2013

Examining Parental Control, Parent-Adolescent Relationship, Delinquency, and Criminal Behavior

Deanna E. Harris-Mckoy
EXAMINING PARENTAL CONTROL, PARENT-ADOLESCENT RELATIONSHIP, DELINQUENCY, AND CRIMINAL BEHAVIOR

By

DEANNA E. HARRIS-MCKOY

A Dissertation submitted to the Department of Family and Child Sciences in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Degree Awarded:
Spring Semester, 2013

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DeAnna Harris-McKoy defended this dissertation on March 5, 2013
The members of the supervisory committee were:

Ming Cui
Professor Directing Dissertation

Eric Stewart
University Representative

Lenore McWey
Committee Member

Ronald Mullis
Committee Member

The Graduate School has verified and approved the above-named committee members, and certifies that the dissertation has been approved in accordance with university requirements.
I dedicate this to youth that inspired me to become a family therapist and a researcher. Hopefully my life’s work will make your future a little better.
ACKNOWLEDGEMENTS

I would like to acknowledge my personal and professional communities that have given me emotional and financial support, mentorship, advice, guidance, and love. Without you, I would not have made it this far.
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ABSTRACT

Problem/ Purpose: Delinquent behavior is a concern during the period of adolescence. In 2009, there were approximately 2 million arrests of youth under the age of 18 (Puzzachera & Adams, 2011). Although a majority of delinquent activity desists by late-adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffitt, 1993), many adolescents continue this behavior into young adulthood (Hoeve et al., 2008; Mulvey, 2011; Piquero, Hawkins et al., 2012). Since, familial factors are one of the most important when considering delinquent behavior (Nye, 1958), this study explores how familial processes (e.g. parental control and parent-adolescent relationship) along with other factors relate to adolescent delinquency and young adult criminal behavior.

Theoretical Framework: Social Learning Theory (Akers, 1973; Bandura, 1977), Baumrind’s parenting typology (1965), Social Control Theory (Nye, 1958), and Life Course Perspective (Elders, 1985) are used as theoretical guides in establishing a relationship between parental control, parent-adolescent relationships, delinquency, and criminal behavior.

Methods/Design: This study used participant information concerning parental control, parent-adolescent relationship, delinquency, and criminal behavior from Waves I, II, and IV of the National Longitudinal Study of Adolescent Health (Add Health).

Analysis: Negative binomial regression was used in conjunction with “Svy” estimation method in Stata to analyze the data.

Results: It was found that parental control had a negative relationship with delinquency ($b = -.048$, 95% CI [-.087, -.008], $exp(b)$ or $OR = .954$, $p < .05$). Also a curvilinear relationship between parental control and delinquency was found ($b = .029$, ...
95% CI [.001, .056], OR =1.03, p < .05). Regarding covariates, older adolescents (b =-.048, 95% CI [-.077, -.019], OR = .953, p < .01) and female adolescents (b =-.665, 95% CI [-.748, -.582], OR = .514, p < .01) reported lower odds of engaging in delinquent behavior than younger and male adolescents. Latino (b= .272, 95% CI [.138, .405], OR =1.31, p < .01) and Asian (b= .220, 95% CI [.034, .406], OR =1.25, p < .01) adolescents reported higher odds of engaging in delinquent behavior than White adolescents.

Adolescents who were living in a single mother family (b = .327, 95% CI [.226, .428], OR =1.39, p < .01), single father family (b= .613, 95% CI [.413, .812, OR =1.85, p < .01), stepfamily (b= .252, 95% CI [.149, .354], OR =1.29, p < .01), or other family structures (b= .300, 95% CI [.111, .489], OR =1.35, p < .01) reported higher odds of engaging in delinquent behavior than adolescents who were living in a two biological parent family. Adolescents who reported more peer influence had higher odds of engaging in delinquent behavior (b = .100, 95% CI [.068, .131], OR =1.11, p < .01).

Parental education was not significantly related to adolescent delinquent behavior. No moderating effects were found by parent-adolescent relationship, gender, and race between parental control and delinquency. Delinquency was found to peak during mid-adolescence. Finally, delinquency did not mediate the association between parental control in adolescence and adult criminal behavior. Implications of the findings were discussed.
CHAPTER ONE
INTRODUCTION

Although delinquent behavior is a concern during the period of adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffitt, 1993), recently, the rate of juvenile arrest has decreased (Puzzachera & Adams, 2011). Despite this decrease, there were approximately 1.9 million arrests of youth under the age of 18 in 2009 (Puzzachera & Adams). Arrest records are not the most accurate account of occurrences of delinquent behavior (Puzzachera & Adams), rather they reflect adolescents who have been caught and arrested for their delinquent behavior. It is fair to presume that the number of delinquent acts committed by youth is greater than the 1.9 million arrest recorded.

Delinquent acts or criminal behavior is not only a concern for those in adolescence, but also for those in young adulthood. Young adults between the ages of 18-25 have more freedom and less responsibility, which could lead to increases in criminal activity (Arnett, 2000). In 2010, approximately 194,200 young adults between the ages of 18-24 were under state or federal jurisdiction (Guerino, Harrison, & Sabol, 2011). Adolescents’ delinquent behavior and young adults’ criminal behavior are such a concern to society that this topic has been added to the Healthy People 2020 Initiative (United States Department of Health and Human Services [USDHHS], 2012). Some of the specific objectives for the initiatives include, “(1) decreas[ing] the rate of minor and young adult perpetration of violent crimes and (2) decreas[ing] the rate of minor and young adult perpetration of serious property crimes” (p. AH-6). Therefore, the focus of this study is on delinquency in adolescence and criminal behavior in young adulthood.
Nye (1958) stated, “the family is considered to be the single factor most important in exercising social control over adolescents” (p. 8); therefore this study includes familial factors of parental control and parent adolescent relationship to examine their impact on adolescent delinquency. In the literature, higher parental control is related to lower delinquent behavior (Demuth & Brown, 2004; Chen, 2010; Cottrell et al., 2003; Elite, 2006; Harris-McKoy & Cui, in press; Kopak & Hawley, 2012; Mack & Leiber, 2005; Sameoof, Peck, & Eccles, 2004; Wissink, Deković, & Meijer, 2006). However, some scholars (Nye, 1958) proposed a curvilinear relationship between parental control and delinquency. It was suggested that moderate amounts of parental control are associated with lower delinquent behavior. Too little or too much parental control could lead to more delinquent activity. Based on the previous literature, this study intends to examine the association between parental control and delinquency in adolescence and whether a curvilinear relationship exists.

The parent-adolescent relationship is also an important factor to adolescent development (Steinberg & Silk, 2002). Theoretically, the parent-adolescent relationship plays an imperative role in the strength of the impact of parental control on adolescent delinquency. Scholars such as Dishion and colleagues (1995) wrote “[p]arents cannot effectively manage children without a positive relationship; it simply does not work” (p. 439). This statement is supported by other scholars such as Nye (1958), who also suggested that the parent-adolescent relationship has some influence on the effects of parental control on delinquent behavior. Although various scholars have suggested that the parent-relationship should influence the impact of parental control on adolescent outcomes such as delinquency, few studies have been conducted on this topic (Seydlitz, 1993). This study intends to add to the literature by examining if and how the parent-adolescent relationship moderates the association between parental control and delinquency.
In the literature, other factors have also been associated with delinquent behavior, including age, gender, race/ethnicity, family structure, and parental education. Regarding age, some scholars have found that delinquent behavior increases during middle adolescence and decreases in late adolescence (Moffitt, 1993). Other scholars have found that delinquency heightens during late adolescence or young adulthood (Piquero, Brame, Mazerolle, & Haapanen, 2001). Concerning gender, it is well documented that males engage in more delinquent activity than females (Demuth & Brown, 2004; Dishion et al., 1995; Harris-McKoy & Cui, in press; Piquero, Hawkins, & Kazemian, 2012), even though female delinquency has increased (Mullis, Cornille, Mullis, & Huber, 2004; Puzzachera, 2009). Race is also an important factor when discussing delinquent behavior. Minority youth, especially Black and Latino youth are overrepresented in the juvenile justice system (Huizinga et al., 2007). Previous studies have also found family structure and parental education to be important factors when analyzing delinquency and criminal behavior (Blum et al., 2000; Cui, Donnellan, & Conger, 2007; Demuth & Brown, 2004; Griffin et al., 2000; Harris-McKoy & Cui, in press; Kowaleski-Jones & Dunifon, 2006). Based on the literature, the main effects of age, gender, race/ethnicity, family structure, and parental education on delinquency are analyzed as well as interactions with parental control.

As previously stated, criminal behavior is also a concern for young adults. However, as adolescents get older and transition into young adulthood, parental control decreases (Arnett, 2000; Steinberg & Silk, 2002). Young adults are less likely to adhere to parental controls (Arnett, 2000). Therefore, it is important to study the influence of parental control in adolescence on the criminal behavior of young adults. There is growing literature relating high parental control in adolescence to lower criminal behavior in young adulthood (Harris-McKoy & Cui, in press;
Johnson, Giordano, Manning, & Longmore, 2011; Scholte, 1999; Schroeder, Bulanda, Giordana, & Cernkovich, 2010). Based on previous literature, this study intends to examine if adolescent delinquency mediates the relationship between parental control in adolescence and young adult criminal behavior.

The sample for this study comes from the National Longitudinal Study of Adolescent Health (Add Health). Information was gathered about adolescents, their families, and parents from 1994 (Wave I) to 2008 (Wave IV). This study used participant information from Wave I, II, and IV concerning parental control, parent-adolescent relationship, delinquency, and criminal behavior.

There are disadvantages and advantages in conducting secondary data analysis. One limitation in using secondary data focusing on adolescents is the use of school-based design (Russell & Matthews, 2011). Information could be missing on certain groups of adolescents that are not enrolled in school. Adolescents not enrolled in school or are not regularly present in school may be more likely to engage in risky behaviors (Russell & Matthews). Another limitation is the number of items per measure (Donnellan, Trzesniewski, & Lucas, 2011). Add Health includes a number of topics and variables related to adolescent health. However, some of the measures may not have the appropriate number of items to adequately capture the intended measured variable.

Some scholars have suggested that there are more advantages than disadvantages in conducting secondary data analysis (Donnellan et al., 2011; Kiecolt & Nathan, 1985). Advantages to using secondary data include large sample size, longitudinal data, nationally representative, and complex sampling designs (Donnellan et al., 2011; Kiecolt & Nathan, 1985; Russell & Matthews, 2011). After considering the pros and cons of secondary data analysis,
Russell and Mathews (2011) “conclude[d] that the analysis of existing data sets hold great promises for advancing the scientific study of adolescence” (p. 164).

Using Add health data, the following research questions are examined:

1. Does parental control have a negative association with adolescent delinquent behavior?

2. Does parental control have a curvilinear relationship with adolescent delinquent behavior?

3. Does the parent-adolescent relationship moderate the association between parental control and delinquent behavior?

4. Do other factors significantly associate with adolescent delinquent behavior?
   a. Does age have a main effect on adolescent delinquent behavior?
   b. Does gender have a main effect on adolescent delinquent behavior?
   c. Does race/ethnicity have a main effect on adolescent delinquent behavior?
   d. Does family structure have a main effect on adolescent delinquent behavior?
   e. Does parental education have a main effect on adolescent delinquent behavior?
   f. Does peer influence have a main effect on adolescent delinquent behavior?

5. Does gender moderate the association between parental control and adolescent delinquent behavior?

6. Does race/ethnicity moderate the association between parental control and adolescent delinquent behavior?

7. Does delinquency peak in mid-adolescence?

8. Does adolescent delinquent behavior mediate the relationship between parental control and young adult criminal behavior?
CHAPTER TWO  
LITERATURE REVIEW

This chapter provides a review of the literature regarding the association between the dependent variables (i.e. delinquency, criminal behavior) and the independent variable (i.e. parental control). Furthermore, this chapter discusses how the association between parental control and delinquency is altered by the parent-adolescent relationship. A theoretical framework is first discussed to conceptualize the relationship between the variables. Although, the literature concerning the previously mentioned variables is vast, effort was made to incorporate pertinent information.

2.1 Theoretical Framework

In this study, Social Learning Theory (Akers, 1973; Bandura, 1977), Baumrind’s parenting typology (1965), Social Control Theory (Nye, 1958), and life course perspective (Elders, 1985) were used as theoretical guides in establishing a relationship between parental control, parent-adolescent relationships, delinquency, and criminal behavior.

2.1.1 Social Learning Theory

Scholars have used social learning theory to understand and explain the development of antisocial behaviors such as aggression, delinquency, and criminal behavior (Akers, 1973, 1977, 2001; Bandura 1969, 1977; Bandura & Walters, 1963; Patterson, & Dishion, 1985) and to relate parenting behaviors to delinquency (Unnever, Collins, & Agnew, 2006). Although there are multiple variations of social learning theory (Severy, 1970), aspects of this theory from Albert Bandura (1969, 1977) and Ronald Akers (1973, 1977) are used. Both Bandura (1977) and Akers (1973) proposed that most behaviors, including delinquency, are not innate, but learned.
Adolescents can learn delinquent behavior through social or nonsocial situations (Akers, 1977) and with primary groups (e.g. family and parents, Akers 2001). Therefore, parental control is imperative in preventing adolescents from learning delinquent behavior.

2.1.2 Baumrind’s Parenting Typology

Aspects of Baumrind’s (1965) parenting typology have been frequently used in the literature when studying the influence of parenting behaviors on child or adolescent outcomes (Baumrind 1965; 1966; 1971, 1991; 2005; Harris-McKoy & Cui, in press; Simons & Conger, 2007; Steinberg, Lamborn, Darling, Mounts & Dorbusch, 1994). The parenting typology is characterized by variations of parental demandingness (control) and responsiveness (warmth). Only demandingness is used in this study. Demandingness can be considered “the claims parents make on children to become integrated into society by behavior regulation, direct confrontation, and maturity demands (behavioral control) and supervision of children’s activities (monitoring)” (Baumrind, 2005, p. 62). Previous literature has suggested that parents that exhibit high demandingness or control have children and adolescents with better outcomes (Baumrind 1965; 1966; 1971, 1991; 2005; Steinberg et al., 1994). Based on this theory, higher parental control should relate to lower delinquent activity.

2.1.3 Nye’s Social Control Theory

Nye (1958) discussed various familial factors that can influence delinquency, including parental control and the parent-adolescent relationship. He proposed that moderate levels of parental control (e.g. supervision, monitoring, punishment, etc.) are related to less delinquent activity. Too much or too little parental control should be associated with higher delinquent behavior. Nye also suggested that the quality of the parent-adolescent relationship has some influence on the association between parental control and delinquent behavior. This suggests that
parental control relates to lower delinquent behavior for adolescents with a better relationship with their parents. Therefore, this theory is used to support (1) the curvilinear relationship between parental control and adolescent delinquency and (2) the parent-adolescent relationship as a moderator for the association between parental control and delinquency. Other scholars have used this theory when examining parent-adolescent relationship as a moderator for the mentioned association (Seydlitz, 1993).

2.1.4 Life Course Perspective

Life course perspective “looks at how chronological age, relationships, common life transitions, and social change shape people’s lives from birth to death” (Hutchison, 2011, p. 9). Scholars have used life course perspective in studying delinquency in adolescence and criminal behavior in adulthood (Hoffman, 2010; Piquero, Jennings, & Barnes, 2012; Powell, Perreira, Harris, 2010; Sampson & Laub, 1992, 1993, 1997). One of the main concepts in this perspective is the idea of a trajectory (Elders, 1985). Trajectory can be defined as “long-term patterns of stability and change in a person’s life” (Hutchinson, 2005, p.144). This study analyzes how familial factors such as early parental control relate to young adult criminal behavior. Using this theory, it is assumed that parental control in adolescence has lasting effects on later criminal behavior in young adulthood through adolescent delinquency.

2.2 Delinquency and Criminal Behavior

This section discusses delinquency during adolescence and criminal behavior during young adulthood. The continued need to study delinquency and criminal behavior is also addressed.
2.2.1 Adolescent Delinquency

Scholars have described adolescence as period of sharp emotional, social, physical, and cognitive change (Steinberg & Silk, 2002). Potentially due to these drastic changes and increases in autonomy (Steinberg & Silk) many scholars have focused on delinquent behavior within the period of adolescence (Agnew, 2003; Moffitt, 1993), creating the term adolescent-limited offenders (Moffitt). Delinquent behavior has been found to peak during adolescence, beginning in early adolescence and decreasing towards late adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffitt, 1993).

When discussing delinquent behavior, the age of majority, when youth are no longer considered juveniles, differs (Shoemaker, 2009). A juvenile can be considered anyone under the age of eighteen (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2008; Zahn et al., 2010) or under the age of 21 (Federal Bureau of Prisons, n.d.). Delinquent behavior can be defined as a behavior that violates the law committed by a juvenile (OJJDP, 2008; Federal Bureau of Prisons, n.d.; Shoemaker, 2009; Zahn et al., 2010). Along with behavior that would be considered a crime if done by adults (OJJDP, 2008), juvenile delinquent behavior also includes status offenses. Status offenses are behaviors by juveniles that violate the law, but would not be considered a crime for adults (OJJDP, 2008). Status offenses include truancy, running away, ungovernability/incorrigibility, violating curfew laws, and violating underage liquor laws (OJJDP).

Despite some decline in arrest records (Puzzachera & Adams, 2011), juvenile delinquency is still a major concern. In 2009, there were approximately 1.9 million arrests of youth under the age of 18 (Puzzachera & Adams). Due to the high rates of delinquent behavior by adolescents, the United States government has added this topic to the Healthy People 2020
Initiative. One of the goals of Healthy People 2020 is to “reduce adolescent and young adult perpetration of, as well as victimization by, crimes” (USDHHS, 2012, p. AH-6). The previous information suggests that delinquent behavior of adolescents is still a societal concern that needs to be studied.

2.2.2 Criminal Behavior in Young Adulthood

As previously mentioned scholars have found that delinquent behavior is limited to the period of adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffitt, 1993). However, there are other scholars that believe delinquent behavior peaks in late adolescence and young adulthood (Piquero, Brame, Mazerolle, & Haapanen, 2001). Piquero and colleagues (2001) studied male youth between the ages of 16 and 22 for seven years and found that criminal behavior was highest during young adulthood. Despite when scholars believe delinquent or criminal behavior peaks, delinquent behavior in adolescence has been found to continue to criminal behavior in young adulthood (Hoeve et al., 2008; Mulvey, 2011; Piquero et al., 2001; Piquero, Hawkins et al., 2012; Piquero, Jennings et al., 2012). Although a majority of individuals desist from delinquent or criminal behavior by adulthood, there are many that continue into adulthood (Hoeve et al., 2008; Mulvey, 2011; Piquero, Hawkins et al., 2012), labeled life-course persistent offenders (Moffitt, 1993). The percentage of youth that become career criminal varies depending on the study. For example, Hoeve and colleagues (2008) discovered that almost a quarter of males ages 6 to 20 continued to commit criminal behavior after 14 years. While studying offenders ages 14 to 18 for seven years, Mulvey (2011) found that approximately 50% of adolescent offenders still committed criminal behavior in young adulthood. Similar results were found in a review of longitudinal studies of adolescent delinquent behavior progressing to young adult criminal behavior (Piquero, Hawkins et al., 2012).
Continuity of behavior has been recognized in the literature (Elders, 1985), especially regarding antisocial behavior (Dishion et al., 1995; Sampson & Laub, 1992). Despite chronological differences of when delinquent behavior peaks (Agnew, 2003; Moffit, 1993; Piquero et al., 2001), the literature suggests that delinquent and criminal behavior are still problems for adolescents and young adults (Brame, Mulvey, & Piquero, 2001; Hoeve et al., 2008; Mulvey, 2011; Piquero, Hawkins et al., 2012). As stated earlier, the U.S. Healthy People 2020 Initiative is concerned about delinquent behavior of adolescents (USDHHS, 2012). The initiative also includes reducing criminal behavior of young adults. Therefore, this study focuses on delinquent behavior in adolescence and criminal behavior in young adulthood. Also, the trajectory of delinquent behavior into criminal behavior is also explored to understand when delinquent behavior peaks.

2.3 Parental Control and Delinquency

Adolescence is a period characterized by an increase in autonomy, less parental control, and a more distant relationship with parents (Steinberg & Silk, 2002). As previous literature suggests, the period of adolescence is also open to detrimental behaviors such as delinquency (Moffitt, 1993; Steinberg & Silk, 2002). Involvement in detrimental behaviors is more likely to occur when parental control is low and adolescents have more unsupervised time (Barnes, Hoffman, Welte, Farrell, & Dintchelff, 2006; Borawki, Ievers-Landis, Lovegreen, & Trapl, 2003). Due to the increase in risky behavior, such as delinquency during adolescence, parental control is still necessary in deterring risky behaviors through this ambiguous period (Steinberg, 1990).

In the literature, parental control has been operationalized as monitoring or supervision (Cernkovich & Giordano, 1987; Elite, 2006; Spano, Vazsonyi, & Bolland, 2007; Hair et al.,
2008; Seydlitz, 1993), punishment (Hair et al., 2008; Seydlitz, 1993), control of free time and clothing (Seydlitz, 1993), and control over decision-making (Demuth & Brown, 2004; Harris-McKoy & Cui, in press; Kopak & Hawley, 2012; Mack & Leiber, 2005; Watt & Rogers, 2007). Some scholars believe that higher parental control should relate to lower delinquent behavior (Baumrind, 2005). While there are other scholars that believe moderate amounts of parental control relate to lower delinquent behavior (Nye, 1958).

Glueck and Glueck (1950) were some of the first researchers to analyze familial factors, including parental control, when considering delinquency. In their monumental study *Unraveling Juvenile Delinquency*, they found that more parents of adolescents with delinquent than adolescents without delinquent behavior were lax in their control and more inconsistent, oscillating between lax and strict control. Their study however only included males between the ages of 11 and 17. In further analysis of this data, Sampson and Laub (1993) did not find a significant correlation between parental control and adolescent delinquent behavior.

Since the Gluecks’ (1950) historical study, there have been many studies examining the relationship between parental control and adolescent delinquency. A meta-analysis was conducted concerning parenting behaviors and delinquency with 161 unpublished and published studies by Hoeve and colleagues (2009). A small to medium effect size (.19) was reported concerning parental behavioral control and delinquency. Other studies concerning parental control and delinquency were conducted with non-representative samples (Chen, 2010; Cottrell et al., 2003; Elite, 2006; Sameoof et al., 2004, Wissink et al., 2006). For example, Elite (2006) analyzed data from the Florida Youth Substance Abuse Survey and found that higher parental control predicted lower reports of delinquent behaviors. Other studies have found that parental control was associated with lower delinquent behavior for seventh graders in Maryland (Sameoof
et al., 2004), adolescents in rural areas (Cottrell et al., 2003), adolescent males in the 10\textsuperscript{th} grade (Chen, 2010), and adolescent girls (Haynie, 2003). Similar to findings from Sampson and Laub (1993), there are studies that have not found a significant relationship between parental control and delinquency. For example, Wissink and colleagues (2006) reported inconsistent results concerning a significant association between parental control and delinquency in four different ethnic groups.

Other studies have used national data sets (Demuth & Brown, 2004; Harris-McKoy & Cui, in press; Kopak & Hawley, 2012; Mack & Leiber, 2005) to examine the relationship between parental control and delinquency. For example, Kopak and Hawley (2012) analyzed White and Mexican American adolescents from the National Longitudinal Study of Adolescent Health (Add Health) and found that parental control did not predict likelihood of engaging in delinquent behavior. Mack and Leiber (2005) found similar results using Add Health data regarding parental instrumental control for White and Black adolescent in single-mother households in Wave I. Contrary to the previous findings using Add Health data, Demuth and Brown (2004) found that higher parental control predicted low reports of delinquent behavior.

While the previous paragraphs suggest that a linear relationship exists between parental control and delinquency, some scholars believe that too little or too much parental control leads to more delinquent behavior (Nye, 1958). Wells and Rankin (1988) tested a curvilinear relationship between parental control and delinquency with a sample of adolescent males from the Youth in Transition data. A curvilinear (U-shaped) relationship was found between parental control and delinquent behavior. Too much or too little parental control significantly related to higher reports of delinquent behavior. However, Mason, CAuce, Gonzales, and Hiraga (1996) also tested a curvilinear relationship between maternal control and delinquency in a sample of
African-American adolescents. Mason and colleagues did not find a significant curvilinear relationship between parental control and delinquency. It is hypothesized that a curvilinear relationship exists between parental control and delinquency.

Mixed results exist in the literature regarding parental control and delinquency. Some scholars believe that more parental control is associated with lower delinquent behavior (Baumrind 1965; 1966; 1971, 1991; 2005). While other scholars believe that too much parental control could lead to more delinquent behavior (Nye, 1958). Further, some of the studies contained only male participants (Glueck & Glueck, 1950; Sampson & Laub, 1993) or non-representative samples (Chen, 2010; Cottrell et al., 2003; Elite, 2006; Sameoof et al., 2004; Wissink et al., 2006). When data from Add Health was used, some scholars found that parental control significantly related to delinquency (Demuth & Brown, 2004; Harris-McKoy & Cui, in press) while others did not find a significant relationship (Kopak & Hawley, 2012; Mack & Leiber, 2005). The study adds to the literature by examining parental control and delinquency with a nationally representative sample. Further this study intends to explore whether a curvilinear relationship exists between parental control and delinquency.

2.4 Parent-Adolescent Relationship as a Moderator

Although parents and adolescents become more distant during the period of adolescence, the parent-adolescent relationship is still important (Steinberg & Silk, 2002). Adolescents that report a better relationship with their parents have also been found to report lower delinquent activity (Eichelsheim et al., 2009; Hair et al., 2008; Vazsonyi, 2004; Videon, 2002; Wissink et al., 2006). This section describes why the quality of the relationship between parents and adolescents would alter the influence of parental control on delinquent behavior.
Often in the literature parenting behaviors (e.g. parental support) have been used synonymously with the quality of the parent-adolescent relationship (Aceves & Cookston, 2007; Johnson et al., 2011; Warr, 2007). However, the parent-adolescent relationship and parenting behaviors are separate concepts (Crosnoe & Cavanagh, 2010; Darling & Steinberg 1993). Hoeve and colleagues (2010) separated parenting behaviors and attachment in a meta-analysis of attachment and delinquency. Hoeve and colleagues (2010) only used articles that included “quality of the attachment relationship, the bond to parents, or affectional identification, which considered both the child and the parent but not specific behaviors of the child towards the parent or vice versa (e.g. parenting)” (p. 774). While attachment and quality of parent-relationship are also different concepts, the previous example was used to support differentiating between parental behaviors and the parent-adolescent relationship. When studies have focused on the parent-adolescent relationship and not parenting behaviors, parent-adolescent relationship has been operationalized as closeness (Bulanda & Majumdar, 2009; Mack & Leiber, 2005; Vasonyi, 2010), time enjoyed together (Hair et al., 2008), intimacy (Wissink et al., 2006) overall quality of the relationship (Aceves & Cookston, 2007; Bulanda & Majumdar, 2009; Deptula, Henry, & Schoeny, 2010; Wissink et al., 2006), and quality of communication (Aceves & Cookston, 2007; Bulanda & Majumdar, 2009; Dekovic, Buist, & Reitz, 2004; Deptula et al., 2010). Aspects of closeness, quality of communication, and overall quality of the relationship were used to measure parent-adolescent relationship in this study.

Numerous studies have analyzed the relationship between parental control and delinquency or parent-adolescent relationship and delinquency (Bowman, Prelow, & Weaver, 2007; Eichelseim et al., 2009; Griffin et al., 2000; Jang & Smith, 1997; Vazsonyi, 2004, Videon, 2002). Some studies have used both parental control and the parent-adolescent relationship as
independent variables when examining their influence on delinquency (Hair et al., 2008, Johnson et al., 2011; Sinha & Mishra, 2007; Wissink et al., 2006). However, few studies have used parent-adolescent relationship as a moderator between parental control and delinquency (Seydlitz, 1993). Despite suggestions that the parent-adolescent relationship is relevant to the association between parental control and delinquency, few studies were found on this topic.

Previous studies have used the parent-adolescent relationship as a moderator between various factors. For example, the parent-adolescent relationship has been found to moderate the influence of adolescent personality characteristics on externalizing behaviors (Manders, Scholte, Janssens, & De Bruyn, 2006), victimization on violent aggression (Aceves & Cookston, 2006), and positive social control on eating behavior (Lessard et al., 210). However, few studies were found in which parent-adolescent relationship was used as a moderator between parental control and delinquency (Seydlitz, 1993). Seydlitz (1993) analyzed the interaction between parental control and parent-adolescent relationship on delinquency with a sample of white adolescents residing with both biological parents. She found that the interaction of parental control and parent-adolescent relationship was only significant with females in early adolescence. Low quality parent-adolescent relationship and high parental control related to higher reports of delinquent behavior.

Even though scholars have suggested that the parent-adolescent relationship should be considered when examining the influence of parental control on delinquency, few studies were found that used parent-adolescent relationship as a moderator (Seydlitz, 1993). This study adds to the previous literature regarding the mentioned relationship by using a nationally representative sample to examine parent-adolescent relationship as a moderator between parental control and adolescent delinquency.
2.5 Covariates

This section reviews the literature on other factors found to have an association with delinquent behavior including age, gender, race/ethnicity, family structure, and parental education. Also, this section includes information on interaction effects concerning some of the variables.

2.5.1 Age

Regarding age, some scholars have found that delinquent behavior increases during middle adolescence and decreases in late adolescence (Moffitt, 1993). Other scholars have found that delinquent or criminal behavior heightens during late adolescence/young adulthood (Piquero et al., 2001). Regardless of when delinquent behavior peaks, it seems to decrease with an increase in age. Using age as a continuous variable, some scholars have found a negative association between age and delinquency (Deumth & Brown, 2004; Harris-McKoy & Cui, in press), suggesting that as adolescents get older delinquent activity decreases. In this study, age is also used as a continuous variable and it is hypothesized that age has a negative relationship with delinquent behavior.

2.5.2 Gender

The literature concerning juvenile delinquency overwhelmingly finds that males report more delinquent activity than females (Demuth & Brown, 2004; Dishion et al., 1995; Harris-McKoy & Cui, in press). However, there has been a rise in female delinquency (Mullis et al., 2004; Puzzachera, 2009; Puzzanchera & Adams, 2011). Arrest of females engaging in delinquent behavior has decreased less than males (Puzzachera 2009; Puzzanchera & Adams, 2011). In areas such as simple assault, larceny-theft, and disorderly conduct, female delinquency arrest have actually increased (Puzzanchera & Adams, 2011). Despite declines in male delinquency
and an increase in female delinquency (Puzzachera 2009; Puzzanchera & Adams, 2011), it is proposed that males report more delinquent behavior than females.

2.5.3 Race/Ethnicity

Minority youth, especially Black and Latino youth, have disproportionate contact with the juvenile justice system (Huizinga et al., 2007). For example, African American youth were 16% of the population between the ages of 10-17 in 2008, yet composed 52% of juvenile Violent Crime Index arrests and 33% of Juvenile Property Crime index arrests (Puzzanchera, 2009). However, findings concerning self-report delinquent behavior do not coincide with minority youth contact with the juvenile justice system. For example, Piquero and Brame (2008) did not find significant racial/ethnic differences in self-reported delinquent behavior in a longitudinal study of serious offenders in Philadelphia and Phoenix. Coley and Medeiros (2007) studied White, Black, Latino, and Other racial/ethnic groups of adolescents from the Welfare, Children, and Families: A Three-City Study across two waves. It was found that Black adolescents reported significantly lower delinquent behavior than Latinos at Wave 1. At Wave 2, Black adolescents reported significantly lower delinquent behavior than Latino and White adolescents. When significant differences were found, only Latino youth reported more delinquent behavior than White youth (Demuth & Brown 2004; Harris-McKoy & Cui, in press; Kopack & Hawley, 2012). This study continues to add to the literature by analyzing racial/ethnic differences in adolescent delinquency. Based on previous literature, it is hypothesized that Latino youth report significantly more delinquent behavior as compared to Whites.

2.5.4 Family Structure

Previous studies have used family structure as a control variable when analyzing delinquency (Bachman, Coley, & Chase-Lansdale, 2009; Blum et al., 2000; Demuth & Brown;
2004; Harris-McKoy & Cui, in press; Watt & Rogers, 2007). Adolescents from a single parent home significantly predicted more delinquent activity (Blum et al., 2000). Demuth and Brown (2004) found that adolescents in single-father households reported higher levels of delinquency than adolescents in other types of family structures. Also using Add Health data, Harris-McKoy and Cui (in press) found that single parent, stepparent, and other family structures (other than two biological parents) related to more delinquent behavior. Family structure should have a significant relationship to delinquent behavior. Specifically, adolescents not in a two-biological parent household should report more delinquent activity.

### 2.5.5 Parental Education

Similar to previous studies, parental education is used as a proxy for socioeconomic status (Demuth & Brown; 2004; Elite, 2006; Harris-McKoy & Cui, in press; Mack & Leiber; Watt & Rogers, 2007). Using information from the Florida Youth Substance Abuse Survey, Elite (2006) did not find that parental education significantly predicted delinquent behavior. Findings from a study using Add Health data by Mack and Leiber (2005) and Harris-McKoy and Cui (in press) support the previous results. Maternal education was not a significant predictor of delinquency for Black and White adolescents from single parent households (Mack & Leiber, 2005). Parental education did not predict delinquent behavior using the entire sample at Wave I (Harris-McKoy, & Cui, in press). However, using data from Add Health, Demuth and Brown (2004) found that lower reports of delinquent behavior were significantly associated with parents with at least a college degree. A majority of the previous literature mentioned did not find a significant relationship between parental education and delinquency. However, due to the mixed result, the relationship between parental education and delinquency is tested. It is hypothesized that parental education will not have a significant relationship to delinquency.
2.5.6 Peer Influence

During the period of adolescence, there is an increase in time spent with peers (Steinberg & Silk, 2002). For some adolescents, their peers become more of a role model than their parents (Steinberg & Silk). Peer influence has been associated with negative outcomes for adolescents (Beaver, 2008; Haynie, 2001; McGloin, 2009; Watt & Rogers, 2007). For example, using data from Add Health, Watt and Rogers (2007) found that adolescents with supportive friends were more likely to use alcohol. Also, a positive relationship has been found between adolescent peer relationships and delinquent behavior (Beaver, 2008; Haynie, 2001; McGloin, 2009). Based on the previous literature it is important to include the influence of peers when analyzing adolescent delinquency. It is hypothesized that higher peer influence will relate to higher delinquent activity.

2.6 Gender as a Moderator

It is possible that some of the previously mentioned covariates interact with parental control. For example, many studies have analyzed the relationship between parental control and delinquency using gender as a control variable (Demuth & Brown, 2004; Elite, 2006; Harris-McKoy & Cui, in press; Johnson et al., 2011). However, gender may change how parental control influences delinquency. Regarding gender and parental control, it has been found that parents exert more control on female than male adolescents (Cernkovich & Giordano, 1987; Hagan, Simpson, & Gillis, 1987). However, the gender differences in parental control may not translate to the influence of parental control on delinquency.

In a sample of white adolescents, Seydilitz (1991) found that parental control influences delinquent behavior more for males than for females. Similar results were found with children with a mean age of 8.6 in Washington D.C. (Wilkins, 2006). Parental control influenced intent to
use substances more for males than for females. Vermeersch and colleagues (2008) found opposing results in a group of 14-15 year old Flemish adolescents. They did not find any gender differences between parental control and aggressive risk taking behavior. However, they did find that maternal direct control influenced non-aggressive risk taking behavior more for female adolescents than for male adolescents. Taking into consideration the previous studies, parental control should influence delinquency more for males than females.

2.7 Race/Ethnicity as a Moderator

Regarding race and parental control, levels of parental control have been found to be higher in ethnic minorities than non-ethnic minorities (Cernkovich & Giordano, 1987). Much of the literature found focused on racial differences in parenting styles (Schroeder et al., 2010; Steinberg et al., 1994; Steinberg, Mounts, Lamborn & Dornicus, 1991). Steinberg and colleagues (1991) found that the influence of high parental control on adolescent outcomes such as delinquency was invariant across racial/ethnic groups for a sample of Asian, Black, Latino and White adolescents in grades 9th-12th in Wisconsin. Using the same sample, Steinberg and colleagues (1994) found that the influence of parenting style on problem behavior was invariant across racial/ethnic groups. Deutsch and colleagues (2012), using Add Health data, analyzed ethnic differences in path models concerning parenting behaviors and delinquency. They found that parental control influenced delinquency more for African American adolescents than White adolescents. Using data from the National Survey of Family Households, Amato and Fowler (2004) did not find racial/ethnic differences in a path model analyzing parenting practices (e.g. support, monitoring, and harsh discipline) and adolescent outcomes for Black, Mexican American, and White participants. This study intends to add to the literature by discovering if race/ethnicity influences relationship between parental control and delinquency.
2.8 Parental Control in Adolescence and Young Adult Criminal Behavior

As adolescents get older, the level of parental control decreases (Seydlitz, 1991; Steinberg & Silk, 2002). Persons between the ages of 18 and 25 are in an ambiguous period where they have levels of autonomy comparable to adults, however, they do not have similar levels of responsibility (Arnett, 2000). Low levels of adult responsibility combined with more autonomy increase the chances of criminal behavior during this period (Arnett). As previously stated many adolescents continue to engage in criminal behavior as young adults (Hoeve et al., 2008; Mulvey, 2011; Piquero, Hawkins et al., 2012). Due to an increase in autonomy during this period, young adults may not be as open to parental control; therefore, the influence of parental control in adolescence on young adult criminal behavior should be studied.

The literature concerning parental control in adolescence and young adult criminal behavior is not as vast as literature about parental control and delinquency. From the Unraveling Juvenile Delinquency study mentioned earlier, a significant relationship was not found between early parental control and adult criminal behavior (Glueck & Glueck, 1950). However, when studying the association between parenting styles and adult criminal behavior, higher parental control measured when adolescents from Ohio were approximately 15 years old, negatively related to later adult criminal behavior at age 25 (Schroeder et al., 2010). Also, Hoeve and colleagues (2008) studied the trajectories of delinquent behavior of males from the Pittsburgh Youth Study from age 7 to age 19. It was found that participants that continued to be involved with criminal behavior at age 19 had earlier low parental control. Petras and colleagues (2004) gathered information from male students in Baltimore from first through sixth grade and when the participants were approximately 20 years old. They found that parental control, measured in sixth grade, decreased the chances of getting an arrest record by age 20 by 55%. However, the
reduction in probability of having an arrest record was found only for males that showed increases in aggression over time. In a longitudinal study of Dutch male adolescents with a legal history of delinquent behavior, Scholte (1999) found a significant negative relationship between early parental control and criminal behavior. Using multiple time points from the Toledo Adolescent Relationship Study, Johnson and colleagues (2011) found that higher parental control at Wave 1 (when adolescents were in the 11th grade) significantly predicted less criminal behavior at Wave 4 when participants were approximately 20 years old. Using a national data set, Harris-McKoy and Cui (in press) found similar results concerning parental control in adolescence and criminal behavior.

When the relationship between parental control and criminal behavior was analyzed mixed results were found. Some studies found that more parental control in adolescence related to less criminal behavior in young adulthood, especially when there was continuity in delinquent/criminal behavior over the years (Schroeder, Bulanda, Giordana, & Cernkovich, 2010). Other studies found that early parental control did not significantly relate to later criminal behavior (Glueck & Glueck, 1950). Some of the previous studies only sampled male participants or did not have a representative sample (Glueck & Glueck, 1950; Johnson et al., 2011; Scholte, 1999; Schroeder et al., 2010). This study adds to the literature by examining a potential pathway from parental control in adolescence to later criminal behavior. It is hypothesized that adolescent delinquency is a mediator between parental control in adolescence and later criminal behavior. Higher parental control in adolescence relates to lower adolescent delinquency. Lower adolescent delinquency then relates to lower criminal behavior.

2.9 Summary

There have been great contributions made in the literature concerning parental control,
parent-adolescent relationship and delinquency, however there are some limitations. Hoffman (2010) stated, “Although many studies have identified typologies of offending, far fewer studies have examined factors that may explain escalation, plateaus, or decreasing involvement in delinquent behavior” (p. 107). This study intends to add to the literature analyzing familial factors (e.g. parental control, parent-adolescent relationship) that influence adolescent delinquency and later adult criminal behavior.

Parenting behavior and the parent-adolescent relationship are separate concepts (Crosnoe & Cavanagh, 2010). Only one study was found that used parent-adolescent relationship as a moderator between parental control and delinquency using a sample of White adolescents residing with both biological parents (Seydlitz, 1993). Seydlitz (1993) suggested, “the current analyses should be replicated with a larger data set” (p. 269). This study incorporates the previous suggestions by analyzing parent-adolescent relationships as a moderator between parental control and delinquency and criminal behavior using a national longitudinal sample of adolescents. Also, in attempts to explain the relationship between parental control in adolescence and later criminal behavior, this study examines delinquency as a mediator.

2.10 Purpose of the study

This study aims to analyze the relationship between parental control in adolescence, parent-adolescent relationship, adolescent delinquent and subsequent criminal behavior. The following research questions are explored in this study:

(1) Does parental control have a negative association with adolescent delinquent behavior?

(2) Does parental control have a curvilinear relationship with adolescent delinquent behavior?
(3) Does the parent-adolescent relationship moderate the association between parental control and delinquent behavior?

(4) Do other factors significantly associate with adolescent delinquent behavior?
   a. Does age have a main effect on adolescent delinquent behavior?
   b. Does gender have a main effect on adolescent delinquent behavior?
   c. Does race/ethnicity have a main effect on adolescent delinquent behavior?
   d. Does family structure have a main effect on adolescent delinquent behavior?
   e. Does parental education have a main effect on adolescent delinquent behavior?
   f. Does peer influence have a main effect on adolescent delinquent behavior?

(5) Does gender moderate the association between parental control and adolescent delinquent behavior?

(6) Does race/ethnicity moderate the association between parental control and adolescent delinquent behavior?

(7) Does delinquency peak in mid-adolescence?

(8) Does adolescent delinquent behavior mediate the relationship between parental control and young adult criminal behavior?

2.11 Hypotheses

(H1) Parental control (Wave I) should be negatively related to delinquent behavior (Wave I).

(H2) A curvilinear relationship should occur between parental control (Wave I) and delinquency (Wave I).

(H3) Parent-adolescent relationship (Wave I) should moderate the association between parental control (Wave I) and delinquency (Wave I). Specifically, closer parent-adolescent relationships strengthen the protective effect of parental control on
delinquency, while more distant parent-adolescent relationship decrease the protective
effect of parental control on delinquency.

(H4) Other factors

a. Age (Wave I) is negatively associated to delinquency (Wave 1)

b. Male adolescents report significantly higher delinquent behavior than female adolescents.

c. Latino youth report significantly higher delinquent behavior than White youth.

d. Adolescents in two biological parent households report significantly lower delinquent behavior than adolescents in other family structures.

e. Parental education is negatively related to delinquent behavior.

f. Peer influence is positively associated to adolescent delinquent behavior.

(H5) Parental control has a stronger association to delinquency for males than females.

(H6) Parental control has a stronger association to delinquency for Black adolescents than White adolescents.

(H7) Delinquency peaks during mid-adolescence rather than late-adolescence/ early adulthood.

(H8) Delinquency (Wave II) mediates the relationship between parental control in adolescence (Wave I) and young adult criminal behavior (Wave IV).
CHAPTER THREE

METHOD

This section addresses methodology used to test the previous hypotheses. A description of the data collection, sample, and variables of interest is provided.

3.1 Sample

The data for this study came from the National Longitudinal Study of Adolescent Health (Add Health)\(^1\). A multistage, stratified, cluster sampling design was used to follow students from 132 schools in the United States over four time periods (Harris, 2011). Initially, 80 high schools were selected and placed into groups based on urbanicity, school size and type, racial/ethnic diversity, region of country, and size. After the schools were selected a middle school was found for each of the high schools in which a large portion of the middle school students attended the high schools in that area. A total of 132 (79\%) of the schools selected consented to participate in the study.

Data for Wave I were collected during the 1994-1995 school year with students in grades 7-12 (Harris, 2011). Students were given in-school and in-home surveys to complete. For the in-home surveys, students in each school were grouped by grade and sex, and then 17 students from each group were randomly selected to participate in the in-home surveys. Data were then

\(^1\) This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.
collected for Wave II in 1996, (excluding those that graduated in Wave I), for Wave III between 2001 and 2002, and for Wave IV in 2008. Data for this study came from the in-home surveys given. Add Health researchers oversampled youth that were Black with one parent with a college degree, of various ethnic groups (Cuban, Puerto Rican, and Chinese), with various sibling types (twins, full siblings, half siblings, and unrelated youth residing together), based on adoption status, and various disabilities (Harris, 2011).

At Wave I (N= 20,745), participants were between the ages of 12-21 years old. Wave II (N=17,738), youth were between the ages of 13-22. Wave IV, (N=15,701) youth were between the ages of 24-32. Participants that did not have sampling weights were deleted from the study. The deletion left at Wave I 17,636 participants, at Wave II 12,718 participants, and at Wave IV 8,928 participants.

3.2 Power Analysis

Cohen’s guidelines of power analyses (1988) were used to determine sample size needed to obtain power (beta) of .80. Using an alpha of .01 and a medium effect size (.30), a sample of approximately 130 participants is needed to obtain desired power. When considering weighted and complete data, the total sample is 8,304. The current sample in the study is larger than the estimated sample needed, suggesting sufficient statistical power.

3.3 Measures

3.3.1 Adolescent Delinquency (Wave I)

Seven items were used to measure delinquency at Wave I. The items asked: During the past 12 months, how often did you: deliberately damage property, steal something worth more than $50, go into a house or building to steal something, use or threaten to use a weapon to get something from someone, sell marijuana or other drugs, steal something worth less than $50, and
take part in a fight where a group of your friends was against another group. Responses ranged from 0 = never to 3 = 5 or more times. At Wave I, the seven items were added together for a total score for delinquent behavior. Higher scores correspond to more delinquent behavior. The alpha for the measure at Wave I was .74. These items were used to measure delinquency in other studies (Harris-McKoy & Cui, in press).

3.3.2 Adolescent Delinquency (Wave II)

Seven items were used to measure delinquency at Wave II. The items and coding scheme were the same as in Wave I. Higher scores correspond to more delinquent behavior. The alpha for the measure at Wave II was .73.

3.3.3 Young Adult Criminal Behavior (Wave IV)

Seven items were used to measure delinquency at Wave IV. The items and coding scheme were the same as in Waves I and II. Higher scores correspond to more criminal behavior. The alpha for the measure at Wave IV was .54.

3.3.4 Parental Control (Wave I)

Six items were used to measure parental control. The items asked: Do your parents let you make your own decisions about: the time you must be home on weekend nights, the people you hang around with, what you wear, how much television you watch, which television programs you watch, and what time you go to bed on week nights. Initially, responses ranged from 0 = no to 1 = yes. Responses were reverse coded so that 0 = yes and 1 = no. The items were added together for a total score for parental control. Higher scores corresponded to higher levels of parental control. The alpha for this measure was .60. These items have been used to measure parental control in other studies with alphas ranging from .59 to .72 (Deutsch et al., 2012; Harris-McKoy & Cui, in press; Kopak & Hawley, 2012; Morgo-Wilson, 2007).
3.3.5 Parent-Adolescent Relationship (Wave I)

To measure the parent-adolescent relationship, four items from Wave I focusing on the quality of the parent-adolescent relationship and not specifically parenting behaviors were used. The following questions were asked about their mother/father figure separately: How close do you feel to your mother/father figure? How much do you think she/he cares about you? Responses ranged from 1 = not at all to 5 = very much. You are satisfied with the way your mother/father figure and you communicate with each other. Overall, you are satisfied with your relationship with your mother/father figure. Responses range from 1 = strongly agree to 5 = strongly disagree. The last two questions were reverse coded so that larger values indicated better relationships. The eight items were averaged together for a total parent-adolescent relationship score similar to work done by Aceves and Cookston (2007). Higher scores corresponded to a higher quality relationship. The alpha for parent-adolescent relationship was .85.

3.3.6 Covariates (Wave 1)

Six demographic variables were also examined in this study as covariates. The variable for age was measured in years. A variable for gender was created by coding 0 = male and 1 = female. Race/ethnicity was measured by creating five dummy variables; White (reference group), Black, Latino, Asian and Other. Family structure also was measured by creating five dummy variables; two-biological parent families (reference group), stepfamilies, single-mother families, single-father families, and other family types (Cavanagh, Crissey, & Raley, 2008). Highest level of either mother or father’s education, when both were reported, was used to measure parent’s education. Initially responses ranged from 1 = eighth grade or less to 9 = professional training beyond a four-year college or university. Zero was used if no schooling
was reported. Based on the responses, four dummy variables were constructed; college education or more, some college education, high school graduate (reference group), or less than a high school education. To measure peer influence, participants were asked 5 questions (e.g. Did you meet your friend after school to hang out or go somewhere during the past seven days?) about their first, second, and third friend of the same and opposite sex. Participants responded no=0 or yes=1. Participants’ responses concerning their first same sex friend were summed together.

3.4 Analytic Strategy

Due to the complex design of the study, appropriate statistical analysis is needed “to handle clustered data collected with unequal probability of selection. Failure to account for the sampling design usually leads to underestimating standard errors and false-positive statistical test results” (Chantala, 2006, p. 2). Similar to other Add Health researchers (Chantala & Tabor, 1999) Stata’s “svy” estimation method was used in analysis. “Svy” estimation method adjusts for the oversampling previously described and standard errors due to clustering (Chantala, 2006).

Previous studies have reported skewed delinquency scores, therefore similar to other studies, negative binomial regressions analysis are performed in Stata for all of the hypotheses (Cui, Ueno, Fincham, Donnellan, & Wickrama, 2012; Demuth & Brown, 2004; Fomby et al., 2010; Kopak & Hawley, 2012; Mack & Leiber, 2005). In addition, moderation is used to test H3 and H5. Moderators can either change the direction of the relationship between independent and dependent variables or alter the strength of that relationship (Baron & Kenny, 1986). In this study, it is hypothesized that the moderator alters the strength of the relationship between parental control and delinquency. Before conducting the regression analysis, the independent variables (e.g. parental control, parent-adolescent relationship) are centered to reduce
multicollinearity with the interaction term (Aiken & West, 1991). Baron and Kenny (1986) also discussed an analytic framework for testing moderation. The framework includes analyzing the influence of the predictor variable, the moderator, and the interaction between the predictor and the moderator on the dependent variable. Moderation occurs in the analysis if the interaction between the predictor and moderator is statistically significant.

To test mediation in H6, three separate regression analyses are conducted (Baron and Kenny, 1986). In the first analysis, the proposed mediator (delinquency) is regressed on the independent variable (parental control). Next, the dependent variable (young adult criminal behavior) is regressed on the independent variable (parental control). Finally, young adult criminal behavior is regressed on parental control and delinquency. Mediation occurs if significance is found in the first two analyses and parental control is no longer significant in the third analysis.
CHAPTER FOUR

RESULTS

4.1 Descriptive Statistics

Information concerning descriptive statistics is located in Table 1. The adolescents in the sample ranged from ages 12-21 years old with average age of 15.55 at Wave I. Approximately half of the sample is female. Concerning race, 68.97% of the sample identified as White, 11.77% as Latino, 14.94% as Black, 3.01% as Asian, and 1.31% as Other. Over half of the sample (58.52%) reported living with both of their biological parents. Approximately a third of the sample reported having at least one parent with a high school diploma or a college degree. The average score of peer influence was 3.12 with a standard deviation of 1.58.

Concerning the variables of interest, the average score of delinquent behavior at Wave I was 1.19, with a standard deviation of 1.19 and a range of 0 to 21. The mean for delinquent behavior at Wave II was 1.02 with a standard deviation of .985 and range of 0 to 21. The mean for criminal behavior at Wave IV was .304 with a standard deviation of .265 and a range of 0 to 21. The mean for parental control was 1.76 with a standard deviation of 1.67 with a range of 0 to 6. The mean for parent-adolescent relationship was 17.56 with a standard deviation of 2.59 with a range of 4 to 20.

4.2 Hypothesis Testing

4.2.1 Parental Control and Delinquency (H1)

It was hypothesized that as parental control increases, delinquency would decrease. To test the first hypothesis, delinquency was regressed on parental control at Wave I. The covariates (i.e. gender, age, race/ethnicity, family structure, parental education, peer influence) were also
included in the analysis. Results, found in Table 2, indicate that parental control has a significant negative relationship to delinquency ($b = -.048$, 95% CI [-.087, -.008], $exp(b)$ or $OR = .954$, $p < .05$). Based on the odds ratio of .954, for every unit of increase in parental control, the odds of engaging in delinquency decreased by 5%.

4.2.2 Curvilinear Relationship (H2)

It was hypothesized that a curvilinear relationship should occur between parental control and delinquency. To test the second hypothesis, delinquency regressed on parenteral control$^2$ at Wave I. The original measure for parental control and the covariates (i.e. gender, age, race/ethnicity, family structure, parental education, peer influence) were also included in the analysis. A significant relationship was found between parental control$^2$ and delinquency ($b = .029$, 95% CI [.001, .056], $OR = 1.03$, $p < .05$), which can be found in Table 3. Based on the results, a graph was created demonstrating the curvilinear relationship between parental control and delinquency (Figure 1). The curvilinear relationship suggested that delinquency was high when parental control was either too high or too low.

4.2.3 Parent-adolescent Relationship as a Moderator (H3)

It was hypothesized that closer parent-adolescent relationships strengthen the protective effect of parental control on delinquency, while more distant parent-adolescent relationship decrease the protective effect of parental control on delinquency. To test the third hypothesis, found in Table 4, delinquency was regressed on parental control and parent-adolescent relationship at Wave I. Then an interaction term (parent-adolescent relationship X parental control) was added to the analysis. The interaction term was not significant ($b = -.001$, CI [-.013, .010] $OR = .999$, $p > .05$).
4.2.4 Covariates and Delinquency (H4)

Results concerning hypothesis four can be found in Table 2. Delinquency was regressed on the covariates along with the variable for parental control.

4.2.4.1 Age. It was hypothesized that age is negatively associated to delinquency. Results indicate a significant negative relationship between age and delinquency ($b =-.048$, 95% CI [-.077, -.019], $OR = .953$, $p < .01$). Based on the odds ratio of .953, for every unit of increase in age, the odds of engaging in delinquency decreased by 5%.

4.2.4.2 Gender. It was hypothesized that male adolescents report significantly higher delinquent behavior than female adolescents. Results indicate that the odds of females engaging in delinquent behavior are 49% lower than the odds of males engaging in delinquent behavior ($b =-.665$, 95% CI [-.748, -.582], $OR = .514$, $p < .01$).

4.2.4.3 Race/Ethnicity. It was hypothesized that Latino youth report significantly higher delinquent behavior. Results suggest that Latino ($b = .272$, 95% CI [.138, .405], $OR =1.31$, $p < .01$) and Asian ($b = .220$, 95% CI [.034, .406], $OR =1.25$, $p < .01$) adolescents have higher odds for reporting delinquent behavior than White adolescents. The odds of Latino adolescents engaging in delinquent behavior is 31% times higher than that odds of White adolescents engaging in delinquent behavior. The odds of Asian adolescents engaging in delinquent behavior are 25% higher than the odds of White adolescents engaging in delinquent behavior.

4.2.4.5 Family Structure. It was hypothesized that adolescents in two biological parent households report significantly lower delinquent behavior. Results suggest that adolescents that report living in a single- mother family ($b = .327$, 95% CI [.226, .428], $OR =1.39$, $p < .01$), single-father family ($b = .613$, 95% CI [.413, .812], $OR =1.85$, $p < .01$), stepfamily ($b = .252$, 95% CI [.149, .354], $OR =1.29$, $p < .01$), or other family structures ($b = .300$, 95% CI [.111, .489], $OR ...
=1.35, p < .01) have higher odds of engaging in delinquent behavior than adolescents that live in a two biological parent family.

4.2.4.6 Parental Education. It was hypothesized that parental education significantly relates to delinquent behavior. Results suggest that parental education was not a significant factor when predicting delinquent behavior. Adolescents with at least one parent with less than a high school diploma (b=.059, 95% CI [-.071, .189], OR =1.06, p > .05), some college experience (b=.054, 95% CI [-.057, .166, OR =1.06, p >.05), or at least a college degree (b = -.041, 95% CI [-.133, .051], OR = .961, p >.05) reported similar odds of engaging in delinquent behavior as compared to adolescents with at least one parent with a high school diploma.

4.2.4.6 Peer Influence. It was hypothesized that peer influence is positively associated to adolescent delinquent behavior. Results, suggest that peer influence had a significant positive relationship to delinquency (b = .100, 95% CI [.068, .131], OR =1.11, p < .01). Adolescents that have higher peer influence have greater odds of engaging in delinquent behavior. Based on the odds ratio of 1.11, the odds of adolescents with higher peer influence engaging in delinquent behavior is 11% higher than the odds adolescents with lower peer influence engaging in delinquent behavior.

4.2.5 Gender as a Moderator (H5)

It was hypothesized that parental control has a stronger association to delinquency for males than females. To test the fifth hypothesis, found in Table 5, delinquency was regressed on parental control and gender at Wave I. Then, an interaction term (parental control X gender) was added to the analysis. The interaction term was not significant (b = .042, CI [-.035, .119] OR= 1.04, p >.05).
4.2.6 Race/Ethnicity as a Moderator (H6)

It was hypothesized that parental control should have a stronger association to delinquency for Black adolescents than White adolescents. To test the sixth hypothesis, found in Table 6, four separate interaction terms (parental control X individual racial ethnic group), were added to the analysis from H1. The interaction term was not significant for Blacks ($b = -.016$, CI $[-.080, .049]$ $OR = .984$, $p > .05$), Latinos ($b = -.059$, CI $[-.137, .020]$ $OR = .943$, $p > .05$), Asians ($b = -.006$, CI $[-.122, .110]$ $OR = .994$, $p > .05$), or Other racial/ethnic groups ($b = .074$, CI $[-.169, .318]$ $OR = 1.08$, $p > .05$).

4.2.7 Delinquency Trajectory (H7)

It was hypothesized that delinquency peaks during mid-adolescence rather than late-adolescence/ early adulthood. To test the seventh hypothesis, the means for delinquent/ criminal behavior were generated and separated into groups by age of participants at Wave I. The means were generated for the same participants across Wave I, Wave II, and Wave IV (N= 8,304). The results can be found in Table 7 and Figure 2. Results suggest that delinquency increase from early adolescence to mid adolescence and decreases towards late adolescence and young adulthood. The pattern is further clarified when looking at delinquent/criminal behavior for those in early adolescence (Figure 4), mid-adolescence (Figure 4), and late adolescence (Figure 5).

4.2.8 Delinquency as a Mediator (H8)

It was hypothesized that delinquency mediates the relationship between parental control in adolescence and young adult criminal behavior. To test the eighth hypothesis, three separate regression analyses were performed. Results can be found in Figure 6 and Table 8. Even though the indirect coefficients were significant, the direct association between parental control and
young adult criminal behaviors was not. Therefore, the results suggested significant indirect
effect but did not support the mediating effect defined by Baron and Kenny (1986).
CHAPTER FIVE

DISCUSSION

Data from Wave I, II, and IV of the National Longitudinal Study of Adolescent Health (Add Health) were used to explore eight research questions. In this section the research questions, hypotheses, results, and theoretical and clinical implications are discussed. The section concludes with the limitations and strengths of the study.

5.1 Parental Control and Delinquency

To establish a foundation for research questions 2-8, the first research question explored if parental control has a negative association with adolescent delinquent behavior. It was hypothesized that as parental control increases, delinquency would decrease. The results from the analysis supported the hypothesis. Parental control does have a negative relationship with delinquent behavior. Adolescents have lower odds of engaging in delinquent behavior with higher parental control than adolescents lower parental control. Results from this analysis support finding from previous literature (Chen, 2010; Cottrell et al., 2003; Elite, 2006; Glueck & Glueck, 1950; Harris-McKoy & Cui, in press; Sameoof et al., 2004, Sampson & Laub, 1993; Wissink et al., 2006).

It is acknowledged that a linear relationship between parental control and delinquency has been previously studied. A major part of research is not just discovering new findings, but replications of previous results (Finifter, 1975; Schmidt, 2009). Previous literature has found an association between parental control and delinquency among specific groups of adolescents (Chen, 2010; Cottrell et al., 2003; Elite, 2006; Sameoof et al., 2004, Wissink et al., 2006). When studying parental control and delinquency using data from Add Health, mixed results were found
(Demuth & Brown, 2004; Harris-McKoy & Cui, in press; Kopak & Hawley, 2012; Mack & Leiber, 2005). This study adds the literature by replicating the findings using a nationally representative sample of adolescents, which allows for the ability to generalize the results to a larger population of adolescents (Donnellan et al., 2011; Russell & Matthews, 2011).

Adolescence is characterized by increases in autonomy, more unsupervised time, and increases in time spent with peers (Steinberg & Silk, 2002). It is helpful for parents and professionals working with families to know that even when controlling for demographic variables and the influence of peers, parental control has some effect on the odds that adolescents will engage in delinquent behavior. The results highlight the continued importance of familial influence, especially the influence of parents to adolescent development.

5.2 Curvilinear Relationship

The second research question explored whether parental control has a curvilinear relationship with adolescent delinquent behavior. It was hypothesized that a curvilinear relationship exists between parental control and delinquency. Results supported the hypothesis. When examining Figure 1, it seems that a moderate amount of parental control relates to lower delinquent behavior. Adolescents that report too much or too little parental control are at a higher risk of engaging in delinquent behavior.

In the literature, there are mixed results concerning a curvilinear relationship between parental control and delinquency (Wells & Rankin, 1988; Mason et al., 1996). This study supports the findings from Wells and Rankin (1988) that too much or too little parental control relates to higher adolescent delinquency. The results from the study by Wells and Rankin were based on a sample of adolescent males. This study extends the previous research by replicating the results using a nationally representative sample of adolescents.
There are also practical implications of these findings for parents and health professionals working with families. Again, adolescence is characterized by increases in autonomy, more unsupervised time, and increases in time spent with peers (Steinberg & Silk, 2002). Parents should give adolescents the autonomy needed to form their identity and develop into independent, self-sufficient human beings. Moderate amounts of parental control could possibly lower the odds of delinquent behavior while giving adolescents the autonomy needed in identity development. Future studies should examine if a curvilinear relationship exists when adolescents are separated by age, gender, and race/ethnicity. Future studies should also attempt define moderate amounts of parental control so parents and professional can have a clear understanding when creating or implementing interventions.

5.3 Parent-adolescent Relationship as a Moderator

The third research question examined if the parent-adolescent relationship moderates the association between parental control and delinquent behavior. It was hypothesized that closer parent-adolescent relationships strengthen the protective effect of parental control on delinquency, while more distant parent-adolescent relationships decrease the protective effect of parental control on delinquency. Results from the analysis did not support the hypothesis.

Multiple reasons could explain why the results did not support the hypothesis. First, the parent-adolescent relationship may not actually influence how parental control relates to adolescent delinquency. Other than being briefly mentioned in Nye’s social control theory (1958), no other literature was found to theoretically support this model. Second, due to use of secondary data, potentially more items are needed to get an adequate measure of the parent-adolescent relationship. Third, the parent-adolescent relationship may moderate the association between parental control and delinquency for specific groups of adolescents. Seydlitz (1993)
found the parent-adolescent relationships as a moderator between parental control and delinquency for white females in early adolescence. Since the parent-adolescent relationship becomes more distant as the adolescent ages (Stenberg & Silk, 2002), it could be that the previous model is significant for those in early adolescence. Future studies should explore this model with individual racial/ethnic groups, by gender, and age of the adolescent.

5.4 Covariates and Delinquency

The fourth research question explored if other factors significantly associate with adolescent delinquent behavior. These factored included age, gender, family structure, parental education, and peer influence. The hypotheses, results, and implications of the results are described.

5.4.1 Age

It was hypothesized that age is negatively associated to delinquency. Results from the analysis supported the hypothesis. The odds of older adolescents engaging in delinquent behavior are lower than the odds of younger adolescents engaging delinquent behavior. Results are consistent with previous literature (Agnew, 2003; Demuth & Brown, 2004; Harris-McKoy & Cui, in press; Hirschi & Gottfredson, 1983; Moffit, 1993). In general, a majority of adolescents desist from delinquent behavior as they transition out of adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffit, 1993). Results suggest that programs should focus attention on those in early adolescence to either prevent or intervene with delinquent behavior.

5.4.2 Gender

It was hypothesized that male adolescents report significantly higher delinquent behavior than female adolescents. Results from the analysis supported the hypothesis. The odds of female adolescents engaging in delinquent behavior are lower than the odds of male adolescents
engaging in delinquent behavior. Results are consistent with previous literature (Demuth & Brown, 2004; Dishion et al., 1995; Harris-McKoy & Cui, in press). Although in this study, adolescent males have greater odds of engaging in delinquent behavior than female adolescents, professionals should still pay attention to female delinquency. Female delinquency has increased (Mullis et al., 2004; Puzzachera, 2009; Puzzanchera & Adams, 2011) and certain criminal acts have decreased less for female adolescents than male adolescents (Puzzachera 2009; Puzzanchera & Adams, 2011).

### 5.4.3 Race/ Ethnicity

It was hypothesized that Latino youth report significantly higher delinquent behavior. Results from analysis supported the hypothesis. The odds of Latino youth engaging in delinquent behavior were higher than the odds of White youth engaging in delinquent behavior. Also, results suggested that the odds of Asian youth engaging in delinquent behavior were higher than the odds of White youth.

Concerning Latino youth, results from this analysis support finding from other studies (Demuth & Brown 2004; Harris-McKoy & Cui, in press; Kopack & Hawley, 2012). There are many reasons that could explain why Latino youth may have higher odds of engaging in delinquency than White youth. Scholars have found that the growing youth population, lack of resources, high poverty, high dropout rates, acculturation, and discrimination are linked to increased reports of Latino adolescent delinquency (Cintrón, 2006). Professional should be conscious of the aforementioned factors related to delinquent behavior for Latino youth. Professional working with Latino youth with delinquent behavior should also be aware of differences in sentencing, fines, and services for Latino youth than other groups such as White and Black adolescents (Cintrón, 2006).
Due to the small percentage of Asian Americans in the United States, and the historical lack of delinquent or criminal behavior in this population, little research has been conducted concerning Asian youth and delinquency (Unnithan, 2006). It is important for professionals to pay attention to delinquency among Asian youth considering Asian Americans are the fastest growing group in regards to population in the United States (Hoeffel, Rastogi, Ouk Kim, & Shahid, 2012).

In this study, Black youth were not at a higher risk of engaging in delinquent behavior than White youth. The results from this study support findings from previous studies (Coley & Medeiros, 2007; Demuth & Brown 2004; Harris-McKoy & Cui, in press; Kopack & Hawley, 2012; Piquero & Brame 2008). If results from numerous studies suggest that Black youth are not self-reporting higher delinquent behavior, then other contextual issues could potentially explain the overrepresentation of Black youth in the juvenile justice system.

5.4.4 Family Structure

It was hypothesized that adolescents in two biological parent households report significantly lower delinquent behavior. Results supported the hypothesis. The odds of adolescent living in a stepfamily, a single-mother family, a single-father family, or other family structures engaging in delinquent activity were higher than the odds of adolescents living in a two biological parent family. The results support previous finding concerning family structure and adolescent delinquency (Bachman, Coley, & Chase-Lansdale, 2009; Blum et al., 2000; Demuth & Brown; 2004; Harris-McKoy & Cui, in press; Watt & Rogers, 2007). Decreased parental monitoring, and decreased financial resources are potential reasons by adolescents from other family structures have higher odds of engaging in delinquent behavior than adolescents from two biological parent families (Amato, 1993; Cherlin, et al., 1991).
5.4.5 Parental Education

It was hypothesized that parental education does not have a significant relationship to delinquency. The results from the analysis did support the hypothesis. Parental education was not a significant factor in predicting the risk of adolescents engaging in delinquent behavior. The findings in this study support the findings of previous studies (Elite, 2006; Harris-McKoy & Cui, in press; Mack & Leiber; Watt & Rogers, 2007).

Previous studies have used parental education as a proxy for socioeconomic status (SES) (Demuth & Brown; 2004; Elite, 2006; Harris-McKoy & Cui, in press; Mack & Leiber; Watt & Rogers, 2007). It is assumed that parents that have more education are in a higher SES. It is also assumed that SES has an inverse relationship to delinquency. In this study, parental education may not be an appropriate proxy for SES.

5.4.6 Peer Influence

It was hypothesized that peer influence is positively associated to adolescent delinquent behavior. Results from the analysis support the hypothesis. The odds of adolescents engaging in delinquent behavior are higher for those with more peer influence. The results are consistent with previous literature (Beaver, 2008; Haynie, 2001; McGloin, 2009; Watt & Rogers, 2007).

During adolescence more time is spent with peers and peers become important aspects of adolescents’ lives (Steinberg & Silk, 2002). Peer group could potentially provide a source of positive reinforcement for adolescent delinquent behavior (Akers, 1973 Ribes-Inesta & Bandura, 1976). Even if peers are not engaging in delinquent behavior themselves, they may support an adolescent’s decision to engage in that behavior or provide a positive social reward for performing delinquent acts. Therefore, it is helpful for parents and professionals to inquire about the personalities and dynamics of adolescent’s peer groups.
5.5 Gender as a Moderator

The fifth research question concerned whether gender moderated the association between parental control and adolescent delinquent behavior. It was hypothesized that parental control has a stronger association to delinquency for males than females. Results from the analysis did not support the hypothesis. While it has been found that parents exert more control on female than male adolescents (Cernkovich & Giordano, 1987; Hagan, Simpson, & Gillis, 1987) and males have been found to engage in delinquent behavior more than females (Demuth & Brown, 2004; Dishion et al., 1995; Harris-McKoy & Cui, in press), an interaction between the two variables was not found in this study. Results are not consistent with the small amount of previous literature, which found that parental control influences delinquency more for males than females (Seydilitz, 1991; Wilkins, 2006). Seydilitz (1991) found gender as a significant moderate for White adolescents. It is possible that gender difference may emerge if the model was tested with individual racial/ethnic groups. Future studies should analyze gender moderating parental control and delinquency for separate racial/ethnic groups.

5.6 Race Ethnicity as a Moderator

The sixth research question explored if race/ethnicity moderated the association between parental control and adolescent delinquent behavior. It was hypothesized parental control should have a stronger association to delinquency for Black adolescents than White adolescents. Race/ethnicity was not found to moderate the relationship between parental control and delinquency. The results suggest that the race/ethnicity of the adolescent does not influence the relationship between parental control and delinquency. However, the model concerning Latino youth approached significance. The close relationship that Latino youth have with their immediate and extended family could explain the results. Cintrón (2000) wrote, “a higher level
of family solidarity among Latinos mean that the family unit, which might include the extended family in the United States and abroad, exerts influence and control that effectively inhibits delinquency among adolescents whose other background characteristics might predict delinquency (p. 38). Future research should explore if and how race moderates the association between parental control and delinquency for adolescents that report more delinquent behavior.

5.7 Delinquency Trajectory

The seventh research question explored whether delinquency peaks in mid-adolescence. It was hypothesized that delinquency peaks during mid-adolescence rather than late-adolescence/early adulthood. Results from the analysis supported the hypothesis. Figure 2 demonstrated that there is a clear increase and decrease in delinquent/criminal behavior for adolescents age 12 and 13 at Wave I. However, the trajectory for the other ages is different. Delinquent/criminal behavior decreased for adolescents between the ages of 14-18 at Wave I. The increase in delinquent behavior is not demonstrated in the figure for adolescents ages 14-18.

Finding from this study support previous literature stating that delinquency peaks during mid-adolescence (Agnew, 2003; Hirschi & Gottfredson, 1983; Moffitt, 1993) instead of late adolescents proposed by some scholars (Piquero et al., 2001). There are many reasons that could explain the differences in when delinquent behavior peaks. One reason is that peaks in delinquent behavior have been found to vary depending on the type of crime and the type of report (Piquero, Hawkins et al., 2012). It has been found that peaks in delinquency occur earlier in adolescence for less serious offenses and self-report data, while occurring later in adolescence for more serious offenses and official arrest records. Delinquency in this study was self-report data, which could explain why the peak occurred earlier in adolescence. The results suggest that prevention programs may be beneficial for middle-school aged youth in order to decrease
delinquent behavior. Future studies should explore this trajectory while taking into account the changes in parental control.

5.8 Delinquency as a Mediator

The eighth research question examined whether adolescent delinquent behavior mediated the relationship between parental control in adolescence and young adult criminal behavior. It was hypothesized that delinquency mediates the relationship between parental control in adolescence and young adult criminal behavior. The results did not support the hypothesis. Using the steps for mediation described by Baron and Kenny (1986), the independent variable must have a significant relationship to the dependent variable in order for mediation to occur. In this study, parental control in adolescence was not significantly related to criminal behavior in adulthood, therefore mediation cannot occur. However, there are new recommendations for mediation that suggest that a relationship between the independent variable and the dependent variable does not need to exist in order for mediation to occur (Rucker, Preacher, Tormala, & Petty, 2011; Shrout & Bolger, 2002). Shrout and Bolger (2002) suggest that the temporal relationship between the independent and dependent variable influences whether a direct relationship will occur. When there is a distal relationship between the independent and dependent variable, a significant mediator is more likely to be found over a significant direct effect between X and Y. Distal mediation processes increase the likelihood of causal pathways or mediator between the independent and dependent variable. In this study parental control was measured at Wave I in 1994/1995 and criminal behavior was measured 14 years later in 2008. Therefore, it is more reasonable to suggest that the influence of parental control in adolescence influence criminal behavior through adolescent delinquency. It was also suggested that instead
of the Baron and Kenny (1986) method of analysis, that bootstrapping is a better method in
testing mediation (Rucker et al., 2011; Shrout & Bolger, 2002).

Although a majority of adolescent stop delinquent activity before adulthood (Agnew,
2003; Hirschi & Gottfredson, 1983; Moffitt, 1993), previous studies have found that almost 25-
50% of adolescents continue delinquent/criminal behavior into adulthood (Hoeve et al., 2008;
Mulvey, 2011). Also, previous studies have suggested that early parental control influences later
criminal behavior (Harris-McKoy & Cui, in press; Johnson et al., 2011; Scholte, 1999).
Considering the continuing of behavior and pivotal events that can alter that behavior (Elders,
1985), adolescent delinquency should mediate the relationship between parental control and
criminal behavior. Future studies should replicate this model using bootstrapping techniques to
discover if results are similar. If the method described by Barron and Kenny (1986) is used, a
more proxial mediation analysis should be used. Potential studies could analyze parental control
in adolescent at Wave I, adolescent delinquency at Wave II, and young adult criminal behavior at
Wave III.

5.9 Theoretical Implications

In this study, social learning theory (Akers, 1973; Bandura, 1977, Baumrind’s parenting
typology (1965, 2005, social control theory (Nye, 1958), and life course perspective (Elders,
1985) were used to conceptualize the relationships between parental control, parent-adolescent
relationship, delinquency, and criminal behavior. Some of the results from the study did not
follow the predictions from the previous mentioned, typologies, perspectives, and theories.
When discussing theory building and testing, Waltz (1997) stated “…we should test a theory in
all of the ways we can think of – by trying to falsify and to confirm it, by seeing whether things
work in the way the theory suggests, and by comparing events in arenas of similar structure to see if they follow similar patterns” (p. 916).

In this study, the results did not confirm the parent-adolescent relationship as a moderator between parental control and delinquency as suggested by social control theory (1958). However, some scholars suggest, “[a] theory’s ability to explain is more important than its ability to predict” (p 916, Waltz, 1997). Nye (1958), along with other scholars, has reasonable arguments for using parent-adolescent relationship as a moderator between parental control and delinquency. Nye mentioned, “[i]t is probable that few children accept the teaching of the parent unless they accept the “teacher” (p. 6). Dishion and colleagues (1995) supported Nye’s (1958) suggestion by stating “[p]arents cannot effectively manage children without a positive relationship; it simple does not work” (p. 439). Both of the previous statements suggest that parental control may work more effectively when parents and adolescents have a good relationship. However, as suggested early, parent-adolescent may only moderate parental control and delinquency for those in early adolescence. Future research concerning parent-adolescent relationship as a mediator will help clarify Nye’s social learning theory (1958).

5.10 Clinical Implications

The results of this study can assist clinicians, such as marriage and family therapists (MFTs) that work with adolescents with delinquent behavior and their families. Therapeutic models such as Structural Family Therapy focus on restructuring family dynamics by increasing parental authority or control (Minuchin & Fishman, 1981). While the results from this study support increasing parental control to decrease delinquent behavior, the results also suggest that moderate amounts of parental control are related to lower delinquent behavior. MFTs should help parents and adolescents define what moderate amounts of parental control looks like for
their family. Also, the results could influence how parenting skills are improved in therapeutic model such as Multisystemic Family Therapy and Functional Family Therapy. The previously mentioned models of therapy take into account other contextual stressors that affect families (Hinton, Shepris, & Sims, 2003; Sexton & Turner, 2011). Knowing that the odds of engaging in delinquent behavior are lower when there is moderate amounts of parental control could potentially ease the pressure of parenting an adolescent for families with multiple stressors.

MFTs are relational therapist, meaning that they focus on the relationship between individuals, not just the individual. When discussing adolescent delinquent behavior it is important to discuss the parent-adolescent relationship. For clinicians working with adolescents with delinquent behavior, it may be optimal to strengthen the parent-adolescent relationship before increasing parental control (Liddle et al, 2000). While the results did not support the hypothesis regarding parent-adolescent relationship as a moderator between parental control and delinquency for this sample, the results could be significant for those in early adolescence. Previous research has found that parental control decreases and the parent-adolescent relationship becomes more distant as adolescents age (Steinberg & Silk, 2002). Therefore, MFTs could maximize therapeutic that focus on building the parent-adolescent relationship and increasing parental control when children are in early adolescence.

5.11 Strengths

One of the strengths of this study is the use of nationally representative longitudinal data. Many scholars have stated that the advantages of using secondary data outweigh the disadvantages (Donnellan et al., 2011; Kiecolt & Nathan, 1985; Russell & Matthews, 2011). McCall and Appelbaum (1991) stated, “It is wasteful to re-collect data when existing data can answer the questions…” (p. 917). There are some common advantages of using secondary data
that can apply to this study. One advantage is the longitudinal and complex study design (Donnellan et al, 2011; Hofferth, 2005; Kiecolt & Nathan; 1985; McCall & Appelbaum, 1991; Russell & Matthews, 2011). Another advantage is the large and nationally representative sample (Donnellan et al, 2011; Hofferth, 2005; Kiecolt & Nathan; 1985; Russell & Matthews, 2011).

Lastly, Russell and Mathews (2011) highlight the importance of secondary data in the study of adolescence. They stated, “The use of secondary data has been important in the development of the broad field of adolescence studies, and there are a growing number of existing data sets that may be used to better understand adolescence and adolescent development from multiple disciplinary perspectives (p. 163).

Another strength of the study is the analytic strategy. First, negative binomial regression was used to account for the skewed nature of the dependent variables. Second, “Svy” command was used in STATA to account for the stratified, cluster design and oversampling. Third, covariates were used to increase the likelihood that the relationships are not arbitrary. For example, parental control significantly related to adolescent delinquency when controlling for the influence of demographic variables and peer influence.

5.12 Limitations

One limitation of this study is the use of secondary data to examine the proposed research questions. There are some common disadvantages of using secondary data that can apply to this study. First, the measures may be limited in depth due to myriad of purposes in which the data served (Donnellan et al, 2011). The purpose of the Add Health project “was to help explain the causes of adolescent health and health behavior with special emphasis on the effects of multiple contexts of adolescents life” (Harris, 2011, p. 2). Information was gathered about peers, family, neighborhood, school, etc. Due to the extensive information gathered from Add Health
researchers some of the measures in this study could have had more depth. For example, trying to capture the nature of parent-adolescent relationship operationalized by previous studied (e.g. satisfaction, communication, closeness) the measure included only 4 items.

Secondly, there was a single report for some of the measures such as parental control. Previous research has been found that parents and adolescents have different perceptions of parental influence (McElhaney, Porter, Thompson, & Allen, 2008). Considering adolescent development, the perception of parental influence could also change over the periods of adolescents. Future studies should use parent and adolescent report of parental control and parent-adolescent relationship to get a more complete measure of these variables.

Also, using a school based setting limits gathering information about certain at-risk groups of adolescents (Russell & Matthews, 2011). Adolescents that do not attend school are more likely to participate in at-risk behaviors such as delinquency (Russell & Matthews). This could account for the low numbers of participants reporting delinquent or criminal behavior. This could also account for the low reliability in measures of delinquency and criminal behavior. It is possible that some of the participants engaged in one or only a few of those behaviors.

5.13 Conclusion

Adolescence is a time for exploration and identity development (Steinberg & Silk, 2002). Adolescents should be given the space and autonomy by parents to develop into self-sufficient adults. However, when there were almost 2 million arrests of youth under the age of 18 (Puzzachera & Adams, 2011) and new a federal initiative to decrease delinquent and criminal behavior of adolescents and young adults (USDHHS, 2012), parental guidance is still necessary. Based on the results of this study, prevention and intervention programs should focus on youth in early and mid-adolescence. These programs should also include components of parental control,
especially considering the short-term benefits of lower delinquent behavior and long-term benefits of lower adult criminal behavior. Professionals should also assist parents in defining and implementing moderate amounts of parental control to increase the odds of lower delinquent behavior.
APPENDIX A

TABLES

Table 1. Descriptive Statistics.

<table>
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<th>M or %</th>
<th>SD</th>
<th>Range</th>
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<td>Adolescent Delinquency (Wave I)</td>
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<td>1.19</td>
<td>0-21</td>
</tr>
<tr>
<td>Adolescent Delinquency (Wave II)</td>
<td>1.02</td>
<td>.985</td>
<td>0-21</td>
</tr>
<tr>
<td>Young Adult Criminal Behavior (Wave IV)</td>
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<td>.265</td>
<td>0-21</td>
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<td>1.67</td>
<td>0-6</td>
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<td>2.59</td>
<td>4-20</td>
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<td>1.72</td>
<td>12-21</td>
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<td>1-5</td>
</tr>
<tr>
<td>Gender</td>
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Note. N = 8,607 is based on weighted data from Add Health Wave I, Wave II, Wave IV.
Table 2. Regression of Parental Control on Adolescent Delinquency (Wave I)

<table>
<thead>
<tr>
<th>Variables</th>
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<th>95% CI</th>
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<td>-.077</td>
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<td>Gender</td>
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<td>.042</td>
<td>.514</td>
<td>-.748</td>
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<td>.100**</td>
<td>.016</td>
<td>1.11</td>
<td>.068</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>.272**</td>
<td>.068</td>
<td>1.31</td>
<td>.138</td>
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<td>.067</td>
<td>.987</td>
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<td>.094</td>
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<td>.034</td>
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<td>.226</td>
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<td>.046</td>
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<td>-.133</td>
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<td>.056</td>
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<td>-.057</td>
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<td>.066</td>
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$F (14, 115) = 23.67 \ p < .01$

*Note.* *p* < .05, **p* < .01. ($N = 16,481$)
Table 3. Regression of Parental Control\(^2\) on Adolescent Delinquency (Wave I).

<table>
<thead>
<tr>
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<th>Std. Error</th>
<th>OR</th>
<th>95% CI ((b))</th>
</tr>
</thead>
<tbody>
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<td>Parental Control</td>
<td>-.181**</td>
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<td>.834</td>
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<td>Parental Control(^2)</td>
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<td>.014</td>
<td>1.03</td>
<td>.001</td>
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<td>Age</td>
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<td>.016</td>
<td>.945</td>
<td>-.088</td>
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<td>Gender</td>
<td>-.662**</td>
<td>.042</td>
<td>.516</td>
<td>-.744</td>
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<td>Peer Influence</td>
<td>.100**</td>
<td>.016</td>
<td>1.11</td>
<td>.068</td>
</tr>
<tr>
<td>Race and Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>.271**</td>
<td>.068</td>
<td>1.31</td>
<td>.137</td>
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<tr>
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<td>-.014</td>
<td>.066</td>
<td>.986</td>
<td>-.144</td>
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<td>.210*</td>
<td>.093</td>
<td>1.23</td>
<td>.026</td>
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<tr>
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<td>.344</td>
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<td>.782</td>
<td>.148</td>
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<td>Single-mother families</td>
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<td>.222</td>
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<td>.102</td>
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<tr>
<td>Other</td>
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<td>.097</td>
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<td>.105</td>
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<td>Parent Education</td>
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</tr>
<tr>
<td>College or more</td>
<td>-.034</td>
<td>.045</td>
<td>.967</td>
<td>-.124</td>
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<tr>
<td>Some college</td>
<td>.060</td>
<td>.057</td>
<td>1.06</td>
<td>-.053</td>
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<tr>
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<td>.065</td>
<td>1.07</td>
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<td>Constant</td>
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<td>.262</td>
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</table>

\(F (16, 113) = 23.23 \ p < .001\)

*Note. * \(p < .05, ** p < .01. (N = 16,481)\)
Table 4. Parent-adolescent Relationship Moderating Parental Control and Delinquency (Wave I).

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Step 2</th>
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</thead>
<tbody>
<tr>
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<td>b</td>
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</tr>
<tr>
<td>Parental Control</td>
<td>-.047**</td>
<td>.017</td>
</tr>
<tr>
<td>(PC)</td>
<td>-(PAR)</td>
<td>-.112**</td>
</tr>
<tr>
<td>PCXPAR</td>
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<td>.006</td>
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<tr>
<td>Constant</td>
<td>.108**</td>
<td>.030</td>
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</table>

\[ F(2,127)= 78.39 \ p < .01 \]
\[ F(3,126)= 54.71 \ p < .01 \]

*Note*  p < .05, **p < .01  (N = 16,481)

Table 5. Gender Moderating Parental Control and Delinquency (Wave I).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
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<td>b</td>
<td>SE</td>
</tr>
<tr>
<td>Parental Control</td>
<td>-.050**</td>
<td>.019</td>
</tr>
<tr>
<td>(PC)</td>
<td>Gender</td>
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</tr>
<tr>
<td>PCXGender</td>
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<td>.039</td>
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<tr>
<td>Constant</td>
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<td>.038</td>
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</tbody>
</table>

\[ F(2,127)= 113.36 \ p < .01 \]
\[ F(3,126)= 89.20 \ p < .01 \]

*Note*  p < .05, **p < .01  (N = 16,481)
Table 6. Race/Ethnicity Moderating Parental Control and Delinquency (Wave I).

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<tr>
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<th>95% CI (b)</th>
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<td>Peer Influence</td>
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<td>1.11</td>
<td>.068</td>
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<tr>
<td>Race and Ethnicity</td>
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<tr>
<td>Latino</td>
<td>.276**</td>
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<td>1.32</td>
<td>.145</td>
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<td>.067</td>
<td>.986</td>
<td>-.146</td>
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<td>.095</td>
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<td>.031</td>
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<td>Other</td>
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<td>-.409</td>
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<td>1.28</td>
<td>.148</td>
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<tr>
<td>College or more</td>
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<td>.046</td>
<td>.960</td>
<td>-.132</td>
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<td>.055</td>
<td>.056</td>
<td>1.06</td>
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<td>.065</td>
<td>1.06</td>
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<td>Interactions</td>
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Table 6. -continued.

<table>
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<tr>
<th>Variables</th>
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$F (19, 110) = 20.50 \ p < .01$

Note. * $p < .05$, ** $p < .01$ ($N = 16,481$)

Table 7. Trajectory of Delinquent/Criminal Behavior across Wave I, II, & IV for ages 12-18 (N= 8,304).

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<th></th>
<th>$M$</th>
<th>$SD$</th>
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<td>0-21</td>
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<td>1.22</td>
<td>2.24</td>
<td>0-21</td>
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<td>1.21</td>
<td>2.27</td>
<td>0-21</td>
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<td>17</td>
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<td>2.23</td>
<td>0-21</td>
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<td>Adolescent Delinquency (Wave II)</td>
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<td>0-21</td>
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<td>Young Adult Criminal Behavior (Wave IV)</td>
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<td>.686</td>
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<td>.353</td>
<td>1.15</td>
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<td>.942</td>
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<td>.333</td>
<td>1.14</td>
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<td>.790</td>
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Table 8. Delinquency Mediating Parental Control and Criminal Behavior.

<table>
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<tr>
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<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
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<td>-.067</td>
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<td>.021</td>
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</tr>
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<td>1.09</td>
<td>-.160</td>
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<tr>
<td>Some college</td>
<td>.107</td>
<td>.125</td>
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<td>Less than high school</td>
<td>.468**</td>
<td>.162</td>
<td>1.60</td>
<td>.147</td>
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<tr>
<td>Constant</td>
<td>.129</td>
<td>.516</td>
<td>-.891</td>
<td>1.87</td>
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$F (16, 113) = 19.02 \ p < .001$

Note * $p < .05$,  ** $p < .01$  (N=8,304)
APPENDIX B

FIGURES

Figure 1. Curvilinear Relationship Between Parental Control and Delinquency.

Figure 2. Trajectory of Delinquent/Criminal Behavior for Waves I, II, & IV for ages 12 - 18.
Figure 3. Trajectory of Delinquent/Criminal Behavior for Waves I, II, & IV for ages 12 & 13.

Figure 4. Trajectory of Delinquent/Criminal Behavior for Waves I, II, & IV for ages 14-16.
Figure 5. Trajectory of Delinquent/Criminal Behavior for Waves I, II, & IV for ages 17 & 18.

Figure 6. Delinquency Mediating Parental Control and Criminal Behavior
REFERENCES


Chantala, K., & Tabor, J. (1999). Strategies to perform a design-based analysis using the Add Health data. Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, NC.


BIOGRAPHICAL SKETCH

EDUCATION

2009-2013 Ph.D. Marriage and Family Therapy  
*The Florida State University, Tallahassee, FL*  
Dissertation title: Parent adolescent relationship moderating parental control, adolescent delinquency, and young adult criminal behavior  
Major Professor: Dr. Ming Cui

2013 Certificate in Measurement and Statistics  
*The Florida State University, Tallahassee, FL*

2009 Master’s of Family Therapy  
*Drexel University, Philadelphia, PA*

2007 B.S. in Psychology and Family Studies  
*University of Maryland College Park, College Park, MD*

PROFESSIONAL EXPERIENCE

2009-present Graduate Assistant  
*Family and Child Sciences, The Florida State University*  

Jan 2012- Oct 2012 Youth and Family Advocate Intern  
*Capital City Youth Services, Tallahassee FL*  
Sole therapist for youth in outlying, rural county, provided individual and family therapy, and case management in office and at school. Created treatment plans and made referrals, established relationships with other agencies providing services to youth.

Jan 2012-present Couple and Family Therapist  
*Generations Behavioral Healthcare Services, Tallahassee, FL*  
Provides in-home individual and family therapy, creates treatment plans, and attends group supervision meetings.
2009-2011  
**Couple and Family Therapist**  
*Center for Couple and Family Therapy, Tallahassee, FL*  
Conducted individual, family, and couple therapy with local community residents and students.

2008-2009  
**Marriage and Family Therapy Intern**  
*Center for Families and Relationships, Philadelphia, PA*  
Conducted individual, couple, and family therapy with low-income families. Created and updated treatment plans. Attended weekly team meetings.

Jan 2008- Aug 2008  
**Therapeutic Support Staff**  
*Children’s Crisis Treatment Center, Philadelphia, PA*  
Provided therapeutic support to children in their home and community. Implemented clinical interventions from behavioral treatment plans.

2007-2008  
**Marriage and Family Therapy Intern**  
*Keystone Center, Chester, PA*  
Conducted individual, couple, and family therapy with adults with dual diagnoses, primary diagnosis was substance abuse, and adolescents with various diagnoses. Led group therapy sessions concerning family dynamics and life skills. Created and updated treatment plans. Attended weekly team meetings.

**PUBLICATIONS**


**MANUSCRIPTS IN PROGRESS**


Maternal depressive symptoms mediate the impact of mother’s perceived discrimination on youth behavior. *Journal of Child and Family Studies.*

**PRESENTATIONS**


**CERTIFICATIONS AND TRAINING**

Within My Reach, PREP, Inc.
Incredible Years Parenting Program

**HONORS, AWARDS, AND FELLOWSHIPS**

<table>
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<td>2010, 2011</td>
<td>Florence Smith McAllister Fellowship, The Florida State University</td>
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<tr>
<td>2011</td>
<td>American Association for Marriage and Family Therapy Minority Fellowship</td>
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<tr>
<td>2012</td>
<td>University Academic Leadership Award, The Florida State University</td>
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MEMBERSHIP IN PROFESSIONAL AND HONOR SOCIETIES

American Association for Marriage and Family Therapy- Student Member
Florida Association for Marriage and Family Therapy
Tallahassee Association for Marriage and Family Therapy (Diversity Chair 2009-2011: Member-at-Large, 2012-present)
Society for Research on Adolescence- Student Member

Kappa Omicron Nu Honor Society

Golden Key International Honour Society

PROFESSIONAL SERVICE

Black Graduate Student Association, The Florida State University- Community Service Chair

Greater Tallahassee Section of the National Council of Negro Women Inc.- 3rd Vice President