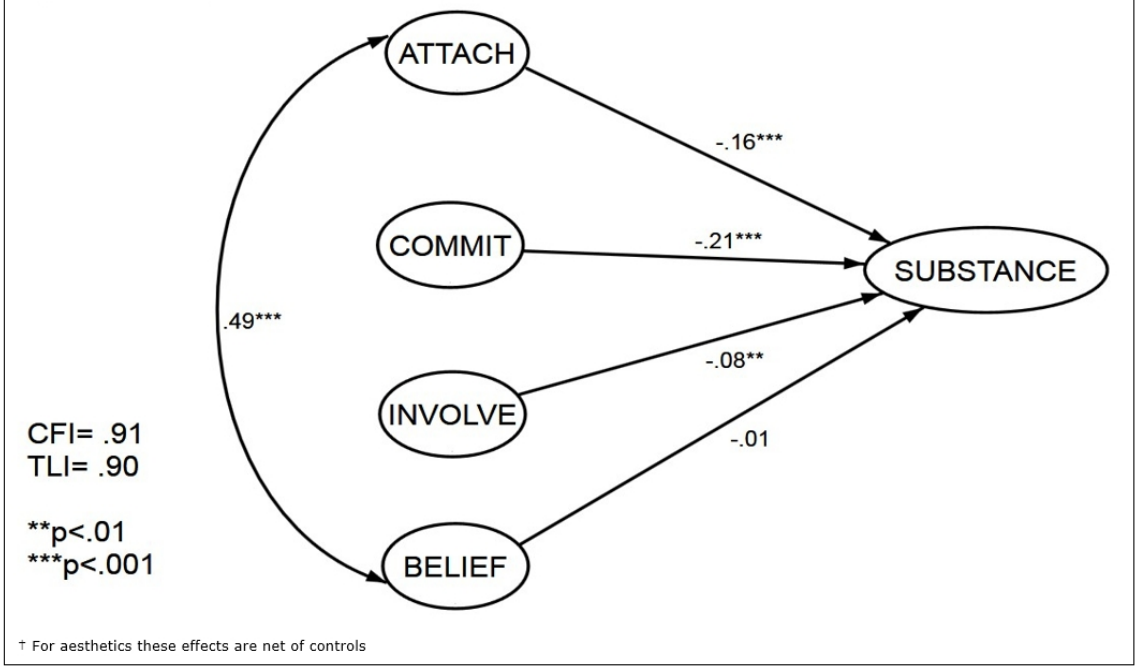
Structural Paths	MLE	Latent Measures	MLE
Controls		*Attachment*	
Male	.13***	mother loving/caring	.65***
Income	.01	communication w/ mother	.87***
Black	.08***	relationship w/ mother	.92***
Hispanic	.04	close to mother	.66***
Race Other	-.01		
		Commitment	
		English grade	.70***
Social Bonds		math grade	.56***
Attachment	-.03	science grade	.65***
Commitment	-.18***	history grade	.69***
Involvement	.04		
Belief	-.13**	*Involvement*	
		exercise	.28***
		sports	.97***
		hobbies	.20***
		housework	.04*
		Belief	
		hard work	-.13**
		do things right	.33***
		socially accepted	.52***
		teacher fair	.44***
		Person Offenses	
		badly injure someone	.37***
		threaten w/ weapon	.56***
		pulled gun/knife on person	.70***
		shot/stabbed someone	.60***

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

Substance Use. The third SEM is between social bonds and substance use in Wave 1 and is illustrated in Figure 5. A listing of all coefficients of measured variables to their related latent concept appears in Table 12. The model generated acceptable goodness of fit statistics. The RMSEA was .04, while the CFI and TLI were .91 and .90, respectfully. This model indicates that there are clear effects of social bonds on substance use in Wave 1. Specifically, attachment, commitment, and involvement bonds are statistically significant with at least p< .01. Thus, Figure 5 indicates that as attachment, commitment and involvement bonds increase, substance use decrease. These effects remain even when race, sex, and income controls are included (not shown in model for clarity). Thus, hypothesis three is supported with this examination of social control effects.

Next, Table 11 illustrates the descriptive statistics for error term covariances. The modification report indicated that the respondents that feel that their mothers are

Figure 5: Structural Equation Model of Effects on Substance Use, Wave 1†



† For aesthetics these effects are net of controls

loving/caring and their assessment of their relationship are strongly correlated with a coefficient score of .36 (p<.001). Alcohol frequency and frequency of drunkenness demonstrated also were strongly related with a coefficient score of .69 (p<.001). This correlation makes logical sense as a person that indicates more frequency of drunkenness would also indicate higher levels of alcohol frequency.

Table 12 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. As the table indicates, there is a statistically significant, positive relationship between males (p< .001) and substance use indicating higher levels of substance use by males than females. Next, the effects of race show that there is a small statistically significant (p<.001), negative effect of between Black respondents and substance use. In other words, Black individuals are less involved in substance use than Whites in this sample.

Table 11: Descriptive Statistics for Error Term Covariances, Substance Use Model (Wave 1)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Loving/Caring–Mother Relationship	.36	.03	11.60	0.000	.30	.42
Alcohol Frequency–Frequency Drunk	.69	.01	74.90	0.000	.67	.71
Sex–Commitment	-.20	.02	-10.36	0.000	-23	-16
Attachment–Belief	.49	.02	25.66	0.000	.45	.52

Table 12: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Substance Use, Wave 1

Structural Paths	MLE	Latent Measures	MLE
Controls		*Attachment*	
Male	.07***	mother loving/caring	.70***
Income	.05*	communication w/ mother	.81***
Black	-.08***	relationship w/ mother	.86***
Hispanic	.02	close to mother	.71***
Race Other	.01		
		Commitment	
		English grade	.70***
Social Bonds		math grade	.56***
Attachment	-.16***	science grade	.65***
Commitment	-.21***	history grade	.69***
Involvement	-.08**		
Belief	-.01	*Involvement*	
		exercise	.49***
		sports	.52***
		hobbies	.38***
		housework	.18***
		Belief	
		hard work	.28***
		do things right	.71***
		socially accepted	.63***
		teacher fair	.28***
		Substance Use	
		alcohol frequency	.55***
		drunkenness frequency	.56***
		marijuana use	.52***
		other drug use	.71***
		sell drugs	.58***

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

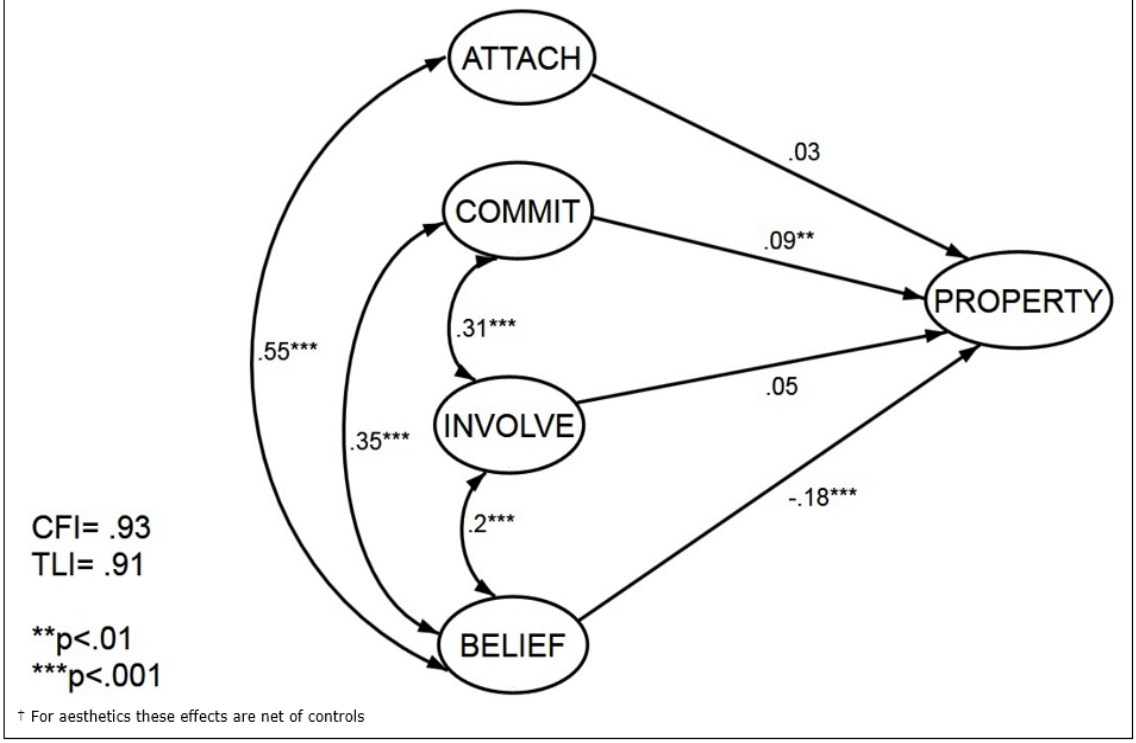
Results for Wave 3

Property Offenses. The fourth SEM is between social bonds measured in adolescence (Wave 1) and property offenses in young adulthood (Wave 3) and is illustrated in Figure 6. Listings of all coefficients of measured variables to their related

latent concepts appear in Table 14. The model generated acceptable goodness of fit statistics. The RMSEA was .04 and the CFI and TLI were .93 and .91, respectfully. This model indicates that there are clear effects of social bonds in adolescence (Wave 1) on property offenses in young adulthood (Wave 3). More specifically, commitment and belief are statistically significant at p<.01 and p<.001, respectfully. Thus, Figure 6 indicates that as the commitment and belief social bonds increase in adolescence, property offenses decrease in young adulthood. These effects remain even when race, sex, and income controls are included (not shown in model for clarity). Thus, hypothesis four is supported with this examination of social control effects.

Next, Table 13 illustrates the descriptive statistics for error term covariances in the model for property offenses. There were several covariances indicated based on

Figure 6: Structural Equation Model of Effects on Property Offenses, Wave 3†



† For aesthetics these effects are net of controls

modification indices reports. For example, the modification report indicated a covariance between respondents' frequency of exercise and playing a sport with a coefficient score of .19 ($p<.001$). This covariance is expected as individuals whom are more active (exercise) are more likely to participate in more physical activities (sports).

Table 14 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. There is a statistically significant, positive effect between males ($p< .001$) and property offenses, indicating that males commit more property offenses than females. However, a notable difference between property offenses in Wave 1 and Wave 3 is that race and income no longer show statistical significance– indicating that the race or income of the respondents no longer had an effect on property offenses by young adulthood (Wave 3).

Table 13: Descriptive Statistics for Error Term Covariances, Property Offense Model (Wave 3)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Loving/Caring–Close w/ Mother	.14	.02	7.87	0.000	.10	.17
Exercise–Sport	.19	.02	9.53	0.000	.15	.22
Sport–Socially Accepted	.11	.02	6.60	0.000	.07	.14
Do Right–Socially Accepted	.31	.02	15.45	0.000	.27	.35
Property Damage–Burglary	-.10	.02	-4.58	0.000	-.14	-.06
Attachment–Belief	.55	.02	23.08	0.000	.50	.60
Commitment–Involvement	.31	.03	10.40	0.000	.25	.37
Commitment–Belief	.35	.03	11.67	0.000	.29	.41
Involvement–Belief	.20	.04	5.19	0.000	.13	.28

Table 14: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Property Offenses, Wave 3

Structural Paths	MLE	Latent Measures	MLE
Controls		*Attachment*	
Male	.16***	mother loving/caring	.65***
Income	-.02	communication w/ mother	.87***
Black	.01	relationship w/ mother	.92***
Hispanic	.01	close to mother	.66***
Race Other	.02		
		Commitment	
		English grade	.69***
Social Bonds		math grade	.57***
Attachment	.03	science grade	.66***
Commitment	.09**	history grade	.69***
Involvement	.05		
Belief	-.18***	*Involvement*	
		exercise	.30***
		sports	.32***
		hobbies	.57***
		housework	.24***
		Belief	
		hard work	.35***
		do things right	.51***
		socially accepted	.42***
		teacher fair	.38***
		Property Offenses	
		property damage	.48***
		steal > $50	.62***
		burglary	.58***
		steal < $50	.72***

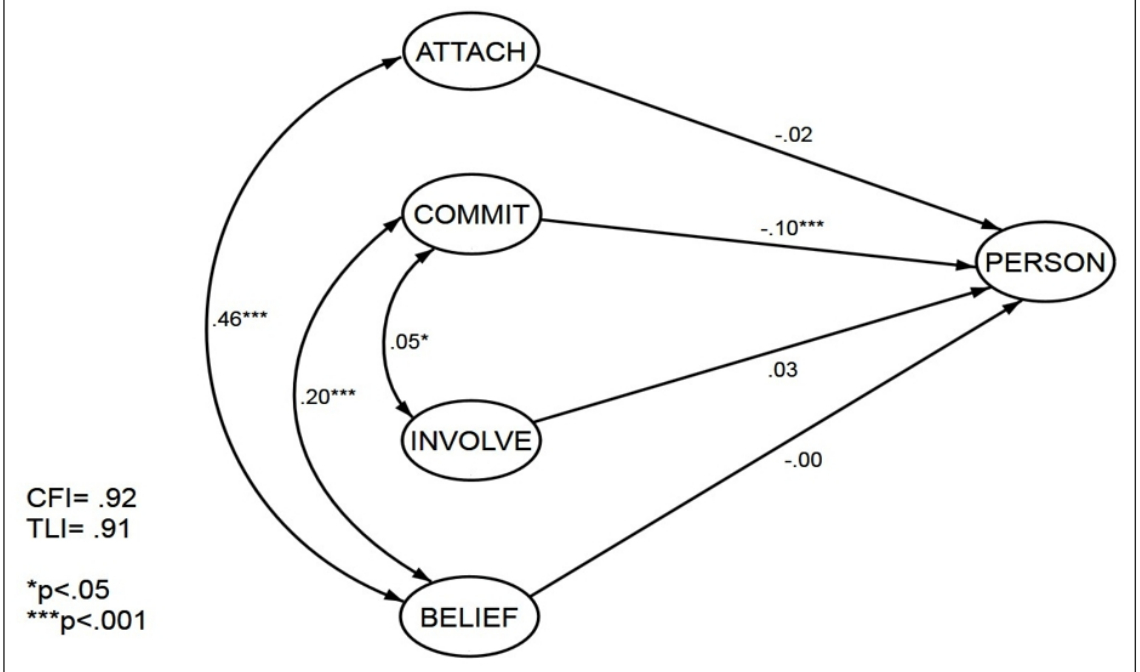
* p< .05 ** p< .01 *** p< .001

Person Offenses. The fifth SEM is between social bonds in adolescence (Wave 1) and person offenses in young adulthood (Wave 3) and is illustrated in Figure 7. Listings of all coefficients of measured variables to their related latent concepts appear in Table 16. The model mirrored the person offense SEM from Wave 1, generating acceptable

goodness of fit statistics. The RMSEA was .04, while the CFI and TLI were .92 and .91, respectfully. This model indicates that there are some effects of social bonds, measured in Wave 1, on person offenses in Wave 3. More specifically, commitment remains statistically significant at p<.001. Thus, Figure 7 indicates that as commitment in adolescence (Wave 1) increases, there is a decrease in person offenses in young adulthood (Wave 3). These effects remain even when race, sex, and income controls are included (not shown in model for clarity). Thus, hypothesis five is supported with this examination of social control effects.

Next, Table 15 illustrates the descriptive statistics for error term covariances in the model for person offenses. The modification report indicated that the respondents whom felt that their mothers were loving/caring and their closeness with their mothers are

Figure 7: Structural Equation Model of Effects on Person Offenses, Wave 3†



† For aesthetics these effects are net of controls

correlated with a coefficient score of .14 (p<.001). Further, the covariances between social bonds and control variables were correlated per modification reports and theoretical justifications.

Table 16 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. As the table indicates, there is a statistically significant, positive relationship between males (p< .001) and person offenses indicating higher levels of person offenses are committed by males than females. Next, the effects of race shows that there is a small statistically significant, positive relationship between Black respondents (p<.001) and race 'Other' (p<.05) on person offenses. Thus, indicating that Blacks and individuals that identify as race 'Other' commit less person offenses than Whites in this sample.

Substance Use. The sixth SEM is between social bonds measured in adolescence (Wave 1) and substance use in young adulthood (Wave 3) and is illustrated in Figure 8. Listings of all coefficients of measured variables to their related latent concepts appear

Table 15: Descriptive Statistics for Error Term Covariances, Person Offense Model (Wave 3)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Loving/Caring–Mother Closeness	.14	.02	7.91	0.000	.10	.17
Sex–Commitment	-21	.02	-11.26	0.000	-.25	-.17
Sex–Involvement	.30	.02	13.99	0.000	.26	.34
Attachment–Belief	.46	.02	24.60	0.000	.42	.50
Commitment–Belief	.20	.02	8.74	0.000	.15	.24
Commitment–Involvement	.05	.02	2.02	0.043	.00	.10

in Table 18. The model generated acceptable goodness of fit statistics. The RMSEA was .04, while the CFI and TLI were .91 and .90, respectfully. This model indicates that some effects remain from social bonds in Wave 1 on substance use in Wave 3. More specifically, commitment retains statistical significance with p<.01. Thus, Figure 8 indicates that as commitment bonds increase in adolescence (Wave 1), substance use in

Table 16: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Person Offenses, Wave 3

Structural Paths	MLE
Controls	
Male	.09***
Income	.04*
Black	.08***
Hispanic	-.02
Race Other	.04*
Social Bonds	
Attachment	-.02
Commitment	-.10***
Involvement	.03
Belief	-.00

Latent Measures	MLE
Attachment	
mother loving/caring	.65***
communication w/ mother	.87***
relationship w/ mother	.92***
close to mother	.66***
Commitment	
English grade	.70***
math grade	.56***
science grade	.65***
history grade	.69***
Involvement	
exercise	.29***
sports	.95***
hobbies	.21***
housework	.04*
Belief	
hard work	.29***
do things right	.71***
socially accepted	.62***
teacher fair	.30***
Person Offenses	
badly injure someone	.34***
threaten w/ weapon	.30***
pulled gun/knife on person	.71***
shot/stabbed someone	.62***

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

young adulthood (Wave 3) decreases. These effects remain even when race, sex, and income controls are included (not shown in model for clarity). Thus, hypothesis six is supported with this examination of social control effects.

Next, Table 17 illustrates the descriptive statistics for error term covariances in the model for substance use. The modification report indicated that the respondents that feel that their mothers are loving/caring and their assessment of their closeness with their mothers are correlated with a coefficient score of .14 ($p<.001$). Finally, the covariances between social bonds and control variables were correlated per modification reports and theoretical justifications.

Figure 8: Structural Equation Model of Effects on Substance Use, Wave 3

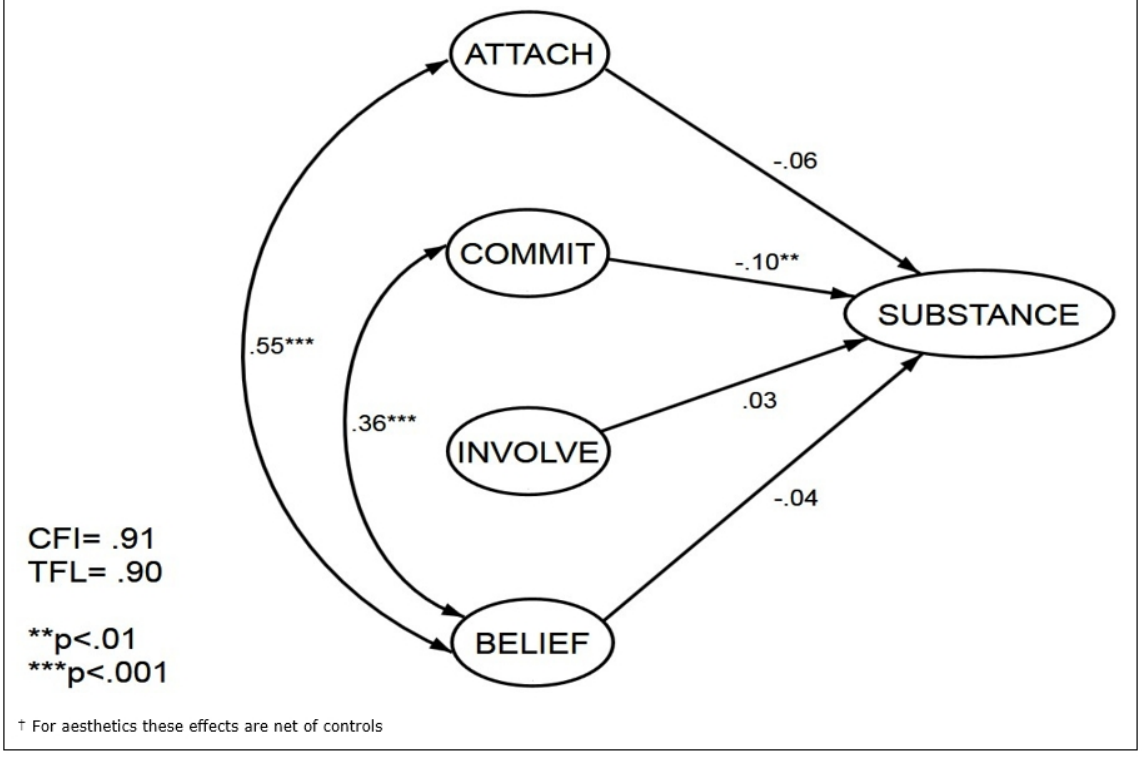


Table 18 illustrates the coefficients and the statistical significance of measured variables to their related latent concepts. As the table indicates, there is a statistically significant, positive relationship between males ($p < .001$) and substance use indicating higher levels of substance use by males than females. Next, there is a small statistically significant ($p<.001$), negative relationship between Black respondents and substance use. Thus, indicating that Black individuals are less involved in substance use than Whites in the sample.

Table 17: Descriptive Statistics for Error Term Covariances, Substance Use Model (Wave 3)

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
Mom Loving/Caring–Close w/ Mother	.14	.02	7.88	0.000	.10	.17
Do Right–Socially Accepted	.32	.02	15.42	0.000	.27	.35
Alcohol Frequency–Frequency Drunk	.69	.01	74.43	0.000	.67	.70
Sex–Commitment	-.21	.02	-11.63	0.000	-25	-18
Attachment–Belief	.55	.02	23.02	0.000	.50	.60
Commitment–Belief	.36	.03	12.28	0.000	.30	.42

Table 18: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Substance Use, Wave 3

Structural Paths	MLE	Latent Measures	MLE
Controls		*Attachment*	
Male	.20***	mother loving/caring	.65***
Income	-.01	communication w/ mother	.87***
Black	-.09***	relationship w/ mother	.92***
Hispanic	-.01	close to mother	.66***
Race Other	-.02		
		Commitment	
		English grade	.71***
Social Bonds		math grade	.56***
Attachment	-.06	science grade	.65***
Commitment	-.10***	history grade	.69***
Involvement	.03		
Belief	-.04	*Involvement*	
		exercise	.50***
		sports	.52***
		hobbies	.36***
		housework	.18***
		Belief	
		hard work	.34***
		do things right	.52***
		socially accepted	.42***
		teacher fair	.38***
		Substance Use	
		alcohol frequency	.35***
		drunkenness frequency	.43***
		marijuana use	.78***
		other drug use	.46***
		sell drugs	.56***

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

Full Model. The seventh SEM is between social bonds and overall deviance in Wave 1 and Wave 3 and is illustrated in Figure 9. All direct paths of the structural model are illustrated in Figure 9; however, for aesthetics, those with no statistical significance are illustrated with gray path lines and the coefficient scores were removed. Listings of

all coefficients of measured variables to their related latent concepts appear in Table 20. While the four social bonds are latent variables, preliminary runs of the SEM with all bonds and types of deviance estimated as latent variables was unidentified. Therefore, additive measures of each type of deviance were used in the full model as indicators of a total deviance latent variable. The models generated reasonable goodness of fit statistics. The RMSEA was acceptable at 0.03, while the CFI and TLI were .91 and .90, respectfully. This model indicates that the only direct effect on overall deviance in young adulthood (Wave 3) from social bonds measured in adolescence (Wave 1) is through involvement. More specifically, involvement in adolescence is positively correlated with deviance in young adulthood with a coefficient score of .09 ($p<.05$). The model indicates that as involvement in adolescence increases, deviance in young adulthood increases; thus, this correlation is in the opposite direction of what may be expected.

Table 19 illustrates the descriptive statistics for error term covariances. The modification report indicated that all forms of deviance in Wave 1 are correlated with all forms of deviance in Wave 3. For example, higher levels of substance use in Wave 1 are correlated with higher levels of substance use in Wave 3. These correlations are consistent with the expectation that levels of deviance in adolescence presage deviance in young adulthood. Next, physical activity (i.e. sports and hobbies) in Wave 1 is negatively correlated with substance use in Wave 1. These modifications are in the expected direction and are consistent with theory. Additionally, the modification report indicated that the respondents' communication with their mothers and their assessment of their relationship with their mothers are correlated with a coefficient score of .37

Figure 9: Structural Equation Model of Effects on Overall Deviance, Wave 1 & Wave 3

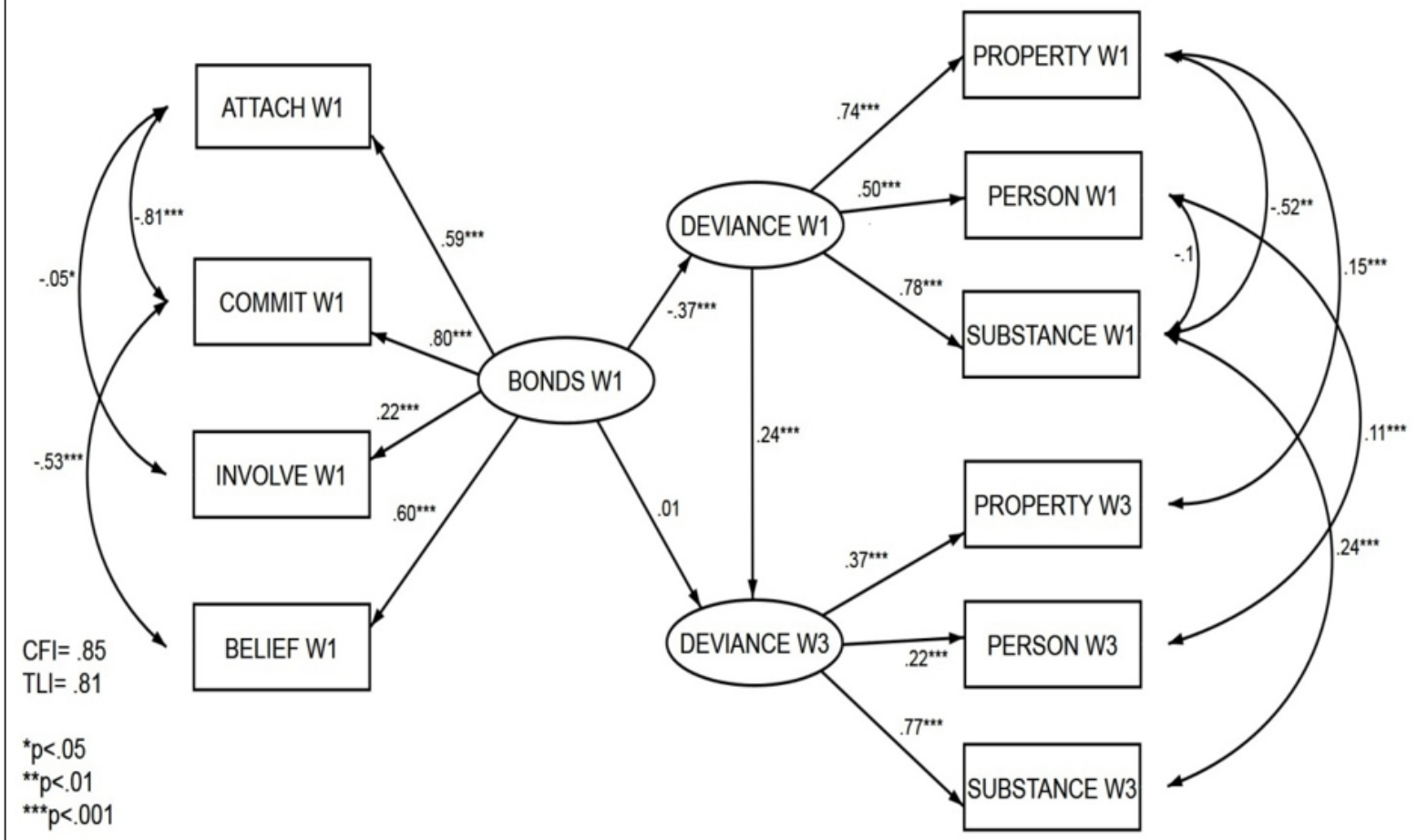


Table 19: Descriptive Statistics for Error Term Covariances on Overall Deviance, Wave 1 & Wave 3

Covariance	Coef.	Std. Err.	Z	P>|z|	95 % Conf. Interval	
PROPERTY W1–SUBSTANCE W1	-.34	.10	-3.27	0.001	-.54	-.14
PROPERTY W1–PROPERTY W3	.14	.02	6.26	0.000	.10	.19
PERSON W1–PERSON W3	.11	.02	6.31	0.000	.07	.14
SUBSTANCE W1–SUBSTANCE W3	.22	.03	7.11	0.000	.16	.28
ATTACHMENT–COMMITMENT	.10	.02	4.98	0.000	.06	.14
ATTACHMENT–BELIEF	.59	.03	22.97	0.000	.54	.64
COMMITMENT–INVOLVEMENT	.32	.03	10.61	0.000	.26	.38
COMMITMENT–BELIEF	.40	.03	13.41	0.000	.34	.45
INVOLVEMENT–BELIEF	.29	.04	7.10	0.000	.21	.37
Playing Sports–SUBSTANCE W1	-.10	.02	-4.55	0.000	-.15	-.06
Hobbies–SUBSTANCE W1	-.11	.03	-4.48	0.000	-.16	-.06
Mom Communication–Mom Relationship	.37	.03	12.98	0.000	.32	.43
English Grade–Playing Sports	-.08	.02	-4.29	0.000	-.12	-.04
Math Grade–History Grade	-.13	.03	-4.40	0.000	-.19	-.07
Exercise–Playing Sports	.16	.02	7.52	0.000	.12	.20
Playing Sports–Socially Accepted	.10	.02	6.49	0.000	.07	.14
Do Right–Socially Accepted	.32	.02	16.18	0.000	.28	.36

($p<.001$). This covariance is reasonable as one would expect a person's self-assessment of their relationship with their mother would be impacted by their assessment of their communication. Further, modification reports indicated that in adolescence (Wave 1), playing sports covaries with and grades, exercise, and self-assessment of social acceptance. Finally, the covariances between social bonds were significant per modification reports and theoretical justifications.

Next, Table 20 illustrates the coefficients and the statistical significance of latent variables on overall deviance in Wave 1 and Wave 3. As the table 20 indicates, there is a statistically significant, positive correlation relationship between males ($p < .001$) and overall deviance in Wave 1 and Wave 3. Thus, indicating that males have higher levels of deviance than females. Next, Black respondents show a negative correlation ($p<.001$) with deviance in both waves; thus, indicating that Blacks have lower levels of overall deviance than Whites in the sample. Further, with the exception of involvement, social bonds in adolescence (Wave 1) have a significant, negative effect on deviance in adolescence (Wave 1); thus, supporting confirmations of hypotheses one, two, and three.

Preliminary models (not illustrated) only measuring social bonds in Wave 1 and overall deviance in Wave 3 (i.e. Wave 1 deviance and its' indirect paths were not included) showed a small but statistically significant ($p<.05$) negative effect on deviance. Thus, indicating that higher social bonds from Wave 1 results in less deviance in Wave 3. However, as Figure 7 and Table 20 illustrate, after deviance in Wave 1 was added to the model, most of the direct effects of social bonds on deviance in young adulthood failed to reach significance. Despite this, as Table 21 illustrates, deviance in young adulthood (Wave 3) is predicted by deviance in adolescence (Wave 1). Social bonds in adolescence have a direct effect on deviance in adolescence (Wave 1), and thus an indirect effect on deviance in young adulthood (Wave 3) through adolescent deviance. These effects remain even when race, sex, and income controls on deviance in both waves are included (not shown in model for clarity).

Table 20: Maximum Likelihood Estimates of Measures of Latent Variables: Social Bonds on Overall Deviance, Wave 1 & Wave 3

Structural Paths	MLE	Latent Measures	MLE
Controls (Wave 1)		*Social Bonds to Deviance (Wave 1)*	
Male	.19***	Attachment	-.08*
Income	-.00	Commitment	-.16***
Black	-.09***	Involvement	.09*
Hispanic	.02	Belief	-.31***
Race Other	.03		
		Social Bonds to Deviance (Wave 3)	
Controls (Wave 3)		Attachment	-.01
Male	.27***	Commitment	.06
Income	-.05**	Involvement	.09*
Black	-.13***	Belief	-.07
Hispanic	-.00		
Race Other	-.04	*Overall Deviance*	
		Wave 1 to Wave 3	.24***
Deviance (Wave 1)			
property offenses	.74***		
person offenses	.49***		
substance use	.71***		
Deviance (Wave 3)			
property offenses	.38***		
person offenses	.22***		
substance use	.75***		

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

Finally, as illustrated in Table 21, the model further identified statistically significant (p<.001) indirect and total effects through sex and Black respondents. Being male has a positive direct, indirect, and total effect on overall deviance in both waves; thus indicating that males show higher levels of deviance than females in both age groups. Further, Black respondents have a negative direct, indirect, and total effect (p<.001) on overall deviance in both waves; thereby indicating that Blacks show less

levels of deviance than Whites in both waves. Both of these findings support results from the previous six structural equation models. Next, again with the exception of involvement, social bonds have a negative, direct effect on deviance in adolescence (Wave 1) and a negative, indirect effect in young adulthood (Wave 3). Finally, deviance in adolescence (Wave 1) has a direct, positive ($p<.001$) effect on deviance in young adulthood (Wave 3). These overall findings provide support for hypothesis seven indicating that social bonds in adolescence indirectly effect deviance in young adulthood.

Table 21: Direct, Indirect, and Total Effects on Overall Deviance

Deviance (Wave 1)	Direct Effects	Indirect Effects	Total Effects
sex	.27***		
black	-.16***		
Hispanic	.06		
race other	.11		
income	-.00		
Bonds			
Attachment	-.11*		
Commitment	-.19***		
Involvement	.19*		
Belief	-.76***		
Deviance (Wave 3)	Direct Effects	Indirect Effects	Total Effects
Wave 3 Controls			
sex	.21***		
black	-.11***		
Hispanic	-.01		
race other	-.06		
income	-.01**		
Wave 1 Controls			
sex		.03***	
black		-.02***	
Hispanic		.01	
race other		.01	
income			
Bonds			
Attachment	-.01	-.01*	-.02
Commitment	.03	-.02***	0.1
Involvement	.10*	.02*	.12**
Belief	-.08	-.10***	-.18*
Deviance (Wave 1)	.13***		

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

CHAPTER V

CONCLUSIONS

This study examined the effects of Hirschi's (1969) social control theory on deviance in adolescence (13-17 YOA), deviance in young adulthood (20-24 YOA), and the lasting effects of social bonds formed in adolescence. By doing so, this study contributed to the research on Hirschi's (1969) social control theory in three ways. First, it included all four social bonds (i.e. attachment, commitment, involvement, belief). Second, it included multiple forms and degrees of deviance (i.e. property offenses, person offenses, substance use). Third, it examined whether the levels of social controls in adolescence affected deviance over time.

This chapter will first discuss the major results of social bonds in adolescence and whether they supported the expected conclusions. Subsequently, it will discuss the major results of social bonds on young adulthood and whether they supported expected outcomes. It will then discuss the overall structural equation model (Figure 7) and whether these findings provide support for lasting effects of bonds formed in adolescence through young adulthood. Next, it will provide discussions regarding results, interpretations, and the implications. Further, it will discuss the contributions of this

research for social control theory and the limitations of this study. Finally, it will suggest future research that may be explored based on these findings.

SOCIAL BONDS IN ADOLESCENCE

This study found overall support that social bonds predict deviance in adolescence. However, as Table 22 indicates, not all social bonds work in the same way, for all types of deviance. More specifically, all four social bonds were not statistically significant for any of the three types of deviance. Thus, for all types of deviance in adolescence, at least one social bond did not prove to be statistically significant. The following sections will discuss the findings of each social bond on different types of deviance.

Table 22: Significant Social Bonds for Adolescence Structural Equation Models (Models 1-3)

	Attachment	Commitment	Involvement	Belief
Property Offenses	-.16***	-.17***		-.15***
Person Offenses		-.18***		-.13***
Substance Use	-.16***	-.21***	-.08**	

** p<.01 *** p<.001

Attachment

The attachment bond is one of the most common examined in previous studies. In this research the attachment bond is significant for property offenses and substance use. More specifically, the attachment bond had a coefficient score of -.16 ($p<.001$) for both property offenses and substance use. Thus, indicating that as attachments increase, property offenses and substance use decrease. This finding is in the expected direction and corresponds with previous literature and theoretical implications.

Contrary to this, attachment does not have a statistical significance on person offenses in adolescence. This finding is in contrast to much of previous research that indicates the attachment bond as the most significant. However, person offenses were the most severe and rarest types of deviance out of those in this study. Thus, it is possible that the respondents in this category may have caused the weak attachments due to the severe types of the offenses they were committing. In other words, the attachment bonds may have been strained because of this type of deviance. This explanation would align with previous research that suggests a reciprocal relationship between social bonds and deviance (Agnew 1985, 1991; Griffin et al. 2000; Jenkins 1997; Nye 1958; Nye and Weeks 1956). However, this explanation can only be speculated since causality cannot be determined in adolescence (Wave 1). In other words, it cannot be determined which of these came first: low attachments leading to committing more person offenses, or; committing person offenses leading to weakening attachments.

Commitment

Commitment bonds are one of the least examined in research on social control theory. However, in this research, the commitment bonds were the only social bonds to have a statistically significant ($p<.001$) effect on all types of deviance (i.e. property offenses, person offenses, and substance use) in adolescence. Further, with coefficient scores ranging from -.17 to -.21, the commitment bonds had the strongest effects correlations out of all of the social bonds.

The significance of commitment in this research were in the expected direction. It stands to reason that individuals with higher grades would participate in less deviance for several reasons. In order to obtain good grades, an individual would be required to pay attention in school and study more often outside of school. In turn, this likely has a reciprocal effect on the associations with particular types of peers and participation in conventional activities. Thus, it is likely that individuals that achieve good grades also associate with peers who get good grades. In doing so, these groups of individuals are likely to gravitate towards conventional extracurricular activities. For example, perhaps a student works hard to get good grades so that they are able to participate in school sports, as good grades are often required. Thus, earning good grades could be the result of many factors such as positive influences from peers and adults, working to get into college, participating in sports, and/or conforming to conventional standards.

This finding not only provides theoretical support of Hirschi's (1969) social control theory, it also demonstrates the necessity of including all four social bonds in studies. Without examining the commitment bond, the prevalence of bonds not included

would have been missed. Further, excluding the commitment bond could have also resulted in an over/under estimation of the importance of other bonds (when all bonds are not included).

Involvement

In this study, the involvement bonds were the least statistically significant of all of the social bonds in adolescence. More specifically, involvement was only statistically significant ($p<.01$) regarding substance use, with a coefficient score of -.08. This finding was unexpected as one would anticipate that more involvement in conventional activities would correlate with lower participation in property and person offenses. Although these results were unexpected, they do not come as a great surprise as Hirschi (1969) himself did not find involvement to be relevant in many cases.

Hirschi (1969) identifies many different reasons why involvements may not always be distinctly apparent, two of these are especially relevant to this research. First, is the assumption that the busier (i.e. more involved) an adolescent is in conventional activities, the less time they will have to participate in deviant activities. However, as Hirschi (1969) indicates, this idea relies on the notion that deviant activity requires a significant amount of time. Thus, an adolescent would need to be deviant the majority of his/her time in order for involvement in conventional activities to counteract this effect– which neither Hirschi's (1969) research nor this research has found.

Second, Hirschi (1969) contends that involvement may occur indirectly through other social bonds. To illustrate, Hirschi (1969) states that "investments of time and

energy affects the student's performance in school, and may thus operate on delinquency through its effects on attachment and commitment to school" (p.192). Thus, despite involvement only showing direct effects on substance use in this study, it is likely working through other social bonds- and some evidence of this is shown in correlations previously illustrated. As such, concluding that involvement is irrelevant in adolescence would likely be an erroneous discredit.

Belief

Due to the fact that belief bonds are one of the most frequently researched social bonds, the findings in this study were not fully as expected. More specifically, the belief social bonds proved to be statistically significant ($p<.001$) in predicting both property offenses and person offenses– both, in the expected direction. However, unexpectedly it was not statistically significant in predicting substance use.

Despite the fact that all forms of deviance included in this study are breaking legal codes, property offenses and person offenses are commonly viewed as more serious forms of deviance. In fact, if one were to think of a deviant adolescent, they are likely to envision something along the lines of a group of adolescents spray painting graffiti (i.e. property damage/property offenses) or, adolescents in a fist fight (i.e. person offenses). However, substance use is less apparent. This is not to say that society condones substance use in adolescence, only that it is viewed differently than other forms of deviant behaviors. Much of this discrepancy is likely due to the overall societal ambiguity regarding substance use, often referred to as 'victimless crimes'. For example, many

social events for adults include consuming alcohol. Similarly, many States in the U.S. have recently decriminalized and/or legalized recreational marijuana use. The point being, is that as a society there are no clear-cut, definitive agreements regarding substance use– and it is oftentimes even socially accepted and expected (i.e. alcohol use). As a result, belief failing to be statistically significant in predicting drug use can be explained due to our cultured ambiguity on this subject.

Overall Adolescent Deviance

The three models regarding deviance in adolescence provide two major findings. First, the models provide overall support of Hirschi's (1969) social control theory. More specifically, in this study, all four social bonds have a negative effect on all types of deviance in adolescence. That is, when social bonds increase, deviance correspondingly decreases. Second, these results demonstrate the necessity of including all four bonds when examining Hirschi's (1969) social control theory. When the models are viewed independently (i.e. property offenses, person offenses, and substance use) there were some unexpected, non-significant findings. However, when viewed together as overall deviance, all social bonds had at least one statistically significant effect. As previously illustrated, if this research were to only include one or two social bonds– as much of previous research has done– it would have missed the significance of the bonds not included and very likely would have over/under estimated the effects of the bonds that were included.

The findings regarding social bonds predicting deviance in adolescence is relatively straightforward. Although the coefficient scores may be considered to be on the low end– which is thoroughly addressed in the "Limitations" section– they nevertheless provide at least marginal support for Hirschi's (1969) social control theory. In the next section, however, the findings are not as clearly supportive.

SOCIAL BONDS IN YOUNG ADULTHOOD

One of the primary objectives of this research was to determine if social bonds formed in adolescence had a lasting impact into young adulthood. Compared to the findings in adolescence, the findings are less prevalent in young adulthood. Nevertheless, as Table 23 indicates, there are significant findings to discuss. With that, it must be reiterated that social bonds were only measured in adolescence; thus, the findings discussed below are regarding the lasting effects of bonds formed in adolescence (13-17 years old) on deviance in young adulthood (20-24 years old).

Attachment

As illustrated in Table 23, attachment bonds formed in adolescence do not have a direct effect on any type of deviance in young adulthood. This finding was unexpected and counter to research indicating that attachment bonds are the most significant. Despite this, examining the findings contextually provides some explanations. It is worth noting that the attachment bonds were measured as the adolescents' assessments of their

relationships with their mothers. Thus, arguing that bonds to mothers do not suddenly become irrelevant. Instead, it is likely that new attachments are becoming more significant in the transition from adolescence to young adulthood.

Many individuals between the ages of 20-24 are embarking on new life-altering experiences. For many this may mean going away to college. For others it could mean getting married and/or settling down with a significant other. As a result, it is likely that these new social environments bring new social attachments. Thus, college professors, roommates, and/or a spouse/significant other form new attachments that may weaken the direct attachment that mothers had in adolescence. For example, suppose during this timeframe an individual moves away to college and forms a serious relationship with a significant other. This individual now has at least two new forms of attachments (i.e. college, significant other). If you were to expand on this, for example, with a job and a roommate, this compounds the attachment bonds even further. As a result, it quickly becomes evident that what was once easily identified as the most significant attachment in adolescence is no longer as pronounced in young adulthood.

Table 23: Significant Social Bonds for Young Adulthood Structural Equation Models (Models 4-6)

	Attachment	Commitment	Involvement	Belief
Property Offenses		.09**		-.18***
Person Offenses		-.10***		
Substance Use		-.10**		

** p<.01 *** p<.001

Commitment

Similar to the findings in adolescence, the commitment bonds were the only social bonds to have an effect on every type of deviance in young adulthood. The results of commitment bonds impacting person offenses and substance use are in the expected direction. More specifically, these findings indicate that grades in adolescence have a lasting effect on person offenses and substance use in young adulthood. Although this may not provide an earth-shattering revelation, it does indicate the importance and continuity of commitment bonds formed from adolescence. Thus, things such as study habits and hard work to obtain good grades remain significant for person offenses and substance use in young adulthood.

However, the findings in young adulthood illustrate an unexpected result regarding property offenses, where the direction of the bond actually reverses. Thus, indicating that as commitment bonds increase in adolescence, property offenses increase in young adulthood. This finding proves to be a little more difficult to explain. There are, however, at least two possible explanations.

First, the most likely explanation is that adolescents that work hard to get good grades are also usually the same adolescents that go to college. For many, this means going away to college. These adolescents now possess a new sense of freedom outside of the watchful eye of parents/guardians. Additionally, these same adolescents are now surrounded by other adolescents going through the same experiences. It is foreseeable that in the process of 'finding their path,' they experiment with their new found freedom. For many, this often involves going to parties and socializing with their new peers. As a

result, some may choose the more ‘rowdy’ path and partake in things such as property offenses (i.e. graffiti, vandalism, etc.). This does not mean that these once ‘good’ adolescents have suddenly become ‘bad’ young adults. It simply means that in the company of others, in an unfamiliar environment, it is probable that some illegal offenses will transpire.

Second, perhaps getting good grades comes easily, or at least easier, in adolescence. Meaning that they do not have to put much effort into things such as developing good work habits (i.e. studying). In turn, by not developing these skills, it may result in an expectation that life is easy and/or handed to them. Thus, if these individuals take these assumptions into young adulthood, they are likely to quickly face harsh realities, such as employment or college expectations. If these individuals are accustomed to ‘easy’ results, it is possible that one solution could be to respond with deviance (e.g. theft).

Involvement

There was not a lot occurring with involvement in adolescence, at least not directly (only significant for substance use). In young adulthood, there are no lasting, direct effects from involvement bonds in adolescence. This finding was expected as being involved in things such as sports and hobbies in adolescence is likely to be replaced with new involvements in young adulthood (i.e. work, college, etc.). However, as illustrated in the adolescence findings, involvement bonds often work indirectly through other social bonds; thus, it is not an exaggeration to presume that they may also be working through

other social bonds in young adulthood as well. Thus, the fact that there are no direct effects of involvements from adolescence in young adulthood does not negate their importance. It could simply be that they are working indirectly, or new involvements take precedent.

Belief

The one direct effect of beliefs formed in adolescence that has a lasting impact into young adulthood is regarding property offenses. This same effect was found in adolescence, along with person offenses. However, in young adulthood the direct effect of beliefs formed in adolescence no longer has a direct effect on person offenses. There are two explanations for these findings. First, person offenses are arguably the most severe forms of deviance in this research. Thus, it stands to reason that if beliefs formed in adolescence have a direct, lasting impact on property offenses in young adulthood, they are likely indirectly impacting the more severe forms of deviance as well (i.e. person offenses).

Another possible explanation is that the belief bonds formed in adolescence truly do not have a lasting effect on person offenses in young adulthood. This does not mean that an individual will suddenly be involved in person offenses; however, it is more likely that new beliefs take over this role. For example, an adolescents' assessment of their teacher's fairness is less-likely to be as prevalent in young adulthood. Instead, things such as belief in legal codes are likely to prevail. Thus, the belief bonds mature as do the adolescents.

As a visual reference, Table 24 illustrates the statistically significant findings for models 1-6. All of these findings have been discussed in detail above. Table 24 is included as a summary of the findings discussed. As illustrated, the models provide support for social control theory in adolescence and young adulthood. More importantly, they indicate that social bonds formed in adolescence continue to have a lasting effect into young adulthood, even if only marginally so. Although the lasting effects of social bonds into young adulthood have small coefficient scores, it is worth reminding that social bonds were only measured at one point in time, in adolescence. Thus, if additional social bonds are formed from adolescence into young adulthood (which is highly likely), the effects of these bonds would not be accounted for. Despite this, even marginal lasting effects provide insight into the importance of bonds formed at early ages.

Table 24: Significant Social Bonds on Deviance in Adolescence and Young Adulthood

		Attachment	Commitment	Involvement	Belief
Property Offenses	*Wave 1*	-.16***	-.17***		-.15***
	Wave 3		.09**		-.18***
Person Offenses	*Wave 1*		-.18***		-.13***
	Wave 3		-.10***		
Substance Use	*Wave 1*	-.16***	-.21***	-.08**	
	Wave 3		-.10**		

** p<.01 *** p<.001

OVERALL EFFECTS OF SOCIAL BONDS

This section was intentionally separated from the previous sections in order to avoid confusion as it only relates to the last structural equation model (SEM 7). This model was operationalized differently than the previous models in order to provide an overall account of social bonds. As such, the model included composite scales of social controls (i.e. the same as the previous models); however, measured scales of the three deviance indexes which were generated for bivariate analyses were used as measurements of deviance in adolescence (Wave 1) and young adulthood (Wave 3).

Table 25 illustrates this model provided an overall account of social bonds on deviance in adolescence and in young adulthood. It also illustrates any lasting effects of social bonds formed in adolescence into young adulthood. However, when the model was operationalized differently regarding measured deviance variables, it resulted in some findings worth discussion.

As illustrated, all social bonds have a direct effect on deviance in adolescence. However, the involvement bond has now switched in the opposite direction in

Table 25: Significant Social Bonds for Overall Structural Equation Model

	Attachment		Commitment		Involvement		Belief	
	Direct	*Indirect*	*Direct*	*Indirect*	*Direct*	*Indirect*	*Direct*	*Indirect*
Wave 1	-.08*		-.16***		.09*		-.31***	
Wave 3		-.01*		-.02***	.09*	.02*	-.10***	

*p<.05 ***p<.001

adolescence. Although this finding was unexpected, the findings in this research and in Hirschi's (1969) research suggest that the involvement bond is difficult to 'weed out' of the effects from other bonds. It is possible that involvement bonds formed in adolescence provide opportunities for deviance due to peer pressure– as deviance is more likely to occur in a group setting. For example, it could be that adolescents who play in sports (i.e. around other athletes) 'give-in' to the temptations of deviance through banter or camaraderie. In other words, to 'fit in'. This could also apply to involvement bonds in young adulthood. Continuing with the previous example, if an athlete goes away to college to play sports, she/he would be in similar environments that are more likely to result in deviant behaviors.

What is important to note in this model is that no social bonds formed in adolescence have a direct impact (excluding involvement) on deviance in young adulthood. Thus, when when measured deviance in adolescence (Wave 1) and in young adulthood (Wave 3) are included in the same model, all direct effects (again, excluding involvement) are negated. However, the results in this chart must be taken within the context of the model. As such, as SEM 7 indicates, there is a statistically significant ($p<.001$) indirect effect, mediated through deviance in adolescence, with a coefficient score of .24. Again, although this may appear to be a relatively marginal explanation it needs to be viewed in the larger context. First, despite the small coefficient score, there is nevertheless a lasting impact of social bonds formed in adolescence into young adulthood. This alone is not a trivial finding. Second, if the accumulation of social bonds were included (opposed to only being measured at one point of time in adolescence) it is likely that these effects would

provide stronger statistical significance. Thus, with the models and scores provided, it provides support for Hirschi's (1969) theory in adolescence and in young adulthood, and further indicates that these early bonds have lasting effects.

DISCUSSION

This research provided many understandings regarding what impacts deviance. However, now that these issues are better understood, the next step is to address what could be done to curtail those adolescents with a high likelihood of partaking in deviant behaviors. In order to change the trajectory of a life of crime, empirical analyses demonstrate that early intervention is crucial to interrupt delinquency processes while the juvenile is still amenable to change (Banyard, Cross, and Modecki 2006; Benda and Turney 2002). However, not all interventions are created equal. In fact, in intervention practices, understanding what does not work is just as important as understanding what does work. The consensus among literature regarding why programs fail is that they do not address the individual's risk, needs, and/or responsivity, they do not properly assign individuals to the correct treatment/program(s) and, they use improper behavioral modification strategies (Pealer and Latessa 2004).

The overall literature indicates that the least effective programs are traditional, punitive and authoritative, get-tough on crime approaches (Latessa et al. 2002). This is especially ineffective when low-risk offenders are placed in this type of 'treatment' (Latessa et al. 2002; Gottesman and Schwarz 2001). Examples of intensive intervention programs that do not work are boot camps, punishment-oriented programs such as scared

straight, control-oriented programs such as intensive supervision programs, and wilderness programs (Latessa et al. 2002).

Conversely, many intervention programs have proven to be effective and efficient when properly implemented. Some of the most prevalent programs are cognitive-based (i.e. communication skills), community-based (i.e. diversion, drug treatment), and family-based programs (Gottesman and Schwarz 2001). Cognitive approaches focus on dynamic, criminogenic needs that target specific behaviors for change, such as aggression/anger, problem-solving skills, and other antisocial skills (Flores et al. 2005; Lambie and Randell 2013; Latessa et al. 2002). As a result, cognitive approaches have been credited with the largest reduction in recidivism (Smith, Gendreau, and Swartz 2009), reducing offending by as much as 22% (Welsh et al. 2004), and being more than two times as effective as non-cognitive approaches (Izzo and Ross 1990). Next, community-based programs, such as drug treatment and anger management programs, have demonstrated improvements in prosocial behaviors and reducing recidivism (Gottesman and Schwarz 2001; Lambie and Randell 2013). In fact, Lambie and Randell (2013) argue that as juveniles are still developing socially, it is beneficial to keep them in the community to help reinforce prosocial behaviors and interpersonal skills. Finally, family-based multilevel approaches have shown significant improvements in deviance– as this approach concentrates on factors such as proper child rearing, communication skills, and conflict resolution (Latessa et al. 2002; Petrie et al. 2007; Welsh et al. 2013).

The programs that have been the most effective against recidivism are those that use a combination of approaches to address underlying problems that result in deviant

actions. However, any effective intervention requires a sound understanding of what leads to or causes delinquency (Andrews et al. 1990; Latessa et al. 2002). There are many theories and explanations. However, one that has received a great deal of attention and support–including this research– is social control theory.

CONTRIBUTIONS OF THIS RESEARCH

This research has made several contributions to social control theory. First, this study examined all four social bonds in order to gain a greater understanding of the overall effects that social bonds have on deviance from adolescence through early adulthood. The majority of previous literature only addressed one or two social bonds, creating a gap in the literature as to the effects of social bonds overall. By including all four social bonds it provides more useful information. Thus, if only one or two social bonds were used in this study, it would have likely missed, or even over/under estimated the importance of the bonds that were included. For example, most research examining social controls find that attachment is the most important bond. However, this study did not arrive at that conclusion. In fact, when attachment bonds were significant (which was not all of the time), they were no stronger of a predictor than the other bonds.

This research found that *overall*, social bonds formed in adolescence have an indirect effect on deviance in young adulthood. More specifically, when deviance was examined in Wave 3 (Models 4-6), bonds that were formed seven years earlier were still significant at predicting outcomes. In fact, all four social bonds were significant for at least one type of deviance in young adulthood. This indicates that early social bonds

retain significance throughout this timeframe. This finding illustrates that if we know earlier levels of social bonds, we can predict (to some extent) criminal involvement in early adulthood. Further, new social bonds formed after adolescence (Wave 1) were not included in this research; thus, it is possible that new social bonds (e.g. spouse, college, employment, etc.) begin to have greater effects than some social bonds formed at earlier ages (i.e. Wave 1). Therefore, caution must be expressed in asserting any insignificant findings as an indicator that social bonds are no longer important in young adulthood.

Next, this research also looked at multiple forms of deviance at varying levels. In total, 13 different deviant acts were used to generate overall deviance. By including multiple forms and levels of deviance it provided a more thorough understanding of the impacts of social bonds on deviance overall. As such, this research shows that social bonds impact all levels and/or degrees of deviance. For example, results from the SEM's indicate that social bonds impact minor offenses such as property damage to major offenses such as shooting/stabbing a person.

Finally, this research addressed gaps in the literature that primarily included cross sectional studies (e.g. Alarid et al. 2000; Benda and Turney 2002; Huebner and Betts 2002; Krohn and Massey 1980) which are only capable of showing the impacts of social controls at one point in time. This research demonstrates the importance and longevity of early social bonds in the crucial transition from adolescence to young adulthood. More specifically, it shows that social bonds formed in adolescence still have a marginally significant effect on deviance into young adulthood. These findings could be essential to early intervention programs. For example, identifying broken or missing social bonds of

troubled youth at earlier ages could greatly improve the success of deviance prevention /intervention programs.

LIMITATIONS

There are many limitations to this research, the majority of which stem from utilizing secondary data. For example, relying upon secondary data significantly restricts research with questions that were created for another research project. Thus, oftentimes questions have to be dropped, altered, or operationalized in vary specific ways in order for the concepts to be measured. This became particularly apparent in this research regarding the deviance subscales–by not only finding applicable questions, but finding applicable questions that were asked of respondents in both Wave 1 and Wave 3. Thus, ideally many more items would have been included specific to both the social bonds and deviance subscales.

Next, again due to the limitations of secondary data, some items that were used in the additive indexes of the latent constructs may have been less than ideal. However, this research relied upon Hirschi's (1969) original research and/or other theoretical research as a guide when faced with restrictive items to include. For example, in order to operationalize commitment bonds, this research relied upon letter grades in four different subjects. Although Hirschi's (1969) original research included educational commitments, it also included commitments to conventional actions (i.e. owning a car) and commitments to high-status occupations (i.e. professional, white collar, etc.). Further, although Hirschi's (1969) survey asked respondents about their grades, he also asks

questions regarding other educational commitments such as their employment aspirations and their feelings about going to college. The only items that were statistically supported as measuring the underlying factor available from the Add Health data set were regarding grades in four subjects: math, history, English, and science. It was decided to include these items for two primary reasons. First, it is supported theoretically as Hirschi (1969) not only uses grades in his study, but also states "the best measure of success in school is undoubtedly grade-point average" (p.115). Second, grades were used to operationalize commitment in this research because it was looking at adolescents (13-17 years of age) when school is the primary commitment among the majority of this age population. To illustrate, the average adolescent spends approximately 7 hours a day in school (NCES 2019). This does not include pre or post school activities such as travel to/from school or homework, which can easily add another hour or two to the 'school-day'. Thus, adolescents spend roughly 35-40 hours a week (i.e. the same as most adult Americans spend at work) on school work. Accordingly, it is argued that an adolescents' subject grades reflect their levels of commitment to a societal institution wherein they spend the majority of their time.

Relying on secondary data and available questions also impacted the factor scores, making some less than ideal. For example, the involvement index had a factor loading of .42 and included: exercise, sports, hobbies, and housework. The housework item produced the lowest factor loading at .38; however, it meets the standard guidelines of factoring at .30 or higher. Further, preliminary runs showed that dropping this item from the index showed no significant changes to the SEM's. As such, it was decided to retain

all four of these items as they were included in Hirschi's (1969) original questionnaire. The belief index had a reliable factor loading of .50 and included the respondent's agreement on earning accomplishments with hard work, doing things right, feeling socially accepted, and teacher fairness. The scale appeared to be tapping into two different separate subscales with doing things right and feeling socially accepted loadings above .75 and accomplishments through hard work and teacher fairness loading at above .45. However, it was decided to retain all four items as they provided a broader picture of belief. For example, if the high factoring items (i.e. doing things right and feeling socially accepted) were the only items retained it would significantly alter the meaning of the index to that of "self-assessment of social acceptance". Further, as Hirschi (1969) argued, beliefs in societal rules/customs (i.e. accomplishments with hard work and teachers' fairness) are a significant factor to the belief bond.

Additional limitations of this study are with regards to causality and generalizability. Although structural equation modeling offers significant advantages over ordinary least square (OLS) regressions, it is similarly restricted to the same causality limitations. Structural equation models can provide significant correlations and co-occurrences; however, in Wave1 causality cannot be claimed. More specifically, in Wave 1 the assumption is that deviance happened as a result of weak bonds; however, it could just as easily be that adolescents who are getting into a lot of trouble have strained their relationships with their mothers to such an extent that deviance actually caused a decrease in bonds. Contrary to this, in Wave 3 there is a stronger case for causality, as the social bonds happened in adolescence (Wave 1) before deviance in young adulthood

(Wave 3). Further, despite the substantial, randomized sample size provided by Add Health, caution must be used when generalizing findings from SEM's to any population other than those in the original sample (Acock 2013).

Next, another limitation of this study is with regards to the attachment construct. Hirschi (1969) indicates that there are three primary attachment bonds (i.e. parents, school, and peers) in adolescence. However, due to the substantial amount of respondents that indicated they had 'no father' in the household, this study only including maternal items for the attachment construct. However, by not including all three primary attachment bonds and father-figures, it weakens the strength of this study by not knowing the effects of these attachments.

Finally, another limitation to this study are the small effect sizes. Although some are significant, overall they are smaller than anticipated. However, these findings actually support the validity of this study, by aligning with empirical data that indicates a small portion of individuals are responsible for the majority of criminal behaviors. This research relied upon Add Health data, which is a nationally representative sample of adolescents in the United States. Thus, if the effect sizes of social controls on deviance were large, it would indicate that the majority of adolescents are deviant. However, this is not the case and this research supports this notion. As a result, this research could be used as a baseline to future research; for example, perhaps comparing it to youth in residential placement.

FUTURE RESEARCH

There are three primary suggestions with regards to future research. First and foremost, it would be extremely beneficial to conduct research with a questionnaire specifically tailored to social control theory. Ideally, this instrument would be designed to allow for longitudinal analyses. Having a survey that specifically addresses all of the constructs within social control theory would not only eliminate the limitations of utilizing secondary data, it would also give significant credence to the predictability of deviance on a greater scope. For example, a survey instrument designed to address the scope of Hirschi's (1969) theory could reveal other primary attachment bonds or a combination of attachment bonds (i.e. parental, school, and/or peers); thus, providing more thorough understandings. Additionally, items asking respondents about their family structure (i.e. one-parent household, two-parent household, etc.) would provide a much greater understanding of the impacts that each parent plays in the formation of social bonds.

Next, in accordance with a tailored survey instrument, it would also be advantageous to examine Hirschi's (1969) original theory in modern times. For example, are social bonds affected in today's modern society where computers, smartphones, texting, and social media have, in some cases, taken over the traditional bonds that are referred to by Hirschi (1969)? Are there new bonds to technology? What impact does technology have on conventional bonds? Does it weaken them? For example, does the number of likes, retweets, and followers provide a sense of attachment that is beyond how previous research has conceptualized these ideas? This is not to suggest that the traditional bonds

are no longer important; however, to dismiss modern technology would be an erroneous omission.

Finally, akin to a modern survey instrument, future research may need to reflect on issues such as whether drug/alcohol addiction is considered deviant in today's society. This research relied upon theoretical measurements of substance use, both from Hirschi's (1969) research and subsequent research examining its' scope. However, ideals of substance use and/or abuse are significantly different today than they were nearly 60 years ago. To illustrate, in today's society alcoholism is often considered a hereditary disease. Thus, future research should take these issues into account and may need to contain different measures of deviance with regards to substance use.

Hirschi's (1969) theory is one of the most researched and cited works to date (Durkin et al. 1999); however, what was once 'traditional' in 1969 is not so discernable in the 21st century. Along with modern technology, aspects such as family structure, educational attainment, diversity/cultural awareness, and gender roles (to name a few) can easily be theorized to have a tremendous effect on social bonds. To illustrate, today's family structure is far removed from the chivalrous, 1950's depiction of the nuclear family. Single-parent families and same-sex marriages are not only prevalent in today's society, but they are also supported and even championed. As a result, do the new depictions of 'family' and family structure affect social bonds? For example, do changes in family structure improve/strengthen social bonds, as individuals are no longer 'shamed' into relationships that constitute what was once the 'ideal' family? In other

words, all of these modern revitalizations would be amiss if we continue to rely upon traditional survey questions, such as those in Hirschi's (1969) original research.

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