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**WHO AFFECTS WHOM? THE BIDIRECTIONAL RELATIONSHIP
BETWEEN PARENTING AND DELINQUENCY**

A Dissertation in

Crime, Law, and Justice

by

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ABSTRACT

Building on prior studies by Liska and Reed (1985) and Jang and Smith (1997), this study addresses a key measurement problem in social control theory, which calls into question the cross-sectional results of past studies, and raises significant questions about the validity of the theory as articulated by Hirschi (1969). The theoretical issue is whether or not the relationship between social bonds and delinquency is reciprocal. To address this issue, I examine the bidirectional relationship between parenting and types of delinquency. Parenting is operationalized using measures of parental attachment, parental monitoring, and parental involvement. Delinquency is operationalized using measures of overall delinquency, which included 13 delinquent behaviors, property delinquency, and violent delinquency. One main research question guided this research. Is there a bidirectional relationship between parenting behaviors and delinquency? In other words, are there both parent effects on delinquency and adolescent effects (through delinquency) on parenting? In order to test for bidirectionality, eighteen main models were estimated, accounting for three delinquency outcomes, each with one of the three parenting measures as the key predictor, and three parenting outcomes, each with one of the three delinquency measures as the key predictor. In each model, the time 1 measure for the outcome was controlled in a cross-lagged regression to control for prior delinquency or parenting behaviors. This allowed me to estimate the effect of each key predictor on *change* in the relevant outcome, thus factoring individual differences related to each of the dependent variables of interest. The data used in this research were collected for the

National Longitudinal Study of Adolescent Health (Add Health). Add Health is a nationally representative, school-based longitudinal study of adolescents in grades 7 through 12 in the United States in 1994-1995.

I found that there are bidirectional affects between perceived parental attachment and each of the three types of delinquency. There were no bidirectional effects for parental monitoring or parental involvement. Rather, I found no significant parent effects between parental monitoring and delinquency or between parental involvement and delinquency, and no significant adolescent effects between parental monitoring and delinquency. Overall delinquency and property delinquency both had negative effects on parental involvement, providing evidence of adolescent effects. The findings regarding perceived parental attachment provide strong evidence for the existence of a bidirectional relationship between parenting and delinquency, consistent with both the transactional and interactional models of bidirectional parent-adolescent relationships. Contrary to prior criminological research that has focused on or assumed a unidirectional relationship of parents on adolescents, the data here show that the influence goes both ways in the relationship between perceived parental attachment and delinquency.

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Introduction

As the primary socializing institution of youth, the family has long been recognized as important for predicting delinquency. Criminological theories, especially social control theories, consider parenting as a, if not *the*, key predictor of delinquency. Interestingly, most criminological theories that incorporate parents assume a unidirectional influence of parent to adolescent. Parents, at least when children are young, determine the child's environment, so the assumption that parents influence children seems reasonable (but, see Harris, 1995, for a dissenting argument¹). Parents determine the neighborhood in which the adolescent lives, the church the adolescent may attend, the type of people the adolescent meets, and the school the adolescent attends. The shortfall of criminological theories that emphasize parenting (e.g., control theory) is that they seldom take into account that adolescents may affect the kind of parenting they receive.

There are several existing developmental theories that attempt to account for this interactive relationship, including transactional theory (Sameroff, 1975), coercion theory (Patterson, 1982), and interactional theory (Thornberry, 1987). The common thread of each of these theories is that the behaviors of parents and adolescents influence each other, causing changes in both over time. Within the field of criminology, a small number of researchers have recently found some support for these theories (e.g., Jang and Smith, 1997; Liska and Reed, 1985; Stewart, Simons, Conger, and Scaramella, 2002).

¹ Harris' group socialization theory argues that there is no effect of parents on the child's personality development; rather, the socialization occurs outside of the home, predominantly in peer groups.

Given the interactive nature of the parent-adolescent relationship one might expect parents and adolescents to influence each other's behavior. In the case of parental attachment, for example, one could easily imagine, as prior research has shown, that if an adolescent feels emotionally attached to the parent, he will behave according to what would please the parent. One could just as easily imagine, though, that a parent may find it difficult to maintain a strong, positive emotional attachment to a delinquent adolescent who is causing stress and frustration in the household. In addition, teenagers who find themselves punished by parents for breaking rules may feel somewhat less emotionally attached to those parents. Parents might emotionally reject an adolescent who is causing problems in the home. Perhaps the parent can no longer identify with the adolescent, or perhaps the parent is simply hurt by the lack of consideration the adolescent shows for the parent.

Parents can react to the delinquency of their adolescent in a myriad of ways. They may increase their efforts to control and discipline the adolescent, hoping it will eventually make a difference; conversely, they may give up, feeling as though they are unable to make a difference. In any case, no matter the reaction of the parent to the adolescent or the adolescent to the parent, the key is that there is likely to be influence in both directions. Liska and Reed (1985) were the first criminologists to empirically test the idea of bidirectionality in the association between parenting and delinquency. They provided the following as justification for their research:

“Assuming that a recursive causal structure underlies the relationships between social attachment and delinquency, extant research has simply regressed delinquency on parental

and school attachment and interpreted the consistently observed negative relationship as supporting social control theory. We feel that this assumption is theoretically unjustifiable. There is every reason to assume that delinquency affects social attachment as well as being affected by it" (Liska and Reed, 1985:556).

They go on to say that the relationship between attachment and delinquency is more complex than what is implied by social control theories (Liska and Reed, 1985:558).

Liska and Reed's (1985) view is echoed by other criminologists who have examined this reciprocal relationship. These include studies by Jang and Smith (1997), who concluded that previous research findings on the relationship between parenting and delinquency may require reinterpretation from an interactional perspective, and Agnew (1991a), who stated that "failure to consider such [reciprocal] effects means that one's model is misspecified and that parameter estimates may be biased" (p. 131).

Despite the fact that bidirectional effects have been incorporated into developmental theories, and are seen in the work of behavioral geneticists (e.g., Moffitt, 2005), such effects have yet to be incorporated into any major criminological theory and have only recently been incorporated into empirical research on delinquency. The current study builds on previous studies (Liska and Reed, 1985; Jang and Smith, 1997), which will be discussed in greater detail later during a review of the existing criminological research on the reciprocal relationship between parenting and delinquency.

The key problem this study addresses is a measurement problem of social control theory, which calls into question the cross-sectional results of past studies. Social control theories assume a unidirectional relationship where bonds such as attachment affect later delinquency. Criminological research that allows for the existence of a bidirectional relationship between parent and youth is quite rare, occurring less than a dozen times over the past 24 years. In fact, despite the call to criminological research of this topic by Liska and Reed in 1985, the most recent criminological study using a nationally representative sample to examine parental attachment and delinquency was by Agnew in 1991. All other studies used small, select samples, except for the study by Hawkins, Amato, and King (2007), but this study examined only nonresident fathers. Because of this, the field still has relatively little compelling, generalizable evidence of a reciprocal relationship between parenting and delinquency.

Compared to the hundreds of studies testing social control theories, the handful of studies that examine these social bonds while also allowing for a reciprocal relationship are quite rare. To fill this gap, this study used longitudinal, nationally representative data on youth ages 12 to 17 to examine the bidirectional relationship between parenting and delinquency, accounting for family structure, age, and delinquent peers, among other factors. The analyses consist of cross-lag regressions, which allow for the examination of change over time in parenting and delinquency. The first set of models will regress various delinquency outcomes on parental attachment, parental monitoring, and parental involvement. The second set of models will regress

the three types of parenting outcomes on various types of delinquency predictors (see Figure 1). The current study addresses a concern expressed by Liska and Reed in 1985, that “while different theorists and researchers allude to these possibilities [of a reciprocal relationship], they do not explicitly include them in their theory or research” (p. 558). Going beyond allusion, this study explicitly searches for bidirectional relationships between parenting behaviors and delinquency in adolescents.

The results of this study will aid criminologists in further understanding the dynamic relationship between parenting and delinquency, with the hope that as the empirical evidence grows the field will continue to incorporate reciprocal effects into research on delinquency. This study will not provide evidence of a cyclical developmental process spanning several years, as only two waves of data are available here. While this study will provide evidence that not only do parents affect adolescents but that adolescents also affect parents, it cannot tell us which effect came first, how the size of the effects change over time, and whether the effects result in a long-term, cyclical spiral of lowered attachment/monitoring/involvement and increased delinquency.

The remainder of this chapter will provide a review of the theoretical framework used in the current study, as well as an overview of the relevant literature. The next section will begin with a review of the social bonds framework, including a discussion of the early ideas on social bonds by Reiss (1951) and Nye (1958), a section delineating the main points of Hirschi’s (1969) social control theory, and empirical tests of the social bonds framework. This review of the social bonds framework will set the stage for the

examination of parenting and delinquency, situating it in an established theoretical framework. Following this theoretical overview, I will narrow the focus to *family* social bonds and how those relate to delinquency, specifically attachment to parents. This provides the reader with an understanding of how the broader theoretical framework will be applied to the specific topic of the current study. This will be followed by a brief description of the strength of the family/parenting and delinquency relationship as found in meta-analytic studies of the topic.

After these broader discussions of the social bonds framework, its history, and familial influence, I begin to focus on the bidirectional relationship between parenting and delinquency. This is a crucial portion of the literature review as it takes that with which criminologists are already quite familiar, the social bonds framework and subsequent empirical tests, and introduces the main focus of the current study: the examination of potential bidirectional effects in the relationship between parenting and delinquency. This section will cover early thoughts on the possibility of bidirectional effects, followed by three theoretical explanations for this relationship. This section concludes by discussing prior research on the reciprocal relationship, including the small number of criminological studies that include bidirectional effects in their models, as well as limitations of prior research and how the current study extends that research. A review of the literature concerning the reciprocal relationship between parents and adolescents sets the stage for discussing a more specific bidirectional relationship between parenting and delinquency. Providing a review of the criminological literature studying the bidirectional relationship between parenting and delinquency is especially

important as it shows us both what criminologists already know and what gaps in our knowledge remain. The literature review section closes with a brief description of the current study, its aims, research questions, and the models that will be tested.

Literature Review

Social Bonds Framework

Social bonds are a part of everyday life. We have friends and loved ones, jobs and schools and sports teams, churches and mosques. These influence how we act on a day-to-day basis. In most theoretical perspectives, people are assumed to be inherently good, to have no deviant or criminal motivations, and to be acted upon by the outside world. It is society and others that lead people down criminal paths, through things like stress and strain, delinquent associations, poverty, or power struggles. Gottfredson and Hirschi (1990) referred to these positively motivated to do otherwise.

The social bonds framework is different. It begins with the assumption that to benefit themselves people are naturally inclined to engage in self-serving behaviors, behaviors that may harm or take advantage of others. Hirschi (1969) argued that there are inducements to delinquency that cannot be ignored. Most people face such inducements at some point, so the research question asked within the social bonds and social control framework is why do some people *not* engage in crime? Hirschi (1969:34) believed that “we would if we dared.” It is the idea that if we had the chance, if we knew with relative certainty that we would get away with it, we would engage in criminal behavior because it is more fun, relatively easy, tends to bring immediate satisfaction, or is simply the most direct way to get what we want for ourselves. It is like an adolescent who sees candy within reach; the adolescent will go for that candy unless something or someone gets in the way. What stops us, according to the social bonds framework, are the bonds we have to conventional others and beliefs.

Social Control: The Early Years

The social bonds framework, often referred to as control theory, has a lengthy history. Early theorists, such as Albert J. Reiss (1951) and F. Ivan Nye (1958), saw social control as involving both inner and outer forces (Akers, 2000). Some of the things that control us are internal, such as the social bonds of attachment or belief, while others are external, such as monitoring and supervision. Reiss (1951) argued that people engage in crime because of the failure of both personal and social controls. Personal controls are those that are internalized; social controls are those that are external. The outer world – society – places external social controls upon people through both formal and informal sanctions.

Nye (1958) further expanded Reiss' original classifications by breaking social control into three categories: direct control, indirect control, and internal control. Direct control is control that people receive directly from another person, such as a parent. When an adolescent is given rules to follow by the parent, these are direct controls; direct controls are enforced through the threat of punishment. Indirect control is similar to the social bond of attachment that I will discuss later. These are controls that, while not internal, are also not directly imposed by someone else. If an adolescent turns down an offer to vandalize a car because the adolescent does not want to disappoint his/her parents, he/she is experiencing indirect control. There is an outward consequence – the potential disappointment of mom and dad – but the rules are not directly enforced by mom and dad because they are not there. Internal controls are those imposed by one's own conscience. If an adolescent does not vandalize the car

because he/she believes it is wrong and will feel guilty about it, he/she is experiencing internal control. Each of these forms of control can be found in the family, though indirect controls were emphasized by Nye as being particularly family-oriented (Akers, 2000).

Portions of other early control theories, such as Walter Reckless' containment theory (Reckless, 1961, 1967) and Gresham Sykes and David Matza's (1957) techniques of neutralization and drift are associated with control theories, as well. Only containment theory, however, touches on the social bonds aspect of attachment. In containment theory, individuals experience both "pushes" and "pulls" toward delinquency (motivations) and face both inner and outer containment (controls) from delinquency. The outer containments include parental supervision and monitoring (Akers, 2000), which are often viewed as components of attachment (Hirschi, 1969). In other words, an adolescent may experience a drive to engage in delinquency, but something – like parental attachment or monitoring – "contains" or limits his ability or willingness to do so.

These early theories set the groundwork for what would become one of the most tested criminological frameworks: social bonds theory. In 1969, Travis Hirschi published a book outlining the causes of delinquency and testing his theory, which was social control theory. This theory is the basis for the social bonds framework used in the current study, and includes four key elements: attachment, commitment, involvement, and belief.

Hirschi's Social Control Theory

At the beginning of Hirschi's book he notes that, according to control theories or social bond theories, "a person is free to commit delinquent acts because his ties to the conventional order have somehow been broken" (1969:3). This is the essence of the social bonds framework. Hirschi argued that we ought to take deviance for granted and attempt, unlike other criminological theories, to explain conformity. Hirschi described four elements of the social bond, each of which is related in some way to delinquent behavior.

Attachment. Most people have some concern for the opinions of others. They want other people to think they are smart or kind or moral, among other things. Because we are concerned with what others think of us, we often tailor our behavior in ways that would gain approval from those about whom we care the most. A person is attached to someone if they are concerned about the wishes and expectations of that other person. For example, a wife may be attached to her husband, caring about what he wants her to wear or cook, who he wants her friends to be, and how he expects her to treat him. An adolescent may be attached to his teacher, showing it by trying hard on his homework, showing up to school on time, sitting quietly during lessons, and playing nicely with others on the playground. If the wife is not attached to her husband, or the adolescent is not attached to his teacher, then the wife and adolescent are free to behave however they wish, since they have no concern for what the husband and teacher might think about their behavior.

Hirschi (1969) comments on the fact that this element of the bond (attachment) is not a new idea; it has been included in other social control theories. It is linked to Nye's internal and indirect controls, as well as Reiss's personal controls. Hirschi expands on these prior renditions of the theory by adding three additional elements: commitment, involvement, and belief.

Commitment. The element of commitment is best understood as an investment. People make investments in life: investing time, energy, money, and reputation in various projects, such as getting a college degree, obtaining a good job, or getting married. Since the majority of the projects to which we are committed are conventional, engaging in delinquent or criminal behavior puts those investments at risk. If, for example, I have spent years earning an education, getting a steady job, getting married, and raising children, I risk losing all of those things were I to engage in crime. All of those investments – school, work, and relationships – are jeopardized by engaging in crime. The element of commitment prohibits people from engaging in delinquency because of what that line of behavior endangers. Commitment thus refers to future goals. If a high school boy plays on the football team and hopes to soon get a scholarship to play in college, he may be less likely to go out with his friends and get caught using illegal substances because this could cost him the scholarship opportunity. Commitment to conventional activities acts as a control preventing delinquent behavior because of the risks associated with losing the investments one has made.

Involvement. The element of involvement is about opportunity. It is the idea that someone can be too busy to get into trouble, assuming one's major involvements

are in conventional activities. Consider today's middle class youth – school, sports, dance, music lessons, boy/girl scouts, volunteer activities, family time (Lareau, 2003). An adolescent with a busy schedule of conventional activities has little time for delinquency. Having conventional activities in which one is involved reduces the opportunity to be in a situation where delinquent opportunities are available and where there is time to engage in them. Time and energy are limited, and most people fill them with conventional things. Someone who does not have conventional ways of occupying his/her time may be more inclined to fill that time with deviant activities. The issue of involvement may be particularly relevant to working class adolescents because they have relatively few responsibilities, plenty of time, and often lots of things they want (Lareau, 2003). Adolescents who lack involvement in conventional activities have more time to engage in delinquent activities.

Belief. In Hirschi's discussion of the element of belief, he notes that in most societies, there is a common value system. We codify this value system into law, and most people make a concerted effort to keep their behavior within the boundaries of the law. They do this because they believe in the validity of the law; they have been socialized to think the law is right and worthy of being followed. It is when people do not hold such beliefs that they are then free to engage in delinquent behavior. It is the beliefs themselves that control the person. As beliefs in the legitimacy of law weaken, the risk of engaging in delinquency is increased.

Hirschi (1969) argued that the more bonded one is to society through one of these elements, the more likely one is to be bonded to society through the other

elements. For example, if a teenager has a strong bond to the parent, loves and cares for the parent and knows the parent loves and cares for him, then the teenager is also more likely to believe in the importance and validity of rules the parent has set for his behavior. If I know that my parents love me and care about my safety, then I obey their rules prohibiting me to walk around downtown alone at three a.m. I will not engage in that behavior because I am attached to my parents and recognize the value and validity of their rules.

Empirical Tests of the Social Bonds Framework

In his explication of the theory, Hirschi (1969) also tested the main portions of the theory and found support for the majority of his assertions. He found that, except for involvement, the weaker the bonds, the higher the probability of delinquency. Others have since engaged in numerous tests of the theory, making it one of the most tested theories in criminology. While the results are mixed, this is not surprising given the variance in samples, methodologies, and measures used. As described below, for the most part, the theory receives weak to moderate support.

Using a sample of 2,472 youth drawn from six public middle schools in a metropolitan area of Virginia, Unnever, Cullen, and Agnew (2006) found that ineffective parenting, such as low monitoring and involvement, inconsistent punishment, coercive parenting, and parental reinforcement of aggression, produced delinquency indirectly through low self-control and aggressive attitudes. These results suggest that both direct control and modeling are important. Ary and colleague's (1999) study of 523

adolescents found a chain of events beginning with family conflict and ending in adolescent problem behavior. Families with high levels of conflict had lower levels of parent-adolescent involvement, which led to lower levels of monitoring. Less monitoring led to more association with delinquent peers, which increased adolescent problem behavior. Finally, in a reanalysis of the Gluecks' data, Laub and Sampson (1988) found that mother's supervision, parental discipline, and parental attachment were all important predictors of serious and persistent delinquency.

There has been support for the theorized effect of parental attachment in other studies as well. Hirschi (1969) presented research on urban males that was consistent with his theory; these results were soon replicated by Jensen (1972) using a sample of rural girls and boys. In both studies, higher parental attachment was associated with lower rates of delinquency. Rankin and Kern (1994) examined the effect of attachment to one parent versus attachment to both parents on delinquency. They found that though attachment to one parent reduced the probability of delinquency, attachment to both parents further reduced that probability. Jang (1999) analyzed the first five waves of data from the National Youth Survey using hierarchical linear modeling and found that parental attachment was directly associated with delinquency, and that this relationship was stable throughout adolescence.

Parental support and involvement have also been found to reduce the risk of delinquency. Parker and Benson (2004) studied over 16,000 adolescents and found that parental support was related to lower rates of delinquency. Hundleby and Mercer (1987) found that lack of parental affection, concern, involvement, and modeling

explained 22% of the variance in drug use in a study of over 2,000 males and females. In a study of 113 adolescent males, Simons, Lin, and Gordon (1998) found that low parental support and involvement was associated with more adolescent delinquency and drug use. Expanding the concept of collective efficacy to include parental efficacy, Wright and Cullen (2001) used data from the National Longitudinal Study of Youth to examine the relationship between parental control and support and delinquency. They found that parental control and support work together to reduce delinquency across age groups.

In conclusion, delinquency prediction studies have consistently shown that parental discipline, child-rearing practices, and other family variables, all of which are important in social bonding theory, are among the best predictors of subsequent delinquency (McCord and McCord, 1959; Loeber and Stouthamer-Loeber, 1986). On the whole, social bonding theory has received verification from empirical research; the magnitude of the relationships between social bonding and deviant behavior has ranged from low to moderate (Akers, 2000).

In sum, the social bonds framework posits that as one's bonds to conventional people, behaviors, and beliefs increase, the risk of engaging in delinquency decreases. This framework was first formulated in the 1950s, followed by Hirschi's (1969) detailed delineation of social control theory. The key aspect of the social bonds framework for the study of parenting and delinquency is the element of attachment, which can include monitoring; this element is the focus of the current study, which is situated within the social bonds framework. Up to this point, only the broader social bonds framework has

been reviewed. The next section reviews the literature on delinquent behavior and *family* social bonds.

Family Social Bonds and Delinquency

For the most part, researchers examining the social bonds framework focus on family attachment and, to a lesser extent, schools. Family social bonds, particularly attachment, are the focus of this study. Hirschi emphasized that attachment to parents and parental supervision are important in controlling delinquency and maintaining conformity (Hirschi, 1969). He also stated that “the fact that delinquents are less likely than nondelinquents to be closely tied to their parents is one of the best documented findings of delinquency research” (1969:85). The family is the first social institution to which we are exposed, and we are socialized, at least initially, within the institution of the family. We are exposed to family members early and often, and we live with family for years. Until adolescents begin spending more time with their peers as they grow in independence, the majority of their time is spent with their family. It comes as no surprise, then, that one of the key elements of the social bond – attachment – begins at home.

Attachment to Parents

Hirschi spent a great deal of time discussing attachment to parents and considers it a central variable in social control theory. It is important to note that attachment to parents is preventative of delinquency when the parents are conventional rather than

criminal (for a discussion, see Hirschi, 1969, p. 95). Adolescents who are attached to their parents may be less likely to get into trouble because they spend more time with their parents; in addition to time spent together, strong parental attachment can lead the parents to have what Hirschi calls psychological presence (1969:88). In other words, though the parent may not be standing next to the adolescent when the opportunity for delinquency arises, the adolescent knows, through their strong attachment to the parent, what the parent would say or think *if the parent were actually there*. Because of the strong parent-adolescent relationship, the parent is with the adolescent psychologically at all times.

This is especially true for adolescents who have been consistently *monitored*, as the adolescent then knows that while their parent is not there, the parent does know where they are and with whom, making an even stronger psychological connection. In this case, while the attachment to the parent is strong and worth protecting, adolescents who think that their parents will not find out what they are doing because they do not know where they are may still be at risk for engaging in delinquency. Monitoring is an important part of the parent-adolescent bond in that it fosters the psychological presence of the parent, besides enabling misbehavior to be detected directly.

In sum, Hirschi (1969) makes it clear that if an adolescent is strongly attached to her parents, then she is likely to be bound by their expectations. If she is bound by their expectations, she is bound – assuming they are conventional parents – to conformity with the conventional norms of society. Within the family, the social bond of

attachment, including a monitoring aspect, is most important in preventing delinquency, which is why the current study of parenting and delinquency focuses on parental attachment. In the next section, the strength of the relationship between family/parenting and delinquency is discussed in order to signal the importance of studying this relationship.

Strength of the Family/Parenting and Delinquency Relationship

There has been a long-standing interest in the relationship between the family and delinquency in the social sciences. The literature examining this relationship is extensive and varied, making concise conclusions difficult. Parenting and the family are complex phenomena to measure; subsequently, different studies focus on different aspects of each. In an attempt to evaluate the strength of the effect of parenting (and the family) on delinquency, some researchers have conducted meta-analyses. These meta-analyses provide a fairly concise review of the literature by sifting through numerous empirical studies and focusing on the strongest, most comparable results from each. The first meta-analysis on parenting and delinquency was conducted by Loeber and Dishion (1983) focusing on early predictors of male delinquency. The authors found that composite measures of parental management techniques (such as lack of supervision and discipline) were most predictive of delinquency. In 1994, Simourd and Andrews conducted a meta-analysis of 60 studies on juvenile delinquency and found that poor parent-adolescent relations, such as problems in attachment or supervision, were among the strongest predictors of delinquency.

A more recent meta-analysis by Cottle, Lee, and Heilbrun (2001) examined the risk factors associated with juvenile recidivism. Examining 23 studies and 8 groups of predictors, the authors found that offense history was most predictive of recidivism, but that the domain of family was also consistently associated with recidivism. Finally, as part of her dissertation, Hoeve (2008) conducted a meta-analysis of 144 studies, mostly from the United States, published between 1950 and 2005. The analysis found a mean significant relationship between the quality of family relationships and delinquent behavior. This significant mean effect was found for 19 of 20 different aspects of parenting and the parent-adolescent relationship, clearly demonstrating that parenting has a significant impact on delinquency, but also that no single parenting characteristic is responsible for the association.

To summarize, four separate meta-analyses conducted over a span of 25 years found that the family/parenting and delinquency relationship was quite strong. In fact, the studies found that various parenting characteristics were more predictive of delinquency than parental criminality, poor academic achievement, or socioeconomic status (Loeber and Dishion, 1983), lower social class, personal distress, or family structure (Simourd and Andrews, 1994), and school attendance/achievement, a history of substance abuse, or severe clinical pathology, (Cottle, Lee, and Heilbrun, 2001). Due to the evidence of the strength of this relationship, the current study is an important step in further increasing our understanding of the complete process that occurs between parents and adolescents that leads to delinquency. In the section that follows,

potential variations in this process across race, gender, and socioeconomic status are reviewed.

Early Thoughts on the Existence of a Reciprocal Relationship

Though not focused on delinquency, researchers in the field of developmental psychology have been studying the reciprocal relationship between parents' and children's behavior for over 40 years. The reciprocal effects theory came into the spotlight in the late 1960s and 1970s. In response, developmental psychologists proposed several theories to explain the possible existence of child effects, which are discussed in the next section. The belief that children were merely acted upon began to fall out of favor. In 1968, Bell reexamined earlier studies of parenting influences on children and found that the associations between poor parenting and child behavior could be interpreted as a child effect, rather than simply a parent effect. Bell suggested that this could be the case for many of the correlational findings in the child socialization literature. Bell (1968) and Thomas, Chess, and Birch (1968) were the first to point out that many correlational findings might actually reflect the effect of children on parents, in addition to the effect of parents on children.

Sameroff (1975) echoed this sentiment in an article proposing a transactional theory, discussed in detail in the following section. Rutter (1978) used the idea of a transactional relationship between parents and children to explain why children with temperamental adversity (e.g. low regularity, low malleability, negative mood, and low fastidiousness) were more at risk for psychiatric disorders. In another discussion on

temperament, Rutter (1989) continued to argue for an interactional relationship between parent and child, noting that when considering the implications of temperament, one must consider that children's characteristics may shape other people's responses to them. The same might also be true of delinquency, where not only do parents influence their adolescent's risk of delinquency, but where the adolescent's delinquent behavior may shape the response of parents.

Since these early ideas on the reciprocal relationship, developmental psychologists have introduced theoretical arguments for the existence of such a dynamic relationship. The following section discusses these theoretical explanations, followed by a section reviewing the empirical literature testing these reciprocal effects explanations.

Theoretical Explanations for the Reciprocal Relationship

The Transactional Model

In 1975, psychologist Arnold J. Sameroff wrote an article aimed at drawing attention to the idea that even in infancy and early childhood, children do not play an incidental role in the parent-child relationship and on the development of parenting practices. Though he focused mainly on infants, young children, and predominantly psychological issues, his ideas regarding the reciprocal relationship between parent and child were influential and are relevant to the study of parenting and delinquency today. He argued that children classified as "at risk" have "often been regarded as passive victims of external forces" and that "many parenting behaviors are not spontaneously

emitted in the service of educating the child, but rather are elicited by many of the child's own characteristics and behaviors" (p. 276). In the difficult children he studied, their problems were enough to disrupt the normal parenting abilities of their parents; thus, the parents' attitudes and parenting styles were affected by the children.

Sameroff (1975) described three potential models that can be used to analyze the relationship between parenting behaviors and child outcomes: a main effect model, an interactional model, and a transactional model. The main effect model posits two potential scenarios that could result in a "defective" adult. First, there could be a defect in the "constitution of an individual will" which will produce a defective adult regardless of the environment in which the person was socialized. The second scenario is that an individual socialized in a pathogenic environment will become a defective adult regardless of the individual characteristics of that adult. The interactional model describes four potential scenarios that an individual could experience: (1) children with problems raised in deviant environments will have negative outcomes, (2) children with problems raised in supportive environments will have average outcomes, as would (3) children without problems raised in deviant environments, and (4) children without problems, who were raised in a supportive environment, would have the best outcome. The main problem with this model is that it assumes that an individual's problems and environment are constant over time, which is not necessarily the case; additionally, there is no allowance for the problems and the environment to mutually influence one another over time.

The transactional model is the model of most interest to this dissertation. In this model, the behavior of the child is not simply a reaction to the environment – in our case, parenting behaviors – but rather, the child is viewed as actively involved in attempts to structure his own world. In terms of this dissertation, this suggests that children and adolescents do not sit idly by while they are parented, but rather react to the parenting with behaviors that may, in turn, alter the parent’s behavior. For example, if an adolescent is being harshly controlled, the adolescent may act out, causing the parent to either reconsider the harshness of the control, perhaps backing off a bit, or the parent may react by applying even harsher controls. Either way, the adolescent is not assumed to simply be affected by the parenting, but to affect the parenting as well. The key here is that socialization is a mutual developmental process, and it cannot be understood through the assessment of only one of the two parties involved; rather, it must be analyzed through assessment of the *transactions* between the adolescent and his or her environment (which includes the parent).

Coercion Theory

In the 1980s, Patterson and colleagues developed coercion theory (Patterson, 1982; Patterson et al., 1989). The basic tenet of coercion theory is that parent with poor parenting skills attempt to control their child through erratic and hostile parenting tactics, causing the child to respond with manipulation and antisocial behavior. As this cycle of exchanges continues, one party gives in and the other “wins.” When a parent gives in to a child, the child learns that he/she can manipulate the parent to get what

he/she wants. As the child grows up, he/she becomes more effective in coercive responses to parental demands, leading the parent to intensify their coercive and hostile parenting behaviors. Coercive behavior is elicited and reinforced through this reciprocal parent-child system. In this way, unacceptable behavior on the part of the youth can lead to disruptions in parenting, which in turn may lead to further unacceptable behavior by the youth. Reciprocal parent-child influences then become established. Coercion theory argues that adolescents become delinquent because their early problematic behavior brings about a negative response from the parent(s). The adolescent then responds to this perceived hostile behavior on the part of the parent(s) by escalating his/her behavior. Parents and children thus train each other to behave in ways that will increase the likelihood of behavior problems on the part of the child and lack of control on the part of the parent (Granic and Patterson, 2006).

I believe that the coercive cycle can be established in at least two ways. First, when an adolescent acts out, a parent can respond with erratic and hostile behaviors, which cause the adolescent to react negatively and escalate his or her problem behavior. This escalation further angers the parent and draws even more hostile responses. The scene is a young teen missing curfew by an hour, coming home late to an irate parent who reacts in a hostile way, perhaps yelling and screaming, doling out punishments that are not proportionate to the infraction, maybe even striking the teen. The response of the now angered and hurt young teen may then be to simply ignore the curfew altogether and stay out as late as he/she pleases, despite the increasingly harsh punishments that follow.

Second, when an adolescent acts out, a parent can respond by ignoring the infraction or by giving in, not wanting to alienate their teen or infringe on their autonomy. The teen may then see this as a sign of permission to act out again, becoming more brazen with each act of defiance. This may in turn cause the parent to abdicate parental authority, in effect giving up on being able to control the teen, or continually giving in to keep the peace. This theory can be useful to this study as we examine the effect of delinquency on attachment, monitoring, and involvement, as well as the effect of attachment, monitoring, and involvement on delinquency.

Interactional Theory

Thornberry proposed an interactional theory of the parent-child relationship (Thornberry, 1987, 1996). Interactional theory relies somewhat on the social bonds framework in that it proposes that the primary cause of delinquent behavior is the weakening of social bonds. When these bonds are weakened, adolescents gain more behavioral freedom. This freedom may not directly lead to delinquency, but it may lead to delinquency through the acquisition of delinquent friends and the learning environment they bring with them. This delinquency then further weakens what remained of the social bonds (Thornberry, 1987). In essence, if youth have weak bonds to their parents, then they have a lot of freedom in choosing what they do, since they have little concern over what their parents will think. With this freedom to do what they want comes the freedom to befriend anyone of their choosing. Delinquent peers are easy to obtain and, since the parental bonds are already weak, provide few negative

consequences as far as the bond to the parents is concerned. This further alienates the youth from their parents, weakening the bond even more, making continuing in the delinquent behavior and delinquent learning environment easy.

Thornberry argues in interactional theory that while the influences of parenting on delinquency are important and real, we need reciprocal models to gain an accurate understanding of the causal processes. Thornberry and colleagues (1991) find, in fact, that parental influences wane over time to the point where by middle adolescence, youth have gained enough independence to eliminate the parental effect on delinquency almost entirely, leaving only the effect of delinquency on parenting.

To summarize, each of these three theories on the reciprocal relationship posit that not only do parents influence their child's behavior, but the behavior of the child can influence the parent. The adolescent is actively involved in their own socializing process, requiring assessment of not only parent effects but adolescent effects, as well. The reciprocal parent-adolescent system may lead to coercive behavior and negative parental responses, or the weakening of the bonds within this system may lead to delinquency through behavioral freedom and delinquent peer associations. Regardless of how the process unfolds, the key concept is that parenting and delinquency are involved in a dynamic developmental process involving responses by both parent and adolescent to each other's behavior. The following section will examine the empirical support this reciprocal process has received.

Prior Research on the Reciprocal Relationship

Within the field of child development, a number of studies have analyzed the reciprocal influence of parent and child behaviors. The results are somewhat mixed (see Appendices A and B). In many cases, a reciprocal relationship between parenting and child behavior was found. For example, using a lagged multiple regression, Felson and Zielinski (1989) found that parents' supportive behavior affected child's self-esteem and that child's self-esteem affected perceptions of parental support. Brody and Ge (2001) studied 120 white children from two-parent families and found that harsh parenting lowered the child's ability to self-regulate, and the child's lowered ability to self-regulate increased harsh parenting. In a clinical sample of boys, Burke, Pardini, & Loeber (2008) found a reciprocal relationship between oppositional defiant disorder and timid discipline strategies, as well as a reciprocal relationship between conduct disorder and timid discipline strategies.

The majority of studies from the child development literature consist of small, nonrepresentative samples, sometimes containing only one gender, limited family or racial diversity, or high risk samples. Only a few have used nationally representative samples, or at least more diverse samples. Laird, Pettit, Dodge, and Bates (2003) studied a sample of 426 ninth graders from Tennessee and Indiana. They found a bidirectional relationship between a youth's antisocial behavior and the parent's monitoring knowledge. Using Add Health, a nationally representative sample of 7th-12th graders, Ream and Savin-Williams (2005) found that increased problem-focused interaction, as well as decreased parental closeness and decreased shared activities,

both preceded and followed adolescent sexual activity. Focusing only on those youth in Add Health who were sexually active and age fifteen or older, Henrich, Brookmeyer, Shrier, and Shahar (2006) found small reciprocal effects between sexual risk behavior and the quality of the parent-child relationship over time.

Not all studies find evidence of reciprocal relationships between parent and adolescent, and interestingly, some of those that find a unidirectional relationship find evidence of child effects, while others find evidence of parent effects. Stice and Barrera (1995) found a reciprocal relationship between substance use and parental support and control; however, they also found that parental support and control did not affect externalizing behaviors. Externalizing behaviors did influence parental support and control, providing evidence of a child effect. In a study of adolescent girls, Huh, Tristan, Wade, & Stice (2006) found that problem behavior, including externalizing symptoms and substance abuse, had an adverse effect on parental support and control; however, there was little evidence of a parent effect. Parental control did predict substance abuse, but it did not predict externalizing behaviors. Parental support did not predict either measure of problem behavior.

A few studies found only a parent effect. For example, in a sample of adolescents in two-parent families, Coley, Votruba-Drzal, and Schindler (2008) found that in their within-person results, positive family and parenting variables predicted lower rates of substance use in youth, but substance use by youth did not affect either family or parenting variables. Lifford, Harold, and Thapar (2008) studied the associations between ADHD and the parent-child relationship. They found that the

child's ADHD symptoms affected the mother-child relationship, but that the father-child relationship affected the child's ADHD symptoms.

In conclusion, empirical studies of the reciprocal relationship between parent and child (with outcomes other than delinquency) have produced mixed findings that do not seem to hinge on the type of sample examined. A number of studies find solid evidence of a reciprocal relationship; others find evidence of only a child effect or only a parent effect. The following section discusses the results of empirical studies on the reciprocal relationship where delinquent behavior was the outcome.

Prior Criminological Research on the Reciprocal Relationship

The examination of reciprocal relationships between parents and children has a 40-year history in the developmental psychology literature. Over the past 20 years, a small body of research has examined the reciprocal relationship between parenting and delinquency. In these studies, delinquency is viewed not simply as an outcome of parenting practices but as part of a transactional process whereby parenting affects delinquency but is also affected by it. A search of the literature revealed nine studies that focus specifically on adolescent delinquency and parenting.

The earliest study was conducted by Liska and Reed (1985) using a sample of 1,886 tenth grade males from the Youth in Transition study. They examined the relationship between delinquency and parental attachment using OLS crosslag regression and structural equation modeling. Findings showed that the effects of delinquency and parental attachment were reciprocal, with delinquency at Time 1

affecting parental attachment at Time 2, and vice versa. Limitations of this study included problems generalizing from a population of African American adolescents, and the absence of female respondents. Agnew (1991a) studied the association between general, minor, and serious delinquency and parental attachment using a sample of 1,725 adolescents from the National Youth Survey. He found that parental attachment had a trivial indirect effect on delinquency through the adolescent's commitment to school, and that delinquency did not have any effect on parental attachment. There was no lagged effect modeled; structural equation modeling was used.

Using a high risk sample of 867 seventh and eighth graders from the Rochester Youth Study, Thornberry, Lizotte, Krohn, Farnworth, and Jang (1991) examined the association between delinquency and parental attachment. They used a covariance structural model and found that weakened bonds to family and school increased delinquency, and delinquency further weakened those bonds. However, they found that the effect of parental attachment on delinquency weakened over time until the association was unidirectional. With the same data (Rochester Youth Study), Jang and Smith (1997) analyzed the association between delinquency and both parental affective ties and parental supervision. Structural equation modeling showed that while delinquency and parental supervision were reciprocally related, parental affective ties were a consequence of delinquency, not a cause. These findings are limited by the fact that they were based on a sample of high risk youth and are therefore not nationally representative.

Stewart, Simons, Conger, and Scaramella (2002), in a test of the mediating influence of legal sanctions on the parenting and delinquency relationship, studied 407 two-parent families from the Iowa Youth and Families Project. Results from structural equation analyses showed that Time 1 poor parenting practices affected Time 3 delinquency, controlling for Time 1 delinquency, and that Time 1 delinquency affected Time 3 poor parenting practices, controlling for Time 1 poor parenting practices, indicating a reciprocal relationship. The measure for poor parenting practices was a composite measure of harsh parenting, harsh discipline, and poor supervision. The major limitation of this study was the sample studied, as respondents were all white and from two-parent families in rural Iowa. Hawkins, Amato, and King (2007) examined non-resident father involvement and adolescent well-being to see if delinquency led nonresident fathers to be less involved, or if less involved nonresident fathers led to delinquency for the child. Using Add Health, they found evidence of child effects but no father effects.

Recently, a few studies in the child development literature have examined parenting and delinquency, though some used somewhat different measures of parenting. Laird, Pettit, Bates, and Dodge (2003) examined the association between delinquency and parents' monitoring-related knowledge using 396 ninth graders from Tennessee and Indiana. Structural equation modeling showed that lower levels of parents' monitoring-related knowledge (e.g., knowledge of the adolescents' whereabouts, friends, and activities) predicted increases in delinquency, and high levels of delinquency predicted decreases in parents' monitoring-related knowledge. Also

finding a reciprocal relationship, Buist, Dekovic, Meeus, and van Aken (2004) examined the relationship between attachment and externalizing behaviors (predominantly delinquency) among 288 Dutch youths from predominantly middle-class, two-parent families over a 3 year period; they found evidence of both child and parent effects for both internalizing and externalizing behaviors. In 2007, Coley and Medeiros studied 647 minority, low-income youth. They examined the relationship between delinquency and nonresident father involvement. Using multiple methods, they found that nonresident father involvement predicted delinquency, but that delinquency did not predict changes in nonresident father involvement, indicating a unidirectional relationship. There were, however, no measures of specific parenting behaviors, only fathers were included in the study, and the sample was not nationally representative.

Together, the results of these nine studies were mixed. However, the weight of the evidence seems to be for the existence of a reciprocal relationship between delinquency and some form of parenting. There were a few studies that found a unidirectional relationship, typically between involvement and delinquency, but most – especially those involving attachment – found reciprocal relationships. The evidence indicates there is a strong possibility that not only do parents affect adolescent's behavior, as suggested by the social bonds framework, but that the behavior of adolescents also affects parenting.

In sum, while a fair amount of evidence suggests that a reciprocal relationship exists between parenting and various child outcomes, including delinquency, the findings in the literature are not conclusive; there is, however, enough evidence of a

reciprocal relationship to warrant further investigation. Additionally, while the study of reciprocal relationships between parents and children is not new or particularly uncommon in the developmental psychology literature, it has only recently begun to be studied by criminologists. Moreover, the few criminological studies that examine this relationship suffer from various shortcomings, predominantly sampling issues, discussed in the next section.

Limitations of Prior Research

While prior research on the reciprocal relationship between parenting and delinquency is not new, each study suffers from important limitations that will be improved upon in this study. There is no apparent link between the type of sample and the findings of prior research, and the findings are mixed enough to warrant further study. Each study had strengths, but each study also suffered from at least one of the following limitations: small sample sizes; studying only males; samples composed entirely or primarily of whites; samples of high school students only²; high risk samples; respondents from two-parent families only or predominantly; nonresident fathers only; failure to include lagged effects (controlling for prior delinquency prior parenting behaviors); failure to control for delinquent peer effects; examination of only one type of parenting or one type of delinquency. The majority of these are sampling issues. In fact, the only studies that used nationally representative samples were those that

² This is not a major limitation, but there it is possible that the relationship between parents and children is different and various ages. Limiting the sample to only youth in high school leaves out earlier stages of delinquency and the parent-child relationship.

included only nonresident fathers or failed to include lagged effects in the models. The current study addresses these issues.

Extending Prior Research

The current addresses the limitations of prior research on the bidirectional relationship between parenting and delinquency. Because this study uses a nationally representative data set, the sample has a mixture of family types, races, genders, social classes, and ages. Multiple types of delinquency are examined, rather than just one type, including overall delinquency, property delinquency, and violent delinquency. Multiple types of parenting behaviors are studied, including parental attachment, parental monitoring, and parental involvement. This study also controlled for delinquent peer associations, which is an important characteristic due to the strong relationship between delinquency and delinquent peer association. These improvements and additions aid us in gaining a better and more complete understanding of the bidirectional nature of parenting and delinquency.

To summarize, the empirical evidence of a reciprocal relationship between parents and children within the developmental psychology literature has a lengthy history with mixed results. While the criminological literature's history of examining this relationship is much shorter, it, too, reports mixed results. There are a number of limitations of this prior research, predominantly sampling issues, which the current study addresses. The following section describes the current study in more detail, presenting the key research questions.

The Current Study

The key problem this study addresses is a measurement problem of social control theory, which calls into question the cross-sectional results of past studies. Social control theories, and the social bonds framework more broadly, assume a unidirectional relationship from parent to adolescent, such that parents affect their adolescents, but the behavior of the adolescent is not theorized to affect the parents. In addition to this theoretical shortcoming, current criminological research that examines the existence of a bidirectional relationship between parent and adolescent is rare.

This study examined the bidirectional relationship between three parental behaviors and delinquency in a nationally representative sample of adolescents. Bidirectional relationships between the key variables were tested using lagged regression equations. Eighteen separate models examined whether (1) there is a significant parent effect on adolescent delinquency and (2) whether there is a significant adolescent delinquency effect on parental behaviors.

Though the study of reciprocal relationships between parents and children is not new, especially in the developmental psychology literature, the criminological literature has only begun to examine this issue, with studies occurring sporadically over the last 20 years. The examination of a reciprocal relationship between parenting and delinquency is of vital importance. The assumption in social control theory, the criminological theory that focuses most on parental attachment and supervision, is that parents affect adolescents. If, however, there are both parent and adolescent effects, this has great implications for theory. For example, if low parental attachment increases the risk of

delinquency, as the empirical evidence has shown, and if delinquency decreases parental attachment, as a reciprocal effects theory would argue, then the relationship between low parental attachment and delinquency could potentially lead to a snowball effect in which low attachment increases delinquency, which in turn further reduces attachment. Delinquency may continue to increase as parental attachment weakens in a cycle of reciprocal effects. This study examines bidirectional affects using two points in time. While this cannot tell us if there is, in fact, a snowball effect, it can tell us if both a parent-to-adolescent *and* an adolescent-to-parent relationship exist. The failure of previous criminological studies to test for such reciprocal relationships means that these studies may have overestimated the effect of parenting on delinquency, as the effect of delinquency on parenting was not generally considered. This was likely due to the fact that the social bonds framework that was being tested contained a key measurement flaw that did not allow for adolescent effects on parents. The main theoretical implication in the current study is testing social control theory while addressing this measurement issue.

Parents and adolescents do not exist in isolation. There exists an extensive body of literature assessing the association between peer influence and delinquency, most of which supports the positive effect of delinquent peers on delinquency (e.g., Agnew, 1991b; Haynie, 2002; Matsueda 1982, 1988; Matsueda and Heimer, 1987; Warr, 1993a, 1993b; Warr & Stafford, 1991). Of the criminological studies examining the reciprocal relationship between delinquency and some form of parenting, however, only one (Agnew, 1991a) controls for delinquent peers.

This is a significant gap in the literature, which this dissertation will address by controlling for delinquent peer associations, because in addition to having a significant effect on delinquency itself, some have argued that delinquent peers can influence social control variables. Parents could, for example, react to their adolescent acquiring delinquent peers by increasing monitoring, leading to the possibility that the relationship between social control variables and delinquency is spurious, both being caused by delinquent peers (see Agnew, 1991a for a discussion). There is also evidence that delinquent peers mediate the relationship between parenting and delinquency (e.g. Ingram, Patchin, Huebner, McCluskey, and Bynum, 2007; Simons, Whitbeck, Conger, and Conger, 1991). Mark Warr has conducted two studies on the relationship between parents, peers, and delinquency (1993, 2005). In his (1993) study using data from the National Youth Survey, he found that time spent with family reduced delinquent peer influence, and that parental attachment affected delinquency by preventing the formation of delinquent friendships in the first place. It appears that the relationship between delinquent peers, parenting, and delinquency is complex and intertwined. Thus, it is important to control for delinquent peer associations when examining the relationship between parenting and delinquency.

Models

The theoretical model tested is the bidirectional relationship between perceived social bonds and self-reported delinquency. Conceptually, I examine the bidirectional relationship between parenting and types of delinquency. Parenting is operationalized

using measures of parental attachment, parental monitoring, and parental involvement, discussed in further detail later. Delinquency is operationalized using measures of overall delinquency, which included 13 delinquent behaviors, property delinquency, and violent delinquency, also discussed in greater detail later.

Research Question

Based on the review of the literature and assessment of its gaps, this research seeks to answer the following question:

- Does a bidirectional relationship exist between parenting and delinquency?

Several sets of analyses were conducted to answer this question. The models, which are presented and discussed below, used lagged regressions in Stata to see if there are both parent and adolescent bivariate effects. The models examined the effect of parental behaviors at time 1 on delinquency at time 2, controlling for delinquency at time 1; they also examined the effect of delinquency at time 1 on parental behaviors at time 2, controlling for parental behaviors at time 1. I then included controls for age, race, gender, family structure, parent's education, and delinquent peer associations in the models.

Methods

This chapter will provide a detailed description of the data used for the current study, as well as the measures used. The measures section will be comprised of descriptions of how each measure was created and why, including the survey questions used and the reliability of all constructed scales. The methods chapter will conclude with a discussion of the statistical procedures used to analyze the data and answer the research questions posed.

Data

The data used in this research were collected for the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a nationally representative, school-based longitudinal study of adolescents in grades 7 through 12 in the United States in 1994-1995. The data were collected from adolescents, fellow students, school administrators, parents, siblings, friends, and romantic partners (Harris, Halpern, Entzel, Tabor, Bearman, and Udry, 2008). There are currently four waves of data. The final sample of adolescents that participated in both Waves I and II of the study was 13,570, which is the base sample for this study. After a loss of data for respondents who were not between the ages of 12 and 17, my final sample size was 12,505.

The Add Health data are well-suited for the current study. First, Add Health is a nationally representative sample, addressing a shortcoming of prior research on the reciprocal relationship between parenting and delinquency, and is the largest, most comprehensive survey of adolescents ever undertaken. Second, Add Health contains a

delinquency scale consisting of 13 items that cover a wide range of seriousness. In addition, and something not often found in self-report studies, there are questions concerning violence and victimization that are extremely serious. Since the seriousness of the reported delinquency is often of concern in self-report studies, these more serious items are quite valuable. Finally, the longitudinal nature of these data was of utmost importance to this study as the research questions necessitate the examination of *change* in the outcome over time due to various predictors; change cannot be readily examined using cross-sectional data.

Wave 1 of Add Health was collected in several stages. First, a stratified, random sample of all high schools in the United States was identified. Schools were eligible if they included an 11th grade and if they had a minimum enrollment of 30 students. A school that sent graduates to the high school and that included a 7th grade was also included from each community. A sample of 80 high schools and 52 middle schools was selected with unequal probability of selection, resulting in an in-school sample of over 90,000 respondents. High schools were then stratified into 80 clusters based on region, urbanicity, school size, school type, percent white, percent black, grade span, and curriculum (Harris et al., 2008). The second stage of wave I was an in-home sample of 20,745 adolescents drawn from each school where an in-school survey was completed. Special oversamples also were selected. Parents were interviewed in wave I only.

The wave II in-home sample is almost the same as the wave I in-home sample. Key differences are that most of the 12th grade respondents were removed from wave II, there are a few respondents in wave II who were not interviewed in wave I, and

parents were not interviewed in wave II (Harris et al., 2008). Wave II was collected approximately one year after wave 1; the interviews were generally similar.

Measures

Delinquency

Three delinquency scales were created for both waves of data using self-report questions. I chose to create three delinquency scales because the term delinquency can refer to a range of different types of behavior. In this data set, the types of delinquency measured range from status delinquency, such as lying to one's parents, to serious violent delinquency, such as shooting someone. While most respondents who engage in any type of delinquency will fall somewhere between these two extremes, there is a difference between engaging in a property crime, such as shoplifting, and engaging in a violent crime, such as getting into physical fights. Moreover, parents likely respond differently to an adolescent that steals versus an adolescent that harms others, and given that the parental behavior regarding these different types of behavior may vary, the adolescent's response may also vary. To address this, I examine each bidirectional relationship using separate property and violent delinquency scales, as well as one overall combined delinquency scale.

In the first wave, each respondent was asked how often, in the last 12 months, they did any of the following: paint graffiti or signs on someone else's property or in a public place; deliberately damage property that didn't belong to them; lie to their parents or guardians about where they had been or whom they were with; take

something from a store without paying for it; get into a serious physical fight; hurt someone badly enough to need bandages or care from a doctor or nurse; run away from home; drive a car without its owner's permission; 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; take part in a fight where a group of their friends was against another group; act loud, rowdy, or unruly in a public place. Answer choices ranged from 0 (never) to 3 (five or more times). In another section of the survey, respondents were asked how often, during the past 12 months, did each of the following things happen: they got into a physical fight; they pulled a knife or gun on someone; they shot or stabbed someone. Answer choices ranged from 0 (never) to 2 (more than once).

In the second wave, respondents were asked, for the most part, the same questions, though the location of some of the questions within the survey changed and the answer choices varied. One key difference was that the second wave questionnaire did not include the question on hurting someone badly enough to need bandages or care from a doctor or nurse, so this variable was not used in any of the delinquency scales.

Overall Delinquency. The overall delinquency scales were created as a count of delinquent acts reported by the respondents. Status offenses (e.g. running away or lying to one's parents) were not included in any of the delinquency scales in an effort to reduce the positive skew of the scale towards the less serious items. The overall delinquency scales consisted of the following delinquent acts: graffiti, vandalism,

shoplifting, fighting, auto theft, stealing less than \$50, stealing more than \$50, burglary, robbery, selling drugs, participating in a group fight, pulling a knife or gun on someone, and shooting or stabbing someone. Each item was dichotomized, and the items were then summed to create scales ranging from 0 (respondent answered “no” to all items) to 11 (Wave I; respondent answered “yes” to 11 items) and 0 to 10 (Wave II). The alpha for this scale in both waves is 0.82 (13 items). Analyses that utilize overall delinquency as the outcome variable rely on negative binomial regressions.

Property Delinquency. The property delinquency scales are a count of only those delinquent acts that are considered property crimes: graffiti, vandalism, shoplifting, auto theft, stealing more/less than \$50, and burglary. As with the overall delinquency scales, each item was dichotomized and summed to create scales ranging from 0 (no to all) to 7 (yes to all). The alpha for this scale in both waves is 0.78 (7 items). Analyses that utilize property delinquency as the outcome variable rely on negative binomial regressions.

Violent Delinquency. The violent delinquency measure is somewhat different from the previous two delinquency scales in that the final measure is a dichotomous variable rather than a count. This is due to the rarity of each act, given that these are much more serious delinquent behaviors. First, a count was created including the following violent crimes: fighting, group fighting, robbery, pulling a knife or gun on someone, and shooting or stabbing someone. Each of these items are dichotomized (0 = no, 1 = yes) and summed. If a respondent scored a 1 or greater on the created scales, they were coded as “1” for the dichotomous violence measure. If a respondent scored

a 0 on the scales, they were coded as “0” for the measure. The alpha for the scale from which this measure was calculated is 0.65 for Wave I and 0.69 for Wave II (5 items).

Parenting

Previous studies have measured parenting in a variety of ways. Most studies that examine social control in relation to delinquency focus on parental attachment. Of the nine studies I found that examined the reciprocal relationship between parenting and delinquency, seven used a measure of parental attachment (Agnew, 1991a; Buist, Dekovic, Meeus, and van Aken, 2004; Coley and Medeiros, 2007; Hawkins, Amato, and King, 2007; Jang and Smith, 1997; Liska and Reed, 1985; Thornberry, Lizotte, Krohn, Farnworth, and Jang, 1991). These studies tended to measure parental attachment by averaging responses to a series of questions about both parents (when available) concerning whether or not the adolescent feels the parent cares about them, loves them, or communicates well with them, and the extent to which it is a trusting, warm, close relationship.

Three of the nine studies used a measure of parental supervision (Jang and Smith, 1997; Laird, Pettit, Bates, and Dodge, 2003; Stewart, Simons, Conger, and Scaramella, 2002), which tended to be measured by asking respondents the extent to which parents know the whereabouts of their adolescent (who they are with, what they are doing, and where they are). Only one of those three studies described how the final scale score was calculated; Laird and colleagues (2003) summed the two items for responses concerning mothers and fathers separately, then took the highest score of

the two, arguing that it was really only necessary for at least one parent to have knowledge of the adolescent's whereabouts. Two studies used a measure of father involvement, one (Coley and Medeiros, 2007) measuring it based on physical and phone/letter contact with the nonresident father, where the items were standardized and averaged, and the other (Hawkins, Amato, and King, 2007) measuring it based on a list of activities (such as shopping, playing a sport) done together (items averaged), communication (items averaged), and contact with the nonresident father (items averaged).

For the current study, the parenting measures are divided into three separate scales with no overlap between them: parental attachment, parental monitoring, and parental involvement. This is done because of the complexity of parenting behaviors. There are multiple facets to parenting, and some may be more effective than others; some may also be more affected by delinquency than others. Though these measures could each be considered as aspects of attachment, the types of behaviors involved may be expected to relate to delinquency in different ways. This might be especially true for the effect of delinquency on parenting. For example, in response to the delinquent behavior of an adolescent, a parent might increase their monitoring behavior or their involvement with their adolescent in order to reduce the opportunity for delinquency, but the level of parent-adolescent attachment may actually be reduced because the parent can no longer trust the adolescent. Combining the three parenting measures into a single measure would not allow me to examine these different possibilities.

All of the parenting measures used in the current study are self-report measures from the *adolescent* rather than the parent. This is due primarily to the fact that the parents were interviewed only at Wave 1, and therefore there are no longitudinal measures available for parent-reported parenting measures. There are both strengths and limitations to using adolescent self-reports of parenting. Youth may be incorrect about house rules or about the way they think their parents feel about the parent-adolescent relationship; they may not remember accurately all of the different activities they did with their parents in the past week, especially if the level of involvement is typically high. Youth who are currently in trouble with their parents may report based on their negative emotions, painting the parent-adolescent relationship and the parenting behaviors in a negative light. It would be beneficial to have a more objective measure of the parenting behaviors, but unfortunately none is available in the data.

A strength of these measures is that despite the fact that the youth may have incorrectly reported on their parents' behavior and feelings, what the youth *believes* to be house rules, how the youth *perceives* the parents to feel, and what the youth *remembers* doing with their parents may be just as important, if not more, in regard to influencing the behavior of the youth, as will be discussed below regarding the attachment measure. Measuring parenting is a dilemma for most studies of parenting and delinquency³. As a simple test, and the best that could be accomplished with these

³ Diana Baumrind (1967, 1978) uses a much more in depth and complex set of parenting measures in her studies of the impact of parenting on a variety of child development issues. The set of measures are from both a survey that provided 56 separate parenting scales, and in-home observations of parent-child interactions. This sort of detailed, first-hand information for creating parenting scales is certainly a better way to measure a complex variable like parenting, but such measures are not available in Add Health. The three styles of parenting she developed were authoritative, authoritarian, and permissive parenting

data, I ran the model regressing parental attachment on the three types of delinquency using the parent's reports of parental attachment; the results were not substantively different from those where I used the adolescent's report of parental attachment (more on this below).

Parental attachment is measured based on adolescents' responses to questions about how they *and* their parents feel about the parent-adolescent relationship. Consequently it is a subjective measure of *perceived* parental attachment, as the adolescent cannot know for sure how the parent actually feels. One might very reasonably argue that if an adolescent perceives a low level of parental attachment, regardless of how the *parent* might classify the relationship, then this is what the level of attachment is, at least as far as the adolescent is concerned. In contrast, the monitoring and involvement measures, based on adolescents' assessments of household rules and activities engaged in with parents, are somewhat less subjective. Together, these three measures indicate the degree of parental investment and oversight experienced by the adolescents, some more subjectively than others. Because these scales tap into different aspects of parenting, I created the scales separately and use them as such in the analyses in order to see the contribution of each in the process being examined.

Parental Attachment. I measured parental attachment using five questions asked of the adolescent regarding the mother and five questions asked of the adolescent regarding the father. The same questions were asked for both waves. I

styles, where combinations of parental warmth and demandingness define each category; the Add Health data, however, do not provide the necessary variables to create these categories.

chose these questions because they tap into what Hirschi (1969) noted as a crucial element of the bond to the parent – affectional identification, love, or respect. In both waves, respondents were first asked how close they feel to their mother (1 = not at all to 5 = very much) and how much they think she cares about them (1 = not at all to 5 = very much). The respondents were then asked to what extent they agreed or disagreed with the following: most of the time, your mother is warm and loving toward you (1 = strongly agree to 5 = strongly disagree); when you do something wrong that is important, your mother talks about it with you and helps you understand why it is wrong⁴ (1 = strongly agree to 5 = strongly disagree); you are satisfied with the way you and your mother communicate with each other (1 = strongly agree to 5 = strongly disagree). I first recoded the scores as necessary so that a high score indicates higher parental attachment. I then took the average of these five items to compute maternal attachment (alphas for both waves were 0.86).

Respondents were also asked how close they feel to their father (1 = not at all to 5 = very much) and how much they think he cares about them (1 = not at all to 5 = very much). They were then asked to what extent they agreed or disagreed with the following: most of the time, your father is warm and loving toward you (1 = strongly agree to 5 = strongly disagree); you are satisfied with the way your father and you communicate with each other (1 = strongly agree to 5 = strongly disagree); overall, you are satisfied with your relationship with your father (1 = strongly agree to 5 = strongly

⁴ Because this question is about delinquency itself, it may induce a relationship with delinquency. In order to check for this, I reran all models using this scale with this question removed. The results were not significantly different.

disagree). I recoded and averaged these as I did the items involving the mother (alphas for both waves were 0.86). I then took the average of the mother-item mean and the father-item mean to account for overall average parental attachment between parents and adolescent for both waves. If the adolescent does not have a father present, the section answering the questions for the father was skipped; in this case, the parental attachment measure is simply the mean of reported attachment to the mother.

Parental Monitoring. I measured parental monitoring using 7 dichotomous items (0 = no, 1 = yes) that asked respondents about the kinds of decisions their parents allow them to make. They were asked if their parents let them make their own decisions about the following: the time they must be home on weekend nights; the people they hang around with; what they wear; how much television they watch; which television programs they watch; what time they go to bed on week nights; and what they eat. These items are used here as a proxy for the establishment of rules in the household. If parents are establishing rules in the home, then it is assumed that they are monitoring the behavior of their adolescents. These 7 items were summed to create a monitoring scale for both waves (alphas ranged from 0.61 to 0.65 across the waves).

Parental Involvement. The involvement measure was created using 9 items meant to determine what the respondents have done with their mother and/or father in the last month, for both waves. Respondents were shown a card with a list of 9 activities and were asked if they had done any of them in the past 4 weeks (all answer choices were yes/no): gone shopping; played a sport; gone to a religious service, or church-related event; talked about someone they are dating, or a party they went to;

gone to a movie, play, museum, concert, or sports event; had a talk about personal problems they (the adolescents) were having; talked about their school work or grades; worked on a project for school; talked about other things they are doing in school. The respondents were asked to respond to each of these items for both their mother and their father; I took the maximum score for each item (i.e. if they did something with their mother but not their father, they still scored a “1”). I then summed the maximum score for each item to calculate the parental involvement score (alphas ranged from 0.56 to 0.57 across both waves). Respondents who shared many activities with their parents scored higher on this variable, with a possible range of 0 (did none of these things with either parent) to 9 (did each of these things with at least one parent).

Controls

Delinquency has been found to be associated with a number of variables that necessitate their inclusion as control variables into any analysis of delinquent behavior and, in this case, variables are included as controls that relate to both parenting and delinquency. For this study, I included age, gender, race, parent’s education, family structure, grades, and delinquent peers as controls. All control variables were measured using the data from Wave I. Race, gender, and parent’s education are also key variables in this study as later analyses will examine interaction effects with these variables.

Race, Gender, and Parent’s Education. Prior research has consistently shown variations in delinquency by gender (see Steffensmeier and Allan, 1996, for a review). Research on the effects of SES and race has been more equivocal and tends to depend

on whether the delinquency is official or self-reported, with self-reported delinquency having a weaker association to race and social class (see Elliott and Ageton, 1980, and Hindelang, Hirschi, and Weis, 1972, for discussions of the discrepancy between self-reported and official delinquency and the correlates of delinquency). Some studies have found racial differences in serious self-reported delinquency, where blacks engage in more serious and violent delinquency than do whites (Salts, Lindholm, Goddard, and Duncan, 1995) and in high frequency self-reported delinquency, where blacks report higher frequencies of delinquency than do whites (Elliott and Ageton, 1980). Elliott and Ageton (1980) also found social class differences in high frequency self-reported delinquency, with respondents from the lower class reporting higher frequency of delinquency. Additionally, parenting practices have been associated in the literature with SES (see Bradley and Corwyn, 2002, for a brief discussion), as have differences in parenting by gender of child (e.g. Barnes and Farrell, 1992; Starrels, 1994; see Rossi, 1984, for a discussion) and race (e.g. Barnes and Farrell, 1992; Hill and Sprague, 1999).

With these data, the race and gender measures are fairly straightforward, single survey questions. Parent's education is measured using the maximum of the mother and father's highest level of education attained. Respondents were asked how far in school both their mom and their dad went, with answers ranging from "never went to school" to "professional training beyond a four-year college or university.

Family Structure. Family structure has also been associated with delinquency. Family structure has been found to have a strong relationship with violent crime, with youth living in single-parent homes being most at risk for such behavior (Dornbusch,

Carlsmith, Bushwall, Ritter, Leiderman, Hastorf, and Ross, 1985; Paschall, Ennett, and Flewelling, 1996; Sampson, 1987). Here I measure family structure using a single variable from the parent survey, asking the parent (usually the mother) what her current marital status is. Those respondent's whose parent answered that they were currently married were coded as "1" for living in a two-parent household; all others were coded as "0" for living in a single-parent household or other type of family arrangement. The rationale for creating the family structure variable as a dichotomous two-parent family versus others is really about opportunity. Adolescents who live in a home with two parents have two sets of eyes helping monitor them, two parents with whom they could engage in activities (involvement), and two parents with whom they could develop an attachment. Given that the family structure of two-versus-one parent could influence the parenting measures and the delinquency measures, I chose to measure family structure as a dichotomy.

Age. The association between delinquency and age is well document and one of the most accepted relationships in criminology (see Steffensmeier, Allan, Harer, and Streifel, 1989 for a discussion). Delinquency peaks in adolescence, and aging out of crime is the norm, even for serious offenders, as they reach their twenties and thirties (Sampson and Laub, 2003). Respondents were asked to report their birthday, which was then used in conjunction with the interview date to calculate their age at Wave I. Age has an impact on the parent-child relationship, as well. Adolescence is a time of transition as children who once relied solely on their parents are beginning to explore autonomy, perhaps weakening their ties to their parents and strengthening their ties to

their peers. It is imperative to control for age here because the age range of 12 to 17 covers the beginnings of that potential change. Respondents who are 12 may still have closer ties to parents than peers, while respondents who are 17 may have closer ties to peers than parents.

Grades. School failure has been associated with an increased risk for delinquent behavior. Wang, Blomberg, and Li (2005) found that delinquent youth attained lower grade point averages than nondelinquent youth, and Rhodes and Reiss (1969) found that delinquency was one of several adaptations to school failure. However, Felson and Staff (2006) argue that this relationship may be spurious, as both delinquency and school failure may be caused by low self-control. Though not examined by Felson and Staff, it also seems plausible that both delinquency and school failure could be influenced by poor parenting practices. To assess school failure or success, respondents reported their grade for four core courses (English/language arts, mathematics, history/social studies, and science). I then used those four grades to calculate an average school grade on a scale of 1 to 4, with 4 being the highest score (equivalent to an "A").

Delinquent Peers. While it is often found that peer delinquency is a stronger predictor of delinquency than are parenting measures (e.g. Aseltine, 1995; Matsueda, 1982), there have also been some findings showing that parenting can influence delinquency through delinquent peers (e.g. Warr, 2005), though this will not be tested

here⁵. The measure of peer delinquency used in this study is a count of the number of delinquent peers based on three questions in Add Health. Youth were asked how many of their three best friends smoke at least one cigarette a day, drink alcohol at least once per month, and/or use marijuana at least once per month. The scale ranges from 0 (none of three best friends are delinquent) to 3 (all three best friends are delinquent). It has an alpha of .76.

Data Analysis

There are several issues that must be addressed in order to accurately analyze these data. First, the Add Health data are clustered data collected with an unequal probability of selection. Because of this, I analyze the data in Stata, which is capable of handling the clustered design. Stata allows one to input key variables that tell the program about how the data were collected, such as region, school ID, and sample weights, and then allows one to conduct analyses using a special set of survey analysis commands. This allowed me to obtain unbiased estimates of population parameters and standard errors (Chantala, 2006).

Second, missing data must be handled appropriately. While the sample I studied used only respondents who participated in both waves, respondents sometimes failed to answer certain questions. The variables with the most missing data were the delinquency variables, which is not surprising; youth may be hesitant, even on a confidential survey, to reveal participation in illegal activities. Stata will automatically

⁵ There will, however, be some discussion later in the paper of what removing this control does to the models analyzed.

use listwise deletion to deal with missing data, which significantly reduces the sample size, resulting in a loss of power and potential loss in generalizability. In this study listwise deletion would have resulted in the loss of approximately 3,000 cases. To avoid these losses, I used multiple imputation in Stata.

Imputation is the “filling in” of missing data with plausible values (Schafer, 1999). In multiple imputations, missing data are replaced in a number of simulated versions of the data. Each of these imputed datasets is then analyzed as usual, and the results of each analysis are combined to produce estimates that take into account missing-data uncertainty. Multiple imputation takes advantage of all of the available data and avoids the bias that could result from using only one imputed data set. In the current study, five imputations were calculated resulting in five imputed data sets. Following standard procedures, I included every independent and dependent variable in the models for the imputation procedure. After imputation, my final sample was 12,505 respondents⁶. These are respondents who participated in both waves, had a valid weight (making the sample nationally representative), and were between the ages of 12 and 17.

Because the outcome varies in each model, the type of regression analysis used for each model varies, as well. For the overall and property delinquency outcomes, negative binomial regressions are used. Normal OLS regression assumptions are violated due to the skewed distribution of delinquency scales. Negative binomial regressions are used to estimate count variables, such as the overall and property delinquency scales created for these analyses, when there is over dispersion (the

⁶ A comparison of means and standard deviations of all variables before and after imputation are shown in Table C2, in Appendix C. This table also shows the number of values imputed for each variable.

variance is greater than the mean). Negative binomial regressions include an additional parameter that takes the degree of this over dispersion into account. Because the violent delinquency measure is a simple dichotomy, logistic regressions are used for models in which this is the outcome. When any of the three parenting scales are the outcome in a model, a standard linear regression is used because these variables tend to be normally distributed.

The main purpose of this study is to test for the bidirectional relationship between the various parenting measures and the various delinquency measures. In order to test for bidirectionality, eighteen main models will be estimated, accounting for three delinquency outcomes, each with one of the three parenting measures as the key predictor, and three parenting outcomes, each with one of the three delinquency measures as the key predictor. In each model, the time 1 measure for the outcome will be controlled in a cross-lagged regression to control for prior delinquency or parenting behaviors. This will allow me to estimate the effect of each key predictor on *change* in the relevant outcome, thus factoring individual differences related to each of the dependent variables of interest.

It is possible to examine this relationship using structural equation modeling. Liska and Reed (1985) conducted their study of the reciprocal relationship using both cross-lagged regressions and simultaneous structural equations models. They found that the process was essentially the same using either method, though the estimates were somewhat smaller in the lag model. The question determining which method is best depends on whether the effects are simultaneous or instantaneous. The rationale

used in the current study mirrors that of Felson and Zielinski (1989). Parenting and child development are on-going processes that occur over time, not instantaneously. The assumption made here is that the parent effects and youth effects are not simultaneous or instantaneous. Even if this assumption were found to be invalid, it is likely that both lagged and simultaneous/instantaneous effects are still in the same direction. Though this assumption is not tested here, I argue that parent and youth behavior is relatively stable over time, and that reactions to either parent or youth behavior reflect the long-term impact of those behaviors rather than instant impact, as similarly argued by Felson and Zielinski (1989).

Results

Descriptive Results

Delinquency Variables

Participation in overall delinquency, property delinquency, and violent delinquency was assessed over two points in time. Prevalence of delinquency, in general, was quite low (see Table 1⁷, in Appendix C), which is consistent with most self-report delinquency studies. The average level of overall delinquency at Time 1 was 1.36 acts of delinquency, out of 13 possible acts. At Time 2, the average level was slightly lower at 1.06 acts of delinquency. These averages, as well as those that follow, indicate that these are not highly delinquent youth. The average level of property delinquency at Time 1 was 0.94, less than one act of property delinquency; at Time 2 the average was 0.75 acts of property delinquency. Violent delinquency was measured differently, as a dichotomous variable where 0 was “none” and 1 was “one or more” acts of delinquency. At Time 1, nearly 37% of respondents reported engaging in at least one act of violent delinquency (which includes being in a fight or a group fight); at Time 2, nearly 24% of respondents reported this.

Parenting Variables

Respondents reported on the level of perceived parental attachment, parental monitoring, and parental involvement in both waves. As seen in Table 1, the average level of perceived parental attachment was 4.35 (out of 5, high scores indicating higher

⁷ Table D1 in Appendix D shows the means and standard deviations of all variables both before and after multiple imputation.

levels of perceived attachment) at Time 1; this was reduced only slightly over time to 4.25 at Time 2. The average level of parental monitoring reported by respondents at Time 1 was 4.16, which means that on average, respondents reported having approximately four of the six house rules listed on the survey. At Time 2, the average level of parental monitoring had gone up slightly to 4.49. The most common house rules were having a weekend night curfew and having a bed time on week nights. Finally, respondents reported an average of 4.09 for parental involvement at Time 1, indicating that they participated with their parents in approximately four of nine activities listed on the survey. By Time 2, this average had barely increased to 4.10 activities. The most common activities participated in were going shopping and talking about school work or grades. Despite slight fluctuations, these averages indicate that levels of parental attachment, monitoring, and involvement were fairly stable over time. This is not surprising given that these are long-term relationships, and the measures were assessed one to one and a half years apart.

Demographic Statistics

Table 1 (Appendix C) shows the demographic characteristics of the sample. Just over half of the respondents in the current study were female. The average age of the respondents at wave one was approximately fifteen years. Nearly sixty-five percent of the respondents lived in a two-parent household; the average level of parent's education was 5.8, which is in between completing high school or a GED and attending a trade, business, or vocational school after high school. The respondents themselves had

a grade point average of 2.8, which is almost a B average. Approximately 66% of the respondents were white. Just over 15% of the sample was African American, and almost 12% were Hispanic. The average score on the delinquent peers scale was a 2.3, which could mean one of two things: either the respondents, on average, have between 2 and 3 delinquent peers, or their delinquent peers combined engage in 2 to 3 of the behaviors surveyed (smoking, drinking, and using marijuana).

Bivariate Relationships⁸

Delinquency

In Table 2 (Appendix C), the bivariate relationships between parenting behaviors and delinquency are shown. As can be seen, fourteen of eighteen relationships are significant at the bivariate level. Consistent with the social bonds framework, parental attachment is significantly associated with overall delinquency, property delinquency, and violent delinquency. The relationship is negative, indicating that as parental attachment increases, risk of delinquent behavior decreases. The size of the bivariate effect between attachment and all three outcomes is relatively similar ($b = -0.33$ for overall delinquency, $b = -0.34$ for property delinquency, and $b = -0.34$ for violent delinquency). Though parental involvement is not explicitly included social bonds framework, it is nonetheless a component of what developmental psychologists refer to as authoritative parenting (Baumrind, 1967, 1978). Parental involvement is significantly associated with all three types of delinquency. As parental involvement increases, risk

⁸ A correlation matrix of all variables included in the eighteen main models can be found in Appendix D, Table D1.

of delinquency decreases. Here, the strongest effect of parental involvement seems to be on violent delinquency. Since Hirschi included parental monitoring in his discussion of social control theory and attachment, parental monitoring is often viewed as part of parental attachment. Here, however, parental monitoring evinced no significant associations with any of the three types of delinquency, indicating that existence of basic house rules does not seem to influence risk of delinquency for adolescents. It may be that the effect of monitoring on behavior is more pronounced for young children than for adolescents (Gottfredson and Hirschi, 1990).

Parenting

The bivariate relationships between delinquent behaviors and parenting behaviors are also displayed in Table 2 (Appendix C). Overall delinquency has a significant association with all three parenting behaviors, though in different directions. Overall delinquency has a negative association with parental attachment; the same occurs for parental involvement. Thus, increases in overall delinquency are associated with decreases in parental attachment and parental involvement. With monitoring, the relationship is positive; as overall delinquency increases, parental monitoring increases, too. The same pattern can be seen for property delinquency, where there are significant negative associations between property delinquency and parental attachment and parental involvement, and a significant positive association between property delinquency and parental monitoring. Perhaps parents are more likely to impose household rules on misbehaving adolescents. The picture is slightly different

with violent delinquency. Violent delinquency has a significant, negative association with parental attachment and parental involvement. There is, however, no significant association between violent delinquency and parental monitoring. It may be that in contrast to less serious forms of delinquency, violent delinquency is beyond the scope of what basic household rules can impact.

Multivariate Models

The Effect of Parenting on Delinquency

Table 3 (Appendix C) presents the results of the negative binomial and logistic regression analyses predicting each type of delinquency using each type of parental behavior. There are nine models in Table 3, each including the control variables; these nine models are the parent effects models, the first half of the potential bidirectional relationship between parenting and delinquency. Each column of coefficients represents a separate delinquency outcome: overall delinquency in column one (Models 1, 4, and 7), property delinquency in column two (Models 2, 5, and 8), and violent delinquency in column three (Models 3, 6, and 9). The coefficients presented reflect changes in each type of delinquency over time, controlling for demographic variables and prior delinquency.

The first set of models (Models 1, 2, and 3) is for the parental attachment predictor. As shown in the table under Model 1, controlling for demographic variables as well as overall delinquency at Time 1, the coefficient for the effect of parental attachment at Time 1 on overall delinquency at Time 2 is significant ($b = -0.129$, $s.e. =$

0.028, $p = 0.001$). This can be interpreted as follows: for a unit increase in perceived parental attachment, overall delinquency decreases by a factor of .88 ($=\exp[-.129]$) holding all other variables constant. Parental attachment has a significant negative effect on overall delinquency; this means that as the level of perceived attachment increases, the prevalence of overall delinquency decreases, indicating a parental attachment effect on delinquency.

As shown in Model 2, the coefficient for the effect of parental attachment at Time 1 on property delinquency at Time 2 was also significant and negative ($b = -0.125$, $s.e. = 0.033$, $p = 0.001$); as the level of perceived parental attachment increases, property delinquency also decreases. For a unit increase in perceived parental attachment, property delinquency decreases by a factor of .88 ($=\exp[-.125]$), holding all other variables constant. Finally, a similar effect was found for violent delinquency, as shown in Model 3; perceived parental attachment at Time 1 had a significant and negative effect on violent delinquency at Time 2 ($b = -0.196$, $s.e. = 0.060$, $p = 0.002$). The odds of violent delinquency decrease by a factor of .82 ($\exp[-.196]$) for every one unit increase in perceived parental attachment. Respondents who perceived higher parental attachment were less likely to engage in violent delinquency. In sum, perceived parental attachment had a significant negative effect on each type of delinquency.

The second section of Table 3 shows the results for the three models involving parental monitoring as a predictor of each type of delinquency. Controlling for overall delinquency at Time 1, results under Model 4 show that parental monitoring at Time 1 had a positive but nonsignificant effect on overall delinquency at Time 2. The same was

found for parental monitoring at Time 1 on property and violent delinquency at Time 2 (Models 5 and 6), though with violent delinquency the coefficient was negative (but still nonsignificant). Unlike perceived parental attachment, parental monitoring at Time 1, at least given the rules included in this survey, does not have an effect on any of the three types of delinquency at Time 2 examined; there are no parent effects in these models. The existence of rules in the household does not appear to have a significant influence on changes in self-report delinquency levels.

Because parental monitoring can affect the acquisition of or time spent with delinquent peers, who then subsequently influence delinquency, the control for delinquent peers has the potential to mediate the relationship between parental monitoring and the three types of delinquency. Supplemental analyses indicated that this was the case with respect to predicting parental monitoring using overall delinquency and property delinquency⁹. With the control for delinquent peers removed, overall delinquency at Time 1 had a significant positive effect on parental monitoring at Time 2 ($b = 0.028$, $s.e. = 0.009$, $p = 0.003$). Property delinquency at Time 1 also had a significant positive effect on parental monitoring at Time 2 ($b = 0.395$, $s.e. = 0.012$, $p = 0.007$). Removing the control for delinquent peers did not affect the model in which violent delinquency predicts parental monitoring. With respect to the effects of overall and property delinquency on parental monitoring, delinquent peers acts as a mediator between the two; the effect of delinquency on monitoring works through the

⁹ All models were run with delinquent peers removed to analyze the influence of delinquent peers. There were no changes in the effects of parenting measures on delinquency or of delinquency on parenting measures except for these two discussed here.

existence of delinquent peers. Removing the control for delinquent peers did not change the effect of parental monitoring on change in delinquency, however. The mediating effect of delinquent peers on parental monitoring indicates that perhaps parents are increasing their monitoring efforts not only in response to the delinquent behavior of their adolescent but also in response to their adolescent's acquisition of delinquent peers.

The final section of Table 3 shows the results for the three models where parental involvement is a predictor of each type of delinquency outcome. Unlike perceived parental attachment, but similar to parental monitoring, Models 7, 8, and 9 show that parental involvement at Time 1 has no significant effect on any of the three types of delinquency at Time 2; the coefficients are all positive but nonsignificant. This indicates that the level of parental involvement, at least given the activities assessed in this study, has little or no impact on the delinquency levels of the adolescent. In sum, perceived parental attachment has a significant effect on each type of delinquency, however parental monitoring and parental involvement had no significant effects on any of the delinquency measures.

All prior models have included each parenting measure in separate regressions. Though this shows the impact of each individual parenting behavior on each delinquency outcome, it may also be useful to test the effect of all three parenting measures in one model, as these three parenting behaviors are not likely to be practiced in isolation. This would show us if any one of the parenting measures was swamping the others. Table 4 (Appendix C) shows the results of this test, where parental

attachment, monitoring, and involvement are regressed on delinquency. As shown in each of the models, the effects of parental attachment remain unchanged when the other parenting measures are included, whereas the effects of parental involvement and monitoring are small and statistically non-significant. This suggests parental attachment likely has the greatest impact on delinquency, above and beyond any effect of parental monitoring or parental involvement. This is not surprising given that the only consistent effects in the individual models discussed above were for parental attachment.

The Effect of Delinquency on Parenting

Table 5 (Appendix C) presents the results of the linear regression analyses predicting each type of parenting behavior using each type of delinquency. There are nine models in Table 5 (Models 10 through 18), providing examination of the second half of hypothesized bidirectional effects. Each column of coefficients represents a separate parenting outcome: perceived parental attachment in column one, parental monitoring in column two, and parental involvement in column three. The coefficients reflect changes in each type of parenting over time, controlling for demographic variables and prior parenting behaviors

The first section of Table 5, Model 10, shows the results of regressing overall delinquency at Time 1 (plus controls) on parental attachment at Time 2. Overall delinquency had a significant negative effect on perceived parental attachment ($b = -0.019$, $s.e. = 0.004$, $p = 0.001$), indicating that those respondents who reported lower

levels of delinquency at Time 1 perceived their attachment to their parents as higher at Time 2, indicating an adolescent effect on parental attachment. Similar to the lack of effects found for parental monitoring on delinquency, overall delinquency at Time 1 has no significant impact on parental monitoring at Time 2 (Model 11). Finally, as with parental attachment, overall delinquency had a significant negative effect on parental involvement ($b = -0.023$, $s.e. = 0.011$, $p = 0.041$), indicating another adolescent effect. Respondents who reported lower levels of delinquency at Time 1 were more likely to report higher levels of parental involvement at Time 2. It appears that parents spend more time involved in the lives of their adolescents when those adolescents are not engaging in delinquency.

The results for the models including property delinquency as a predictor of each type of parental behavior are in second section of Table 5 (Models 13 through 15). Controlling for parenting at Time 1, property delinquency at Time 1 had a significant negative effect on parental attachment at Time 2 ($b = -0.027$, $s.e. = 0.005$, $p = 0.001$), indicating evidence of an adolescent effect. Youth who reported higher levels of property delinquency at Time 1 also reported lower levels of perceived parental attachment at Time 2. The effect of property delinquency at Time 1 on parental monitoring at Time 2 was positive but not significant; the property delinquency of the adolescent had little or no impact on change in the monitoring behavior of the parents. Property delinquency at Time 1 did, however, have an effect on parental involvement at Time 2 ($b = -0.025$, $s.e. = 0.014$, $p = 0.043$).

Finally, the results for the violent delinquency predictors are in the third section of Table 5, Models 16 through 18. As shown for Model 16, violent delinquency at Time 1 had a significant effect only on perceived parental attachment; respondents who reported engaging in violent delinquency at Time 1 were less likely to perceive high levels of parental attachment at Time 2 ($b = -0.038$, $s.e. = 0.013$, $p = 0.004$). Violent delinquency at Time 1 did not have a significant impact on change in parental monitoring or change in parental involvement.

In conclusion, the only models that showed evidence of bidirectional relationships (both parent and adolescent effects) were the perceived parental attachment models. Figure 1 (Appendix C) displays the results for all eighteen models in summary form. As the figure shows, parental attachment was associated with a significant negative change in each of the three types of delinquency; and each of the three types of delinquency were associated with a significant negative change in perceived parental attachment. The other significant effects found were unidirectional in nature, as can be seen in Figure 1. Involvement at Time 1 had no significant association with change in any of the three types of delinquency at Time 2 (no parent effects), but overall delinquency and property delinquency did have a significant association with changes in parental involvement (two adolescent effects). The implications of these results will be discussed in the Discussion section of this paper.

Control Variables

Delinquency Models. A number of the control variables had significant effects on various delinquency outcome measures, as shown in Table 3 (Appendix C). Consistent with prior literature on gender and delinquency, females were significantly less likely to report engaging in overall, property, and violent delinquency. Older adolescents were less likely to engage in delinquency than younger adolescents. Respondents whose grades were higher were significantly less likely to report engaging in any type of delinquency. Youth who reported having delinquent peers were more likely to engage in delinquency, also consistent with prior research. Interestingly, there was no effect of family structure on any of the delinquency measures, and the only effect of parent's education was a negative effect on violent delinquency. The effects of race varied; Hispanics were more likely than whites to commit all three delinquency types. Black youth were *less* likely than white youth to report engaging in property delinquency, and respondents of races other than white, black, or Hispanic were significantly more likely to engage in violent delinquency than white youth.

Parenting Models. The control variables also had some significant effects on parenting behaviors, as seen in Table 5 (Appendix C). Females generally reported lower levels of perceived parental attachment than boys, but they reported higher levels of parental involvement than boys. Respondents with higher grades were more likely to report higher levels of perceived parental attachment, parental monitoring, and parental involvement. Unlike in the delinquency models, family structure did seem to have somewhat of an impact. Respondents from two-parent homes were less likely to

report being monitored but more likely to report parental involvement. The fact that youth from two-parent homes report less parental monitoring is unusual; it may be that when parents have a supporting spouse to help supervise the adolescent, having established rules that have been vocalized to the adolescent may not be as necessary. This is, however, only speculation. There was also a significant effect of parent's education on parental monitoring and involvement; parents with higher levels of education are significantly more likely to monitor their youth and to be involved with their youth. When respondents have delinquent peers, parental monitoring appears to increase; perhaps if parents know their adolescent is hanging out with delinquent peers, they step up their rules and monitoring behavior in an attempt to head off any potential influence the delinquent peers may have. Finally, race had various impacts on parenting behaviors. All three racial groups – Hispanic, black, and other races – were significantly less likely to report parental monitoring than white respondents.

In sum, many of the control variables had the expected effect on delinquency and parenting, given what we know from prior research. Boys, respondents with lower grades in school, those from a two-parent family, those whose parents have lower levels of education, and those with delinquent peer associations are more likely to engage in some form of delinquency. Some of the control variables had effects on delinquency in the opposite direction than expected based on prior research. Age had a significant negative effect on delinquency, indicating that older respondents (those closer to age 17) report less delinquency than younger respondents (those closer to 12). The mean age for this sample is 15 years. Though significant, the effect sizes are small; perhaps

youth in this sample are beginning to desist from delinquent behavior a little earlier than what most age-crime curves would predict, though not much. The race effects differ depending on which race is examined. While Hispanic youth are more likely to engage in any type of delinquency than white youth, black respondents appear to engage in less property delinquency than white youth. This is not surprising given that 1) this is self-report data, meaning it is untainted by any bias of official delinquency records, and 2) middle-class and upper-class black youth were oversampled in Add Health.

Prior research on the effects of the control variables on parenting behaviors is less concrete than the prior research on delinquency, but some conclusions can be drawn from these analyses. First, attachment appears to be influenced negatively by gender (female) and positively by both grades and black youth. In other words, being male, having high grades, and being black are associated with higher levels of parental attachment. This is contrary to what the literature has to say about females and parental attachment; perhaps because girls are more inclined to be concerned about and aware of personal relationship issues, they perceive the attachment of their parents more critically than do boys. Second, monitoring appears to be influenced positively by grades, age, parent's education, and delinquent peers and negatively by two-parent families and minority youth. Having better grades, being older, having parents with higher levels of education and having delinquent peers are associated with higher levels of parental monitoring. Parents may be concerned about monitoring youth who are doing well in school to ensure that the high performance continues, and parents who

are more highly educated may have more opportunities to develop greater parental efficacy¹⁰ than those who are not, leading to increased parental monitoring. Additionally, parents of adolescents with delinquent peers may recognize the risk and step up efforts to have some control over their adolescent's behavior.

Supplemental Analyses

Three sets of supplemental analyses were conducted to assess the robustness of the results. First, the six models involving parental attachment were estimated both with and without imputed missing data. Second, all models were estimated with minor, moderate, and serious delinquency as outcomes, rather than being grouped into overall, property, and violent. I selected two or three specific delinquent acts to represent minor, moderate, and serious delinquency and ran all models with those as the outcome. Finally, an age interaction was included in each of the eighteen models to determine whether or not the process varies by age of the youth. It seems plausible that the effects of parenting on the youth (see Gottfredson and Hirschi, 1990) and the effects of the youth's delinquency on the parent may change as the youth ages from late childhood/preteen to adolescence. All results of supplemental analyses are found in Appendix D.

The results of the first supplemental analysis are in Tables D3, D4, D5, and D6. Though the effect sizes of all variables were somewhat changed by the imputation of missing data, the substantive results remained the same. Perceived parental

¹⁰ According to Wright and Cullen (2001), parental efficacy is the ability of parents to control and support their children in an effort to control delinquency.

attachment is involved in a bidirectional relationship with overall, property, and violent delinquency.

Table D7 (Models 1 through 6) shows the results of two models showing the effects of parenting behaviors on minor delinquency, as represented by vandalism (column 1) and joyriding (column 2). As shown, perceived parental attachment has a significant negative effect on both vandalism and joyriding, two relatively minor offenses. This is consistent with the findings from the main models. Models 2 and 3 show the effect of parental monitoring on vandalism and joyriding. Consistent with the main models, parental monitoring does not have a significant effect on joyriding; however, parental monitoring does have a significant positive effect on vandalism. As parental monitoring increases, risk of vandalism also increases. Perhaps when youth are under more strict supervision at home, they are more likely to act out in minor ways outside of the home. Finally, as shown in Models 5 and 6 in Table D7, parental involvement does not have a significant effect on either vandalism or joyriding.

The results of the regression models with moderate delinquency as the outcome are in Table D8 (Models 7 through 12). As was found in the main models and in the models with minor delinquency, perceived parental attachment showed a significant negative effect on theft greater than \$50 and on selling drugs. Also consistent with the main models is the lack of a significant effect of either parental monitoring or parental involvement on either theft greater than \$50 or drug sales. Finally, the results of the models with serious delinquency (Models 13 through 21) are shown in Table D9. Neither parental monitoring nor parental involvement has a significant effect on

robbery, pulling a knife or gun on someone, or being involved in a physical fight. This is consistent with the results of the main models.

All eighteen main models were run with an age interaction, where age was interacted with either the key parenting predictor or the key delinquency predictor of each model. The results of those models that resulted in a significant interaction are found in Table D10, Appendix D. There was a significant age interaction only with parental monitoring, which held for overall, property, and violent delinquency. Of those respondents who reported high levels of monitoring, the risk of an increase in delinquency was significantly less for older respondents as compared to younger respondents. However, this finding is likely not particularly salient, as parental monitoring did not have a significant effect on delinquency in the main models.

Discussion and Conclusion

In the current study, I examined the bidirectional effects of parenting and delinquency. One main research question guided this research. Is there a bidirectional relationship between parenting behaviors and delinquency? In other words, are there both parent effects on delinquency and adolescent effects (through delinquency) on parenting? This is a fundamental measurement issue within the social bonds framework, which operates under the assumption that there is no bidirectional relationship between parents and adolescents, that it is strictly a unidirectional effect from parent to youth. To answer this research question and address the measurement problem within the social bonds framework, I employed cross-lag regressions using data from the National Longitudinal Survey of Adolescent Health. I included three measures of parenting behaviors (parental attachment, parental monitoring, and parental involvement) and three measures of delinquency (overall delinquency, property delinquency, and violent delinquency), as well as controls for age, grade point average, parent's education, family structure, gender, race, and delinquent peer associations.

I found that there are bidirectional effects between perceived parental attachment and each of the three types of delinquency. The level of perceived parental attachment negatively influenced the prevalence of delinquent behavior in youth; conversely, the level of delinquency in which the youth engaged negatively influenced the level of perceived parental attachment. There were no bidirectional effects for parental monitoring or parental involvement. Rather, I found no significant parent effects between parental monitoring and delinquency or between parental involvement

and delinquency, and no significant adolescent effects between parental monitoring and delinquency. Overall delinquency and property delinquency both had negative effects on parental involvement, providing evidence of adolescent effects.

Recall here my earlier argument, where I framed both parental monitoring and parental involvement as a part and parcel to parental attachment, though somewhat more loosely than the measure of parental attachment itself. The lack of effects of parental involvement, however, is actually supportive of one of Hirschi's argument regarding involvement. He stated in his discussion of attachment to parents that parental involvement, as measured by time spent with parents, is "only a minor factor" in preventing delinquency (Hirschi, 1969:88).

The significant effect of parental attachment on delinquency is supportive of the social bonds framework, that attachment to one's parent(s) can serve as a protective force against delinquent behavior, above and beyond variables already known to be associated with delinquency, such as race, gender, socioeconomic status, and especially delinquent peer associations. This is consistent with prior research on the link between attachment and delinquency (e.g. Hirschi, 1969; Laub and Sampson, 1988). However, while the finding that perceived parental attachment influences delinquency is supportive of that framework, given that the framework does not consider the possibility of a bidirectional relationship, the finding that delinquency influences perceived parental attachment is not supportive of the framework. Measurement within the social bonds framework is confounded, so evidence of a bidirectional relationship between parents and adolescents is not truly supportive of the social bonds

framework. In fact, evidence of a bidirectional relationship between perceived parental attachment and self-reported delinquency highlights the measurement problem of the social bonds framework that has been discussed here.

The lack of a significant effect of parental monitoring or parental involvement, when framed as a type of parental attachment, on any type of delinquency is in contradiction to the social bonds framework, though it may be due at least partially to the way these variables were measured in the current study.

An ideal measure of parental monitoring would likely include questions about the parents' knowledge of the adolescent's whereabouts when not at home, who they are with, and what they are doing. The measure used in the current study is comprised of questions regarding the existence of household rules, the only monitoring behaviors available in the survey. Some of the items included tap into parental knowledge concerning the adolescent's activities, such as requiring a curfew or monitoring what they see on television, but it is certainly not a perfect measure of parental monitoring. It is important to note, however, that measurement issues aside, and as mentioned previously, supplemental analyses showed that there was an indirect effect of overall and property delinquency on parental monitoring, through delinquent peer associations, indicating that parents are not only responding to their adolescent's delinquent behavior when increasing monitoring but also to the adolescent's acquisition of delinquent peers.

Parental involvement as measured here is a good measure of the level of involvement between parent and adolescent; however, it is *not* the kind of involvement

Hirschi (1969) included in his formulation of social control theory. In his theory, involvement is not limited to parental involvement; it is meant as a measure of involvement in a range of conventional activities resulting in loss of opportunity to engage in delinquency. The measure of involvement in the current study does give an indication of loss of opportunity to engage in delinquency, but it refers specifically to activities that parents and adolescents share and is therefore also another way of measuring attachment. Presumably parents and adolescents who have a high level of attachment spend more time together than those who are less attached, while those who do not feel a strong bond with each other would be less likely to spend large amounts of time together.

The findings regarding perceived parental attachment provide strong evidence for the existence of a bidirectional relationship between perceived parental attachment and self-reported delinquency, consistent with both the transactional and interactional models of reciprocal parent-adolescent relationships. Contrary to prior criminological research that has focused on or assumed a unidirectional relationship of parents on adolescents, the data here show that the influence goes both ways in the relationship between parental attachment and delinquency. Parents, as posited by the social bonds framework, can and do affect the risk of delinquency in their adolescents through the level of perceived parental attachment. However, in addition to the unidirectional proposition of the social bonds framework, the data here show that the behavior of the adolescent also influences the parent in that adolescents who engage in delinquency report lower levels of perceived parental attachment. If the current data had additional

waves, we might find that this is a cycle of weakening bonds and increasing delinquency, at least for the period of adolescence, but that is for future research to determine.

The existence of *adolescent* effects on two of three types of parental behaviors (perceived parental attachment and parental involvement) suggests the need for criminological theories that allow for reciprocal relationships between parents and adolescents, as well as providing for the possibility of adolescent effects that can lead to further delinquency. As recent evidence in the criminological literature has suggested, adolescents influence the type of parenting they receive which can, in turn, further influence the behavior of the adolescent, at least in the case of parental attachment. There are several criminological theories, including the social bonds framework, that indicate the possibility for a cyclical effect, or a downward spiral, as parents and youth influence each other's behavior, leading to greater and greater delinquent behavior.

Agnew (1985) argues in his general strain theory that delinquent behavior is not caused only by the disjunction between goals and means, but also can be caused by the presentation of noxious stimuli or the removal of valued stimuli. In effect, delinquency-inducing strain can be caused by negative relationships with others through the presentation of noxious stimuli. Youth who engage in delinquency may find themselves at odds with their parents (low attachment) or the focus of more strict monitoring and less positive involvement with parents, leading to further delinquency. As the parent-adolescent relationship deteriorates, and the presentation of negative stimuli continues, additional delinquency may occur as a response to this strain. Unfortunately, the

additional delinquency may lead to further deterioration of the relationship and presentation of more negative stimuli.

Labeling theory is another useful theory for understanding a potential spiraling process. Earlier formulations of labeling theory, such as those by Lemert (1951, 1972), would argue that when a youth engages in delinquency, there is a community response (which includes the parents) labeling the youth as “bad” or “delinquent.” This label reduces the self-image of the youth, causing the youth to accept the label and act in accordance with it, increasing future delinquency. Future delinquency (or secondary deviance) leads to further labels and further delinquency.

A final theoretical framework that indicates the possibility of a spiraling process draws from the social bonds framework that has been the focus of this dissertation. The social bonds framework argues, in part, that delinquency is caused by weakened social bonds, such as low parental attachment. The current study showed that not only does low perceived parental attachment increase the risk of delinquency, but that delinquency reduces perceived parental attachment. Given the social bonds framework, then, this subsequent lowered perceived parental attachment would tend to lead to further delinquency.

The current study built on and expanded upon important previous studies that examined the bidirectional relationship between parenting and delinquency, and the finding of a bidirectional relationship between parental attachment and delinquency is consistent with most of what can be found in the criminological literature on reciprocal relationships. Both significant parent effects and child effects were found by Liska and

Reed (1985), Thornberry, Lizotte, Krohn, Farnworth, and Jang (1991), Buist, Dekovic, Meeus, and Van Aken (2004), though not by Agnew (1991a), who found no evidence of a child effect and only weak evidence of an indirect effect of parental attachment on delinquency through commitment to school.

In their study of high-risk youth, Jang and Smith (1997) found evidence of reciprocal effects between parental monitoring and delinquent behavior. The difference in their results and the results of the current study may be due to differences in the sample. For youth who are already at an increased risk of delinquent behavior, closer parental monitoring may indeed reduce that risk, whereas youth who are not at increased risk for delinquency may not be as influenced by the monitoring activities of their parents.

Contrary to this idea, Stewarts, Simon, Conger, and Scaramella (2002) also found reciprocal effects between parental supervision and delinquency using a sample of Iowa youth who were predominantly white and predominantly from two-parent families, characteristics that would not typically be deemed as placing the youth at “high risk.” As will be discussed in the limitations section, however, these differences may be due to the way the measure was created.

The parental involvement effects are surprising in that involvement does not protect against delinquency, but it is not surprising that there are adolescent effects on involvement. A delinquent adolescent can cause strain, frustration, anger, or hurt on the part of the parent, in which case spending large amounts of time with the adolescent may not be a priority of the parent. It is disheartening and frustrating to

constantly spend time with your adolescent who is causing or getting into trouble, especially when the time spent with them doesn't seem to be doing any good. It is also possible that delinquent youth are less drawn to spending time with their parents. These findings do not appear consistent with the literature, but differences in sample and outcome may be the reason.

Ream and Savin-Williams (2005) found evidence of reciprocal effects between parental involvement and adolescent behavior, but their study focused on the sexual activity of the youth rather than delinquency per se. Coley and Medeiros (2007) found the opposite, that parental involvement predicted delinquency but not that delinquency predicted parental involvement. Theirs was, however, a restricted sample in that the only parental involvement measured involved nonresident father involvement of low-income, minority youth. Using a more representative sample than Coley and Medeiros (2007) - the Add Health data - Hawkins, Amato, and King (2007) also examined the relationship between nonresident father involvement and delinquency and found effects similar to those found in the current study, that non-resident father involvement did not predict delinquency but that delinquency did predict nonresident father involvement.

These differences in the relationship between involvement and delinquency or other adolescent outcomes may be due to differences in the outcome measured, or they may be due to the ages of respondents. For example, the Coley and Medeiros (2007) study examined slightly younger children than the Hawkins, Amato, and King (2007) study or the current study, both of which found child effects only. It is possible

that younger children are more influenced by their parents wanting to spend time together, whereas older youth are less positively influenced by parental involvement because they are becoming more autonomous. Perhaps being *forced* to go to the movies with one's parents is not helpful to teenagers whereas being *allowed* to go to the movies with one's parents is helpful as a younger child. These data, however, do not allow us to examine the "why" behind time spent together, so we cannot know whether the respondent wanted the parent to be involved.

The current study had several advantages over previous work in this area. First, I was able to use nationally representative data, allowing for greater generalization of the results. Prior studies had sample limitations such as examining only high-risk youth, only male youth, or predominantly white youth. Second, the data used here were longitudinal in nature. This allowed me to analyze the data using cross-lag regressions. Cross-lag regressions permit the examination of change in the outcome over time by controlling for the outcome at a prior time period. In the case of the current study, I was able to examine the changes in parenting by controlling for prior parenting in each model; the same was true for examining changes in delinquency. Third, I included multiple measures of parenting and multiple measures of delinquency, allowing for a more thorough examination of the process between parents and adolescents in relation to delinquency using all the same data. Finally, I controlled for association with delinquent peers which, given its strong relationship with both delinquency and parenting, is an important and necessary control that many prior studies of the reciprocal relationship between parenting and delinquency have lacked.

Limitations

Although the current study has many strengths, several limitations must also be addressed. First, The National Longitudinal Study of Adolescent Health is a nationally representative longitudinal study of youth who were in the 7th through 12th grade in the 1994-1995 school year. The sample of youth who participated in both waves is large, at over 13,000, but the time lapse between waves is only one year. One of the key limitations of this data for the study of family and delinquency processes is the lack of long-term data. The respondents are not surveyed in the pre-secondary school years, preventing this study from examining childhood factors related to parenting and adolescent delinquency. Additionally, multiple waves of measurement would be needed to fully characterize transactional developmental effects as they unfold over time. The youth included in this sample consist of those who were at school on the day of the survey, potentially leaving out more delinquent youth who either skipped school that day or do not attend regular school due to behavioral issues or incarceration. Finally, though longitudinal data and lagged effects are used, this study still cannot establish with certainty the causal direction between variables. Other variables not included here could be causing the various parenting behaviors and delinquency. This study can only show that the variables measured have (or, in some cases, do not have) significant lagged effects on the outcome being examined. Finally, as can be seen in Table 1 (Appendix C), there was not much variation in the key variables in this study, so

the ability to find significant effects may have also been limited. It is difficult to explain variation in variables that do not have much variation to be explained.

In addition to some sample limitations, there are also measurement limitations. There are two key groups of variables in this study: parenting behaviors and delinquent behaviors, each with its own limitations. Parental attachment, parental monitoring, and parental involvement are all self-reported by the youth, as is delinquency. Data from independent sources (e.g. parents answering parenting questions and youth answering delinquency questions) would be preferable. One key limitation of this study is the measure of parental attachment. Because the available data for both waves include only youth responses regarding parental attachment, what the scale truly measures is perceived parental attachment. The youth are answering the questions regarding parent-adolescent closeness, parent-adolescent communication, etc. from their point of view. Parents may have a different point of view concerning the state of the relationship, though the small test run in the current study does not indicate that this is the case. A model of parental attachment predicting delinquency was run using a parental attachment scale created using parent responses, and the results were the same: parental attachment is significantly negatively associated with delinquency¹¹. In addition, the survey items available for measuring monitoring do not contain two of the most common questions generally included in monitoring scales: do parents know where adolescents are when they are not at home, and do parents know who adolescents are with when not at home. These two questions would provide additional

¹¹ The child response for parental attachment and the parent response for parental attachment are significantly correlated, but the correlation coefficient is low and negative (-0.159).

strength to the monitoring scale as they represent monitoring that occurs outside of the home, which may be more relevant to the delinquent behavior of older youth.

The delinquency measures have limitations that are common among all self-report delinquency measures. Nonserious delinquency dominates the delinquency questions in the survey, though there are some more serious behaviors in the scale (e.g. pulling a gun or knife on someone, shooting or stabbing someone). This means that, for the most part, the models will reflect the association between parenting and minor delinquency. Also, some of the survey questions are fairly broad (e.g. have you ever taken something from a store without paying for it), where the seriousness level for each individual answer is unknown, and the response sets are truncated. Specifically, the answer choices for most of the delinquency measures, prior to being dichotomized, are something similar to “never,” “once,” and “more than once.”

Finally, as with all self-report measures, there are concerns over respondents’ bias due to image control, deliberate falsification, unclear questions, inaccurate recall, and forward and backward telescoping. If respondents are not recalling their delinquent behavior accurately, are misrepresenting their relationships with their parents, or are marking answers about behaviors and attitudes that actually occurred outside the time frame of the questions, then there are concerns about the accuracy of the change over time.

Implications for the Social Bonds Framework

Using a nationally representative, longitudinal data set of youth, the current study demonstrates the importance of considering bidirectional relationships between perceived parenting behaviors and self-reported delinquency or between measures of parenting and measures of delinquency that are widely used to test social bonds theory. The social bonds framework has enjoyed a long history of empirical support and theoretical discussions, but the evidence from my analysis calls into question prior research claiming to support the social bonds framework, when bidirectional effects were not considered. The findings of prior cross-sectional research could be supportive of either a parent effect *or* a child effect. The evidence is mounting that the social bonds framework is incomplete and suffers from a fundamental measurement problem. Efforts to conduct better empirical tests of social bonds theory must address the issue of reciprocal/bidirectional influences in order to more accurately claim support of the theory. This study supports the conclusion that the assumption of unidirectional effects between parents and adolescents within the social bonds framework is an inaccurate picture of how this process works, and brings into question prior cross-sectional research claiming to support the social bonds framework.

By implication, moreover, social bonds theory may need to take into account possible parent-adolescent reciprocal influences in the development of delinquent behavior. As currently stated, the social bonds framework is incomplete. Parents and adolescents are indeed involved in a dynamic, interactive relationship comprised of both parent and adolescent effects, as proposed forty years ago by Bell (1968) and Thomas,

Chess, and Birch (1968). Criminological theories, especially those that fit within the social bonds framework, need to take this into account when attempting to explain what causes (or controls) delinquency in youth. Future studies of the relationship between parents and delinquent behavior should investigate bidirectional effects.

Directions for Future Research

Empirical Implications

From an empirical standpoint, and in light of the findings and limitations of the current study, future studies are needed that examine more than two waves and that includes a broader range of ages of youth. This would allow us to understand how the bidirectional relationship between parenting and delinquency changes as children age, so that we may better understand relative importance of parent and child effects as children develop. In addition, examining multiple waves of data would provide a better understanding of the influence of peers in the parenting-delinquency relationship throughout childhood and adolescence. Inclusion of young adults may also be of interest so that in the future we can test how and when this process shifts away from parental influence and toward other forms of informal social control.

In addition, future studies should include more exhaustive measures of parental behaviors and include multiple sources of data collection. Scales of parental behaviors would benefit from having not just adolescents responding to the survey items but parents as well; in fact, future studies should also examine mother and father effects separately to see if the process is specific to one parent or if it describes “parents’ in

general. Future studies must also include delinquent peer associations as a variable of focus because of the strength of the relationship between delinquent peers and delinquency, as well as the potential detrimental effects delinquent peers may have on parental influence. The current study found that delinquent peers mediate the effect of delinquency on parental monitoring, providing evidence that this issue must be studied further if we are to fully understand this process. We know that delinquent peers are important and that the parent-adolescent relationship does not exist in isolation; just as family context is important, as found here in the moderating effects of race, so also is the youth's peer context an important consideration.

Finally, future research should test whether these bidirectional influences are truly lagged or whether they might be instantaneous. For the current study, I made the assumption that the effects of parents on adolescents and adolescents on parents would be lagged, as it seems that the parent-child relationship is something that develops over time, rather than instantaneously. However, it is possible that there are also instantaneous effects, or that one of the directions of effects – parent or adolescent – may be lagged while the other is instantaneous. Perhaps for parents, their adolescent's pattern of behavior is what influences their parenting decisions, in which case a lag of approximately one year might be reasonable, however it may be that youth react to current (instantaneous) parental behaviors, rather than reacting to the pattern of their parent's behavior. For youth, it may be more instantaneous; if a parent increases the harshness of the household rules in reaction to the behavior of the adolescent, whether it is to a pattern of delinquent behavior or current delinquent

behavior, the adolescent may very well react to that change instantly, acting out in anger, frustration, or strain. Future research should test for these different possibilities.

Theoretical Implications

Most importantly, future studies should further address the serious measurement issue within the social bonds framework as document in the current study, in addition to examining both parent and adolescent effects as just discussed. The current study suggests that both parents and adolescents influence the processes that culminate in delinquency, a possibility not considered in the social bonds framework as it is currently formulated.

Building on Liska and Reed (1985), the current study examined the bidirectional relationship between parenting and delinquency using a large, nationally representative, longitudinal study of youth. The key theoretical implication is that the social bonds framework, including social control theories, is inherently flawed in that it does not allow for the possibility of a bidirectional relationship. This is fundamentally a measurement issue that must be addressed. Future research must build on the current study in ways that advance our understanding of the empirical status of social bonds theory, as the current study calls into question the blanket support of the theory concluded by studies that did not take into account child effects. As based on the results of the current analysis, criminologists face a serious dilemma regarding what many see as a major, if not *the* major, theory of delinquency. This study shows that parents and adolescents are in a dynamic, interactive relationship and that failure to

consider the possibility of both parent and adolescent effects limits our understanding of this important developmental process and results in false support of a major criminological theory.

Liska and Reed (1985:559) ended their study by stating that “it is all too clear that the causal structure underlying the relationship between social attachment and delinquency is not as simple as implied in theories of social control.” The current study was undertaken to address this statement, as well as limitations of prior criminological research on the reciprocal relationship between parenting and delinquency, and to examine the consequences of a fundamental measurement problem within the social bonds framework. The main problem addressed in the current study is a fundamental measurement problem of social bonds theory. The results of the current study present a major challenge to the field of criminology, that prior tests of social bonds theory are inherently flawed, calling into question the empirical status of the theory. Building on the current study, future research must conduct more appropriate analyses of the theory and address the empirical difficulty that faces one of , if not the, major criminological theories of today.

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APPENDIX A

Reciprocal Effects Literature Review, Criminological Research Studies Only

Study	Sample	Outcome / Parenting	Method	Findings	Limitations
Liska & Reed (1985) <i>ASR</i>	N = 1886 10 th graders males only Youth in Transition	Delinquency / parental attachment	OLS crosslag and structural equation modeling	Find that the effects of delinquency and attachment are reciprocal	Problems generalizing to population of black adolescents; no females
Agnew (1991) <i>J. of R. in Crime & Del.</i>	N = 1725 Ages 11-17 NYS	General, minor, and serious delinquency / parental attachment	Structural equation modeling	Parental attachment has trivial indirect effect on delinquency through commitment to school; delinquency did not affect parental attachment	No lagged effects in the model; only one aspect of parenting measured; 2 years between waves
Thornberry, Lizotte, Krohn, Farnworth, & Jang (1991) <i>J. of Crim. Law & Criminology</i>	N = 867 7 th -8 th graders high risk sample Rochester Youth	Delinquency / attachment to parents	Covariance structural model	Weakened bonds to family and school cause delinquency; delinquent behavior further attenuates the bonds to family and school (however, the impact of parents on delinquency weakens over time until the relationship is unidirectional)	Not nationally representative; only one parenting variable
Jang & Smith (1997) <i>J. of R. in Crime & Del.</i>	N = 838 7 th -8 th graders high risk Rochester Youth	Delinquency / parental supervision and affective ties to parents	Structural equation modeling	Delinquency and parental supervision are reciprocally related; affective ties are a consequence of delinquency, not a cause (child effects)	Not nationally representative
Stewart, Simons, Conger, & Scaramella (2002) <i>J. of R. in Crime</i>	N = 407 7 th graders white, two-parent	Delinquency / harsh parenting, harsh discipline, and poor	Structural equation modeling	Delinquency and parenting problems are reciprocally	Small sample; all white, two-parent families

<i>and Del.</i>	Iowa Youth	supervision		related; parenting is mediated by legal sanctions	
Laird, Pettit, Bates, & Dodge (2003) <i>Child Development</i>	N = 396 9 th graders Tennessee and Indiana	Delinquency / parents' monitoring-relevant knowledge	Latent growth curve modeling and structural equation modeling	Knowledge was negatively correlated with delinquency; low levels of knowledge predicted increases in delinquency, and high levels of delinquency predict decreases in knowledge (reciprocal)	Small sample, not nationally representative
Buist, Dekovic, Meeus, & Van Aken (2004) <i>J. of Adolescence</i>	N = 288 Ages 11-15 2-parent families, middle class Dutch	Internalizing and externalizing problem behavior / parental attachment	Structural equation modeling	Reciprocal effects were found between both attachment and internalizing behavior, and attachment and externalizing behavior	Small sample, respondents came from well-functioning, 2-parent families; only 2 indicators of each type of problem behavior
Coley & Medeiros (2007) <i>Child Dev.</i>	N = 647 Ages 10-14 Minority, low-income	Delinquency / nonresident father involvement	Lagged OLS regression models with time-varying predictors, and individual fixed-effects regression models	Nonresident father involvement predicts delinquency; delinquency did not predict changes in father involvement	No measures of specific parental behaviors; fathers only; not nationally representative
Hawkins, Amato, & King (2007) <i>ASR</i>	N = 3394 7 th -12 th graders Add Health	Adolescent well-being (externalizing and internalizing problems, and academic achievement/ nonresident father involvement)	Mplus, simultaneous structural equation modeling	Results support a child effects model but not a father effects model	Standard limitations of Add Health data

APPENDIX B

Reciprocal Effects Literature Review, not Including Criminological Research

Study	Sample	Outcome / Parenting	Method	Findings	Limitations
Felson & Zielinski (1989) <i>J. of Marriage & Family</i>	N = 338 4 th -7 th graders Mostly white, middle-to upper-class	Self-esteem / parental support	Lagged multiple regression	Parents' supportive behavior affects self-esteem; self-esteem also affects perceptions of parental support	Small sample; not nationally representative
Vuchinich, Bank, & Patterson (1992) <i>Developmental Psych.</i>	N = 206 Ages 9-12 All boys, white, from high risk neighborhoods	Antisocial behavior / parental discipline	Structural equation modeling	Antisocial behavior had a concurrent negative effect on parental discipline; evidence of a reciprocal relationship was also found	Disadvantaged sample; small sample; no females; 2 years between waves; only white respondents
Stice & Barrera (1995) <i>Developmental Psych.</i>	N = 441 Ages 10-15 White/Hispanic, ½ of parents alcoholics	Substance use and externalizing behaviors / parental support and control	Covariance structural modeling	Full reciprocal relations between substance use and parental support and control; parenting not related to externalizing symptoms, but externalizing symptoms affected parenting	Not nationally representative
Reuter & Conger (1998) <i>Developmental Psych.</i>	N = 451 7 th graders Iowa Youth White, rural, 2-parent homes, lower-mid to mid SES	Problem-solving behavior / parent-child interaction	Structural equation modeling	When both parent and youth exhibited ineffective, coercive behavior, reciprocal influences were found; when parents were nurturant and youth was belligerent, reciprocal influences	Not nationally representative; measures had only modest reliability

				found	
Brody & Ge (2001) <i>J. of Family Psych.</i>	N = 120 12 years old all white, 2-parent families	Self-regulation / mothers' and fathers' nurturant-responsive parenting, and mothers' and fathers' harsh-conflict parenting	Structural equation modeling	Harsh-conflict parenting affected self-regulation, and vice versa; nurturant- responsive parenting affected self- regulation concurrently, but there were no reciprocal or lagged effects for positive parenting	Small sample; not nationally representative
Pomerantz & Eaton (2001) <i>Developmental Psych.</i>	N = 166 4 th -6 th graders Illinois	Academic achievement / maternal intrusive support	Structural equation modeling	Children's low achievement elicits intrusive support; achievement improved over time with maternal intrusive support (reciprocal)	No fathers; small sample; maternal intrusive support measured only at one time period
Laird, Pettit, Dodge, & Bates (2003) <i>Social Development</i>	N = 426 9 th graders Tennessee and Indiana	Antisocial behavior / monitoring knowledge, parent- adolescent relationship, parental involvement, and parental lack of follow-through	HLM, latent growth curve modeling	Fewer antisocial behavior problems, and greater relationship enjoyment and involvement, were associated with greater concurrent monitoring knowledge; antisocial behavior problems reduce the quality of parent-child relationships; antisocial behavior did not predict decreases over time in	Reliance on adolescent report of parent knowledge; some of the lower SES sample did not provide sufficient data to be included; there were some inconsistencies in measurement

				monitoring knowledge	
Ream & Savin-Williams (2005) <i>J. of Family Psych.</i>	N = 10407 7 th -12 th graders Add Health	Sexual activity / parent-child interactions, parental closeness, and shared activities	Lagged regression	Increased problem-focused interactions and decreased parental closeness and shared activities both precede and follow adolescent sexual activity (reciprocal)	Self-report sexual histories are inaccurate, inconsistent, and systematically biased
Henrich, Brookmeyer, Shrier, & Shahar (2006) <i>J. of Pediatric Psych.</i>	N = 2655 Ages 15+ Only those sexually active Add Health	Sexual risk behavior / mother-child communication about sex and parent-child relationship	HLM, lagged regression	Communication affected sexual risk only for girls; small reciprocal effects of sexual risk behavior on parent-child relationship over time	Self-report sexual histories are inaccurate, inconsistent, and systematically biased
Huh, Tristan, Wade, & Stice (2006) <i>J. of Ad. Research</i>	N = 496 Ages 11-15 Girls only	Externalizing symptoms and substance abuse / parental support and control	Multiple regression plus path analysis	Problem behavior had an adverse effect on parenting; less support for parenting affecting problem behavior (parental control predicted substance abuse but not externalizing symptoms; parental support did not predict either)	Girls only; no separate measures for mother and father
Beaver & Wright (2007) <i>J. of Ad. Research</i>	N = 441 Ages 8-9 Boys only Working class 1960s and 1970s Cambridge	Antisocial lifestyle / family risk (includes parenting)	Structural equation modeling	Family risk has a limited effect on youth antisocial lifestyle; youth antisocial lifestyle, however, negatively affects family functioning	Only males during the 1960s; some measures had low reliabilities; used different indicators of family risk and antisocial behavior at each wave; examines only concurrent reciprocal effects (not lagged)

Roche, Ensminger, & Cherlin (2007) <i>J. of Family Issues</i>	N = 800 Ages 10-14 Black and Latino Low-income	Adolescent problem behavior / negative parenting, maternal involvement, and punitive parenting	Lagged regression models	Punitive parenting associated with delinquency and school problem behavior; maternal involvement associated with decreased depression; stakes of uninvolved and permissive parenting are greater in high risk neighborhoods	No reciprocal effects studied; not nationally representative; could not measure less enduring parental characteristics like monitoring and communication
Burke, Pardini, & Loeber (2008) <i>J. of Ab. Child Psych.</i>	N = 177 Age 7-17 All boys Clinical sample	ODD, CD, ADHD / timid discipline, communication, involvement, and supervision	Generalized estimating equation (GEE) transitional regression	Reciprocal relationship between timid discipline and ODD; ODD predicted poorer communication and decreased involvement; CD predicted poorer supervision; ADHD unrelated to parenting behaviors	Clinical sample, small sample, no females
Coley, Votruba-Drzal, & Schindler (2008) <i>J. of Ab. Child Psych.</i>	N = 3317 Ages 12-17 2-parent families NLSY97	Substance use / family activities, father and mother knowledge of friends and teachers	Multilevel growth models, with lagged variables	More positive family/parenting variables predicted lower substance use, and vice versa only for between-person results; within-person results found family/parent effects but not child effects	Not nationally representative because only examined 2-parent families
Dotterer, Hoffman, Crouter, & McHale (2008) <i>J. of Family Issues</i>	N = 168 8 th -10 th graders White, working- and middle-class families,	Academic achievement / parent-adolescent conflict	Cross lagged structural equation modeling	Conflict predicted declines in achievement; lower achievement	Not nationally representative, small sample

	dual-earner families			predicted increases in conflict, only among families with less education	
Fanti, Henrich, Brookmeyer, & Kuperminc (2008) <i>J. of Early Ad.</i>	N = 499 6 th -7 th graders New York	Psychological adjustment / parent-child relationship quality	Structural equation modeling	Reciprocal relationship between quality of parent-child relationship and internalizing problems; unidirectional effects from externalizing problems to quality of parent-child relationship with fathers, but from quality of parent-child relationship to externalizing problems with mothers	Standard problems with self-report and single source (most studies have this)
Hipwell, Keenan, Kasza, Loeber, Stouthamer-Loeber, & Bean (2008) <i>J. of Ab. Child Psych.</i>	N = 2451 Ages 7-12 Girls only Urban sample Pittsburgh Youth	CD, depression / parental punishment and warmth	Generalized estimating equation regression	Both parenting behaviors were uniquely predictive of changes in girls' CD and depressed mood; CD, but not depressed mood, predicted changes in harsh punishment over time	No males, not nationally representative
Lifford, Harold, & Thapar (2008) <i>J. of Ab. Child Psych.</i>	N = 194 Ages 11-13 2-parent families UK sample	ADHD / parent-child relationship	Cross-lagged panel correlation and reciprocal effects models	ADHD symptoms affected the mother-child relationship, but the father-child relationship affected ADHD symptoms	Significant difference in mother reports of ADHD for those who dropped out of the sample before wave 2; only two-parent families included
Sheehan & Watson (2008) <i>Aggressive Behavior</i>	N = 323 Ages 7-14 Springfield, MA	Aggression / maternal discipline	Structural equation modeling	Aggression predicted aggressive discipline (for blacks and	Only one measure for child aggression (ideally at least 2);

				Hispanics); aggressive discipline predicted aggression (stronger for whites)	small sample; not nationally representative
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Appendix C: Main Models

Table 1. Descriptive Statistics

Variable	Mean or Percentage	Standard Deviation	Range
Female	50.42%	-	0-1
Grades	2.806	0.319	1-4
Family Structure	64.93%	-	0-1
Age	14.823	0.596	12-17
Parent's Education	5.844	0.951	0-9
Race			
White	65.69%	-	0-1
Black	15.25%	-	0-1
Hispanic	11.85%	-	0-1
Other	6.77%	-	0-1
Delinquent Peers	2.336	1.074	0-9
Overall Delinquency, T1	1.360	0.748	0-11
Overall Delinquency, T2	1.057	0.684	0-10
Property Delinquency, T1	0.943	0.593	0-7
Property Delinquency, T2	0.753	0.543	0-7
Violent Delinquency, T1	36.67%	-	0-1
Violent Delinquency, T2	23.94%	-	0-1
Parental Attachment, T1	4.353	0.243	1-5
Parental Attachment, T2	4.246	0.250	1-5
Parental Monitoring, T1	4.160	0.566	0-6
Parental Monitoring, T2	4.493	0.561	0-6
Parental Involvement, T1	4.092	0.812	0-9
Parental Involvement, T2	4.103	0.822	0-9

Table 2. Bivariate Regression Models^a, Time 2 Outcomes Regressed on Time 1 Predictors

Variables	Overall Del.	Property Del.	Violent Del.
	b (s.e.)	b (s.e.)	b (s.e.)
Parent Effects Models			
Parental Attachment	-0.327*** (0.032)	-0.339*** (0.037)	-0.335*** (0.056)
Parental Monitoring	0.007 (0.013)	0.005 (0.015)	-0.017 (0.020)
Parental Involvement	-0.039*** (0.008)	-0.031** (0.010)	-0.067*** (0.014)
Variables	Attachment	Monitoring	Involvement
	b (s.e.)	b (s.e.)	b (s.e.)
Adolescent Effects Models			
Overall Delinquency	-0.064*** (0.004)	0.031* (0.013)	-0.126*** (0.013)
Property Delinquency	-0.080*** (0.005)	0.047** (0.015)	-0.128*** (0.015)
Violent Delinquency	-0.112*** (0.016)	-0.076 (0.048)	-0.433*** (0.050)

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

^a All coefficients are derived from separate regression models.

Table 3. Time 2 Delinquency Outcomes Regressed on Time 1 Parenting Predictors

Variables	Overall Del. b (s.e.)	Property Del. b (s.e.)	Violent Del. b (s.e.)
Parental Attachment Models	Model 1	Model 2	Model 3
<i>Attachment</i>	-0.129*** (0.028)	-0.125*** (0.033)	-0.180** (0.057)
Delinquency	0.276*** (0.010)	0.387*** (0.016)	1.460*** (0.071)
Female	-0.303*** (0.036)	-0.196*** (0.039)	-0.550*** (0.063)
Grades	-0.099*** (0.027)	-0.083** (0.031)	-0.288*** (0.048)
Two-Parent Family	-0.042 (0.037)	-0.028 (0.045)	-0.072 (0.069)
Age	-0.114*** (0.013)	-0.132*** (0.015)	-0.173*** (0.024)
Parent's Education	0.0002 (0.010)	0.010 (0.011)	-0.038** (0.014)
Race			
Hispanic	0.139* (0.060)	0.142* (0.068)	0.263** (0.101)
Black	-0.048 (0.059)	-0.176* (0.071)	0.135 (0.076)
Other	0.027 (0.079)	-0.047 (0.087)	0.309** (0.114)
Delinquent Peers	0.056*** (0.008)	0.040*** (0.008)	0.123*** (0.012)
Constant	2.024*** (0.266)	1.801*** (0.296)	2.740*** (0.522)
Parental Monitoring Models	Model 4	Model 5	Model 6
<i>Monitoring</i>	0.003 (0.013)	0.003 (0.017)	-0.007 (0.018)
Delinquency	0.282*** (0.010)	0.395*** (0.016)	1.475*** (0.070)
Female	-0.277*** (0.035)	-0.173*** (0.039)	-0.518*** (0.063)
Grades	-0.106*** (0.027)	-0.091** (0.032)	-0.298*** (0.049)
Two-Parent Family	-0.039 (0.037)	-0.026 (0.046)	-0.072 (0.070)
Age	-0.107*** (0.014)	-0.125*** (0.015)	-0.160*** (0.024)

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Parent's Education	0.0004 (0.010)	0.011 (0.011)	-0.037* (0.014)
Race			
Hispanic	0.137* (0.062)	0.140* (0.068)	0.266** (0.102)
Black	-0.056 (0.060)	-0.181** (0.072)	0.120 (0.076)
Other	0.034 (0.080)	-0.040 (0.088)	0.320** (0.113)
Delinquent Peers	0.059*** (0.008)	0.044*** (0.009)	0.130*** (0.012)
Constant	1.332*** (0.216)	1.134*** (0.237)	1.787*** (0.397)
Parental Involvement Model	Model 7	Model 8	Model 9
<i>Involvement</i>	0.005 (0.008)	0.007 (0.009)	0.012 (0.013)
Delinquency	0.282*** (0.010)	0.395*** (0.016)	1.474*** (0.070)
Female	-0.278*** (0.035)	-0.174*** (0.039)	-0.521*** (0.064)
Grades	-0.107*** (0.027)	-0.092** (0.032)	-0.303*** (0.049)
Two-Parent Family	-0.041 (0.036)	-0.028 (0.045)	-0.075 (0.069)
Age	-0.106*** (0.013)	-0.124*** (0.014)	-0.162*** (0.024)
Parent's Education	-0.0001 (0.010)	0.010 (0.011)	-0.038** (0.014)
Race			
Hispanic	0.136* (0.062)	0.140* (0.068)	0.268** (0.102)
Black	-0.056 (0.060)	-0.180* (0.071)	0.122 (0.076)
Other	0.034 (0.080)	-0.040 (0.088)	0.320** (0.113)
Delinquent Peers	0.060*** (0.008)	0.045*** (0.009)	0.130*** (0.012)
Constant	1.317*** (0.215)	1.114*** (0.238)	1.752*** (0.395)

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

Table 4. Time 2 Delinquency Outcomes Regressed on All Three Time 1 Parenting Measures

Variables	Overall Del.	Property Del.	Violent Del.
	b (s.e.)	b (s.e.)	b (s.e.)
<i>Parental Attachment</i>	-0.145 *** (0.031)	-0.142 *** (0.036)	-0.206 *** (0.060)
<i>Parental Monitoring</i>	0.002 (0.013)	0.002 (0.017)	-0.007 (0.018)
<i>Parental Involvement</i>	0.017 (0.009)	0.019 (0.010)	0.028 * (0.014)
Delinquency	0.275 *** (0.010)	0.386 *** (0.016)	1.456 *** (0.072)
Female	-0.312 *** (0.036)	-0.205 *** (0.039)	-0.564 *** (0.064)
Grades	-0.103 *** (0.027)	-0.088 ** (0.032)	-0.295 *** (0.049)
Two-Parent Family	-0.048 (0.037)	-0.034 (0.046)	-0.083 (0.070)
Age	-0.115 *** (0.014)	-0.133 *** (0.016)	-0.171 *** (0.025)
Parent's Education	-0.002 (0.010)	0.008 (0.011)	-0.042 ** (0.014)
Race			
Hispanic	0.140 * (0.061)	0.143 * (0.067)	0.262 ** (0.101)
Black	-0.044 (0.059)	-0.172 * (0.070)	0.137 (0.076)
Other Race	0.029 (0.079)	-0.046 (0.087)	0.312 ** (0.114)
Delinquent Peers	0.056 *** (0.008)	0.040 *** (0.009)	0.124 *** (0.012)
Constant	2.057 *** (0.268)	1.838 *** (0.299)	2.794 *** (0.525)

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

Table 5. Time 2 Parenting Outcomes Regressed on Time 1 Delinquency Predictors

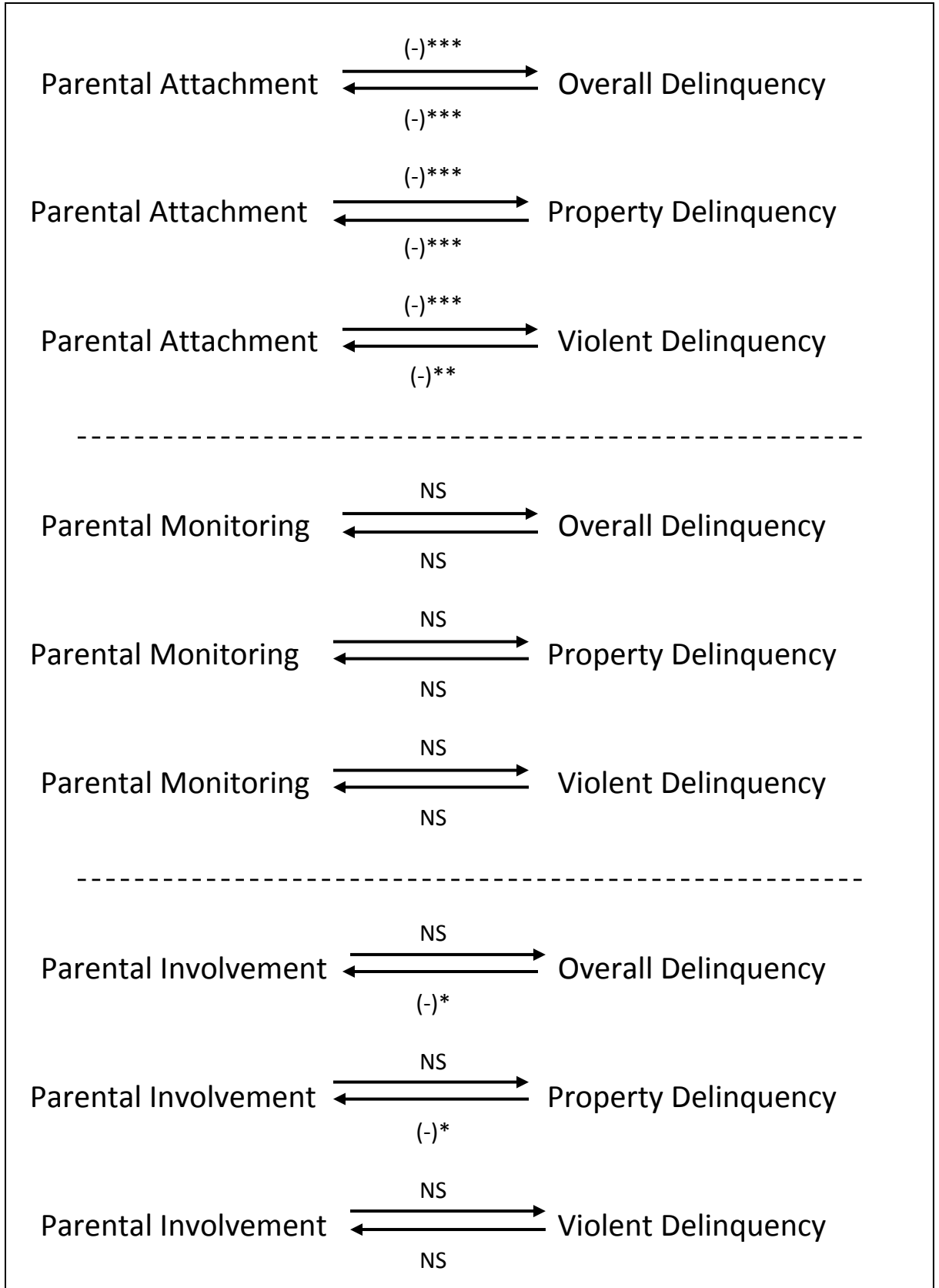
Variables	Attachment	Monitoring	Involvement
	b (s.e.)	b (s.e.)	b (s.e.)
Overall Delinquency Models	Model 10	Model 11	Model 12
<i>Overall Delinquency</i>	-0.019*** (0.004)	0.015 (0.011)	-0.023* (0.011)
Parenting	0.599*** (0.017)	0.400*** (0.014)	0.390*** (0.015)
Female	-0.064*** (0.013)	0.030 (0.037)	0.386*** (0.051)
Grades	0.025** (0.009)	0.077** (0.029)	0.247*** (0.032)
Two-Parent Family	-0.006 (0.015)	-0.176*** (0.037)	0.191*** (0.046)
Age	-0.001 (0.004)	0.170*** (0.014)	-0.110*** (0.020)
Parent's Education	-0.0001 (0.003)	0.023* (0.009)	0.079*** (0.012)
Race			
Hispanic	0.019 (0.023)	-0.281*** (0.075)	0.064 (0.069)
Black	0.057*** (0.015)	-0.155** (0.050)	-0.024 (0.076)
Other	-0.034 (0.026)	-0.179* (0.070)	-0.150 (0.102)
Delinquent Peers	-0.005 (0.003)	0.021* (0.008)	-0.016 (0.010)
Constant	1.658*** (0.113)	0.578** (0.210)	2.744*** (0.323)
Property Delinquency Models	Model 13	Model 14	Model 15
<i>Property Delinquency</i>	-0.027*** (0.005)	0.020 (0.014)	-0.025* (0.014)
Parenting	0.599*** (0.017)	0.400*** (0.014)	0.390*** (0.015)
Female	-0.061*** (0.012)	0.027 (0.036)	0.393*** (0.051)
Grades	0.026** (0.009)	0.076** (0.029)	0.250*** (0.032)
Two-Parent Family	-0.007 (0.015)	-0.176*** (0.037)	0.191*** (0.046)
Age	-0.001 (0.004)	0.170*** (0.014)	-0.109*** (0.020)

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Parent's Education	-0.0004 (0.003)	0.023* (0.009)	0.080*** (0.012)
Race			
Hispanic	0.017 (0.022)	-0.279*** (0.075)	0.060 (0.069)
Black	0.051*** (0.015)	-0.150** (0.051)	-0.031 (0.075)
Other	-0.034 (0.026)	-0.179* (0.070)	-0.151 (0.102)
Delinquent Peers	-0.005* (0.003)	0.021** (0.008)	-0.018 (0.010)
Constant	1.648*** (0.109)	0.590** (0.207)	2.715*** (0.325)
Violent Delinquency Models	Model 16	Model 17	Model 18
<i>Violent Delinquency</i>	-0.038** (0.013)	0.027 (0.038)	-0.051 (0.048)
Parenting	0.606*** (0.017)	0.401*** (0.014)	0.391*** (0.015)
Female	-0.058*** (0.013)	0.025 (0.035)	0.392*** (0.051)
Grades	0.027** (0.009)	0.075* (0.029)	0.249*** (0.032)
Two-Parent Family	-0.004 (0.015)	-0.178*** (0.037)	0.194*** (0.046)
Age	-0.000004 (0.004)	0.169*** (0.014)	-0.109*** (0.020)
Parent's Education	-0.002 (0.003)	0.024* (0.009)	0.078*** (0.012)
Race			
Hispanic	0.012 (0.023)	-0.275*** (0.075)	0.057 (0.068)
Black	0.058*** (0.016)	-0.155** (0.051)	-0.022 (0.075)
Other	-0.039 (0.026)	-0.175* (0.071)	-0.155 (0.102)
Delinquent Peers	-0.009** (0.003)	0.024** (0.007)	-0.021* (0.010)
Constant	1.601*** (0.115)	0.598** (0.210)	2.725*** (0.329)

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

Figure 1. Summary of Model Results



APPENDIX D

Table D1. Correlation Matrix of All Variables, Part 1

	Overall Del. T1	Overall Del. T2	Property Del. T1	Property Del. T2	Violent Del. T1	Violent Del. T2	Female	Grades	Two- Parent Family	Age	Parent's Education
Overall Del. T1	1										
Overall Del. T2	0.55	1									
Property Del. T1	0.94	0.52	1								
Property Del. T2	0.49	0.92	0.50	1							
Violent Del. T1	0.57	0.31	0.35	0.22	1						
Violent Del. T2	0.35	0.54	0.26	0.32	0.39	1					
Female	-0.18	-0.15	-0.13	-0.10	-0.19	-0.16	1				
Grades	-0.24	-0.18	-0.19	-0.12	-0.24	-0.21	0.14	1			
Two-Parent Family	-0.07	-0.04	-0.05	-0.02	-0.08	-0.06	-0.02	0.13	1		
Age	0.02	-0.03	0.02	-0.05	-0.05	-0.04	-0.04	-0.12	-0.03	1	
Parent's Education	-0.05	-0.03	-0.02	0.001	-0.12	-0.09	-0.03	0.26	0.16	-0.05	1
Attachment T1	-0.20	-0.13	-0.20	-0.12	-0.09	-0.07	-0.10	0.12	0.003	-0.18	0.04
Attachment T2	-0.17	-0.17	-0.17	-0.15	-0.09	-0.09	-0.09	0.10	0.002	-0.11	0.03
Monitoring T1	0.03	0.01	0.04	0.01	-0.03	-0.02	0.01	0.03	-0.03	0.27	0.05
Monitoring T2	0.04	0.03	0.05	0.02	-0.02	-0.004	0.01	0.02	-0.04	0.28	0.06
Involvement T1	-0.09	-0.06	-0.08	-0.04	-0.07	-0.06	0.10	0.19	0.11	-0.06	0.19
Involvement T2	-0.11	-0.05	-0.09	-0.03	-0.09	-0.06	0.15	0.21	0.12	-0.11	0.18
White	-0.06	-0.03	-0.03	0.0004	-0.11	-0.07	-0.004	0.14	0.21	-0.06	0.13
Hispanic	0.08	0.06	0.07	0.05	0.06	0.05	-0.01	-0.13	-0.02	0.07	-0.28
Black	-0.01	-0.02	-0.05	-0.06	0.10	0.05	0.03	-0.10	-0.23	-0.02	0.05
Other Race	0.02	0.01	0.03	0.01	-0.02	-0.01	-0.03	0.07	-0.02	0.05	0.07
Delinquent Peers	0.38	0.26	0.33	0.19	0.22	0.20	-0.02	-0.27	-0.06	0.25	-0.08

Table D1. Correlation Matrix of All Variables, Part 2

	Attach- ment T1	Attach- ment T2	Monitor- ing T1	Monitor- ing T2	Involve ment T1	Involve ment T2	White	Hispanic	Black	Other Race	Del. Peers
Overall Del. T1											
Overall Del. T2											
Property Del. T1											
Property Del. T2											
Violent Del. T1											
Violent Del. T2											
Female											
Grades											
Two-Parent Family											
Age											
Parent's Education											
Attachment T1	1										
Attachment T2	0.61	1									
Monitoring T1	-0.20	-0.06	1								
Monitoring T2	-0.13	-0.05	0.45	1							
Involvement T1	0.28	0.22	-0.03	-0.03	1						
Involvement T2	0.22	0.31	-0.04	-0.04	0.45	1					
White	0.01	-0.001	0.07	0.08	0.08	0.08	1				
Hispanic	-0.03	-0.03	-0.05	-0.05	-0.04	-0.04	-0.46	1			
Black	0.04	0.06	-0.03	-0.03	-0.02	-0.01	-0.55	-0.23	1		
Other Race	-0.03	-0.05	-0.01	-0.03	-0.04	-0.06	-0.34	-0.14	-0.17	1	
Delinquent Peers	-0.20	-0.17	0.14	0.14	-0.10	-0.12	0.08	0.01	-0.09	-0.03	1

Table D2. Descriptive Statistics Before and After Multiple Imputation

Variables	Before Imputation		After Imputation		Number Imputed
	Mean or Percentage	Standard Deviation	Mean or Percentage	Standard Deviation	
Female	50.97%	-	50.42%	-	0
Grades	2.83	0.77	2.81	0.32	293
Family Structure	66.39%	-	64.93%	-	0
Age	14.81	1.45	14.82	0.60	0
Parent's Education	5.90	2.29	5.84	0.95	566
Race					
White	65.69%	-	65.69%	-	0
Black	15.25%	-	15.25%	-	0
Hispanic	11.85%	-	11.85%	-	0
Other	6.77%	-	6.77%	-	0
Delinquent Peers	2.31	2.60	2.34	1.07	416
Overall Delinquency, T1	0.93	1.44	1.36	0.75	2732
Overall Delinquency, T2	0.66	1.23	1.06	0.68	2386
Property Delinquency, T1	0.91	1.45	0.94	0.59	144
Property Delinquency, T2	0.72	1.32	0.75	0.54	102
Violent Delinquency, T1	36.37%	-	36.67%	-	809
Violent Delinquency, T2	24.75%	-	23.94%	-	898
Parental Attachment, T1	4.36	0.59	4.35	0.24	104
Parental Attachment, T2	4.25	0.61	4.25	0.25	306
Parental Monitoring, T1	4.94	1.55	4.16	0.57	162
Parental Monitoring, T2	5.33	1.53	4.49	0.56	330
Parental Involvement, T1	4.11	1.98	4.09	0.81	110
Parental Involvement, T2	4.12	2.00	4.10	0.82	309

Table D3. Attachment on Overall Delinquency Models Before and After Multiple Imputation

Variables	Overall Del. b (s.e.)	Overall Del. b (s.e.)
Parental Attachment Models	Before Imputation	After Imputation
<i>Parental Attachment</i>	-0.150*** (0.041)	-0.129*** (0.028)
Delinquency	0.413*** (0.017)	0.276*** (0.010)
Female	-0.243*** (0.045)	-0.303*** (0.036)
Grades	-0.065 (0.040)	-0.099*** (0.027)
Two-Parent Family	-0.062 (0.059)	-0.042 (0.037)
Age	-0.054** (0.021)	-0.114*** (0.013)
Parent's Education	0.015 (0.013)	0.0002 (0.010)
Race		
Hispanic	0.041 (0.097)	0.139* (0.060)
Black	-0.151 (0.080)	-0.048 (0.059)
Other Race	-0.175 (0.096)	0.027 (0.079)
Delinquent Peers	0.034*** (0.010)	0.056*** (0.008)
Constant	0.639 (0.394)	2.024*** (0.266)

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

Table D4. Attachment on Property Delinquency Models Before and After Multiple Imputation

Variables	Property Del. b (s.e.)	Property Del. b (s.e.)
Parental Attachment Models	Before Imputation	After Imputation
<i>Parental Attachment</i>	-0.123*** (0.038)	-0.125*** (0.033)
Delinquency	0.403*** (0.017)	0.387*** (0.016)
Female	-0.190*** (0.042)	-0.196*** (0.039)
Grades	-0.094** (0.033)	-0.083** (0.031)
Two-Parent Family	-0.043 (0.050)	-0.028 (0.045)
Age	-0.127** (0.016)	-0.132*** (0.015)
Parent's Education	0.011 (0.012)	0.010 (0.011)
Race		
Hispanic	0.159* (0.073)	0.142* (0.068)
Black	-0.192** (0.072)	-0.176* (0.071)
Other Race	-0.090 (0.085)	-0.047 (0.087)
Delinquent Peers	0.038*** (0.008)	0.040*** (0.008)
Constant	1.752*** (0.325)	1.801*** (0.296)

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

Table D5. Attachment on Violent Delinquency Models Before and After Multiple Imputation

Variables	Violent Del. b (s.e.)	Violent Del. b (s.e.)
Parental Attachment Models	Before Imputation	After Imputation
<i>Parental Attachment</i>	-0.192** (0.065)	-0.180** (0.057)
Delinquency	1.907*** (0.076)	1.460*** (0.071)
Female	-0.628*** (0.074)	-0.550*** (0.063)
Grades	-0.236*** (0.053)	-0.288*** (0.048)
Two-Parent Family	-0.166* (0.077)	-0.072 (0.069)
Age	-0.140*** (0.029)	-0.173*** (0.024)
Parent's Education	-0.035* (0.017)	-0.038** (0.014)
Race		
Hispanic	0.243* (0.116)	0.263** (0.101)
Black	0.078 (0.090)	0.135 (0.076)
Other Race	0.250 (0.159)	0.309** (0.114)
Delinquent Peers	0.134*** (0.014)	0.123*** (0.012)
Constant	1.674** (0.625)	2.740*** (0.522)

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

Table D6. Delinquency on Attachment Models Before and After Multiple Imputation

Variables	Attachment	Attachment
	b	b
	(s.e.)	(s.e.)
Overall Delinquency Models	Before Imputation	After Imputation
<i>Overall Delinquency</i>	-0.033*** (0.006)	-0.019*** (0.004)
Attachment	0.616*** (0.021)	0.599*** (0.017)
Female	-0.043** (0.014)	-0.064*** (0.013)
Grades	0.023* (0.010)	0.025** (0.009)
Two-Parent Family	-0.003 (0.016)	-0.006 (0.015)
Age	-0.003 (0.005)	-0.001 (0.004)
Parent's Education	-0.001 (0.003)	-0.0001 (0.003)
Race		
Hispanic	-0.001 (0.027)	0.019 (0.023)
Black	0.055** (0.018)	0.057*** (0.015)
Other Race	-0.013 (0.028)	-0.034 (0.026)
Delinquent Peers	-0.004 (0.004)	-0.005 (0.003)
Constant	1.618*** (0.145)	1.658*** (0.113)
Property Delinquency Models	Before Imputation	After Imputation
<i>Property Delinquency</i>	-0.025*** (0.005)	-0.027*** (0.005)
Attachment	0.608*** (0.021)	0.599*** (0.017)
Female	-0.048*** (0.014)	-0.061*** (0.012)
Grades	0.023* (0.010)	0.026** (0.009)
Two-Parent Family	-0.005 (0.016)	-0.007 (0.015)
Age	-0.002 (0.005)	-0.001 (0.004)

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Parent's Education	-0.002 (0.003)	-0.0004 (0.003)
Race		
Hispanic	0.008 (0.026)	0.017 (0.022)
Black	0.067*** (0.016)	0.051*** (0.015)
Other Race	-0.029 (0.028)	-0.034 (0.026)
Delinquent Peers	-0.007* (0.003)	-0.005* (0.003)
Constant	1.640*** (0.132)	1.648*** (0.109)
Violent Delinquency Models	Before Imputation	After Imputation
<i>Violent Delinquency</i>	-0.048*** (0.016)	-0.038** (0.013)
Attachment	0.608*** (0.021)	0.606*** (0.017)
Female	-0.048*** (0.014)	-0.058*** (0.013)
Grades	0.023* (0.010)	0.027** (0.009)
Two-Parent Family	-0.005 (0.016)	-0.004 (0.015)
Age	-0.002 (0.005)	-0.000004 (0.004)
Parent's Education	-0.002 (0.003)	-0.002 (0.003)
Race		
Hispanic	0.008 (0.026)	0.012 (0.023)
Black	0.067*** (0.016)	0.058*** (0.016)
Other Race	-0.029 (0.028)	-0.039 (0.026)
Delinquent Peers	-0.007* (0.003)	-0.009** (0.003)
Constant	1.640*** (0.132)	1.601*** (0.115)

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

Table D7. Time 2 Minor Delinquency Regressed on Time 1 Parenting Measures

Variables	Vandalism	Joyriding
	b (s.e.)	b (s.e.)
Parental Attachment Models	Model 1	Model 2
<i>Parental Attachment</i>	-0.284*** (0.053)	-0.333*** (0.065)
Delinquency	1.611*** (0.075)	1.682*** (0.118)
Female	-0.621*** (0.079)	-0.229* (0.105)
Grades	0.046 (0.050)	-0.162* (0.069)
Two-Parent Family	0.039 (0.086)	-0.079 (0.112)
Age	-0.204*** (0.027)	-0.148*** (0.034)
Parent's Education	0.020 (0.021)	0.025 (0.023)
Race		
Hispanic	0.318** (0.115)	0.293 (0.156)
Black	-0.293** (0.114)	0.135 (0.143)
Other Race	-0.065 (0.150)	-0.097 (0.218)
Delinquent Peers	0.058*** (0.017)	0.074*** (0.018)
Constant	1.900*** (0.511)	1.038 (0.598)
Parental Monitoring Models	Model 3	Model 4
<i>Parental Monitoring</i>	0.053* (0.025)	-0.015 (0.035)
Delinquency	1.652*** (0.074)	1.719*** (0.120)
Female	-0.570*** (0.081)	-0.170 (0.106)
Grades	0.021 (0.051)	-0.183** (0.068)
Two-Parent Family	0.051 (0.085)	-0.072 (0.113)
Age	-0.203*** (0.027)	-0.123*** (0.037)

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Parent's Education	0.018 (0.021)	0.027 (0.023)
Race		
Hispanic	0.339** (0.116)	0.302 (0.156)
Black	-0.304** (0.115)	0.118 (0.144)
Other Race	-0.044 (0.150)	-0.086 (0.216)
Delinquent Peers	0.065*** (0.017)	0.087*** (0.018)
Constant	0.416 (0.448)	-0.714 (0.504)

Parental Involvement Models	Model 5	Model 6
<i>Parental Involvement</i>	0.018 (0.016)	-0.007 (0.025)
Delinquency	1.654*** (0.075)	1.716*** (0.118)
Female	-0.572*** (0.081)	-0.168 (0.106)
Grades	0.021 (0.051)	-0.183** (0.069)
Two-Parent Family	0.038 (0.084)	-0.068 (0.112)
Age	-0.185*** (0.027)	-0.127*** (0.036)
Parent's Education	0.018 (0.021)	0.028 (0.023)
Race		
Hispanic	0.325** (0.116)	0.305 (0.156)
Black	-0.308** (0.115)	0.118 (0.144)
Other Race	-0.048 (0.150)	-0.085 (0.218)
Delinquent Peers	0.069*** (0.017)	0.086*** (0.018)
Constant	0.350 (0.448)	-0.690 (0.493)

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

Table D8. Time 2 Moderate Delinquency Regressed on Time 1 Parenting Measures

Variables	Theft > \$50	Drug Sales
	b (s.e.)	B (s.e.)
Parental Attachment Models	Model 7	Model 8
<i>Parental Attachment</i>	-0.190* (0.096)	-0.232** (0.087)
Delinquency	1.828*** (0.168)	2.006*** (0.158)
Female	-0.535*** (0.109)	-0.893*** (0.107)
Grades	-0.306*** (0.089)	-0.123 (0.075)
Two-Parent Family	-0.350** (0.128)	-0.113 (0.109)
Age	-0.116* (0.045)	-0.018 (0.037)
Parent's Education	0.022 (0.032)	0.017 (0.030)
Race		
Hispanic	0.197 (0.164)	0.233 (0.159)
Black	-0.474** (0.182)	0.067 (0.153)
Other Race	0.129 (0.234)	0.332 (0.214)
Delinquent Peers	0.099*** (0.023)	0.210*** (0.024)
Constant	0.152 (0.853)	-1.688* (0.731)
Parental Monitoring Models	Model 9	Model 10
<i>Parental Monitoring</i>	-0.019 (0.041)	0.066 (0.046)
Delinquency	1.872*** (0.172)	2.030*** (0.158)
Female	-0.497*** (0.109)	-0.846*** (0.109)
Grades	-0.317*** (0.090)	-0.147 (0.075)
Two-Parent Family	-0.349** (0.128)	-0.097 (0.109)
Age	-0.099* (0.048)	-0.028 (0.040)
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Parent's Education	0.023 (0.032)	0.016 (0.030)
Race		
Hispanic	0.192 (0.164)	0.239 (0.162)
Black	-0.492** (0.185)	0.053 (0.156)
Other Race	0.134 (0.234)	0.350 (0.210)
Delinquent Peers	0.106*** (0.022)	0.214*** (0.023)
Constant	-0.833 (0.744)	-2.841*** (0.599)
Parental Involvement Models	Model 11	Model 12
<i>Parental Involvement</i>	-0.024 (0.031)	0.017 (0.027)
Delinquency	1.864*** (0.171)	2.041*** (0.157)
Female	-0.490*** (0.110)	-0.851*** (0.112)
Grades	-0.312*** (0.089)	-0.143 (0.078)
Two-Parent Family	-0.340** (0.126)	-0.113 (0.109)
Age	-0.107* (0.045)	-0.007 (0.036)
Parent's Education	0.026 (0.032)	0.017 (0.031)
Race		
Hispanic	0.198 (0.165)	0.227 (0.161)
Black	-0.492** (0.185)	0.048 (0.155)
Other Race	0.133 (0.235)	0.343 (0.211)
Delinquent Peers	0.105*** (0.022)	0.217*** (0.023)
Constant	-0.751 (0.738)	-2.898*** (0.581)

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

Table D9. Time 2 Serious Delinquency Regressed on Time 1 Parenting Measures

Variables	Robbery	Pull a Gun/Knife	Fighting
	b (s.e.)	b (s.e.)	B (s.e.)
Parental Attachment Models	Model 13	Model 14	Model 15
<i>Parental Attachment</i>	-0.381*** (0.110)	-0.306*** (0.089)	-0.172** (0.061)
Delinquency	1.766*** (0.191)	1.922*** (0.156)	1.582*** (0.071)
Female	-0.565*** (0.136)	-1.111*** (0.155)	-0.615*** (0.075)
Grades	-0.233 (0.109)	-0.384*** (0.081)	-0.174*** (0.047)
Two-Parent Family	-0.151* (0.124)	0.038 (0.139)	-0.082 (0.072)
Age	-0.133* (0.054)	-0.117* (0.046)	-0.128*** (0.024)
Parent's Education	-0.013 (0.035)	-0.014 (0.030)	-0.028 (0.015)
Race			
Hispanic	0.529* (0.226)	0.609** (0.194)	0.220* (0.099)
Black	0.620** (0.195)	0.937*** (0.156)	0.043 (0.094)
Other Race	0.653* (0.278)	0.140 (0.257)	0.184 (0.142)
Delinquent Peers	0.128*** (0.027)	0.171*** (0.027)	0.127*** (0.013)
Constant	0.472 (0.970)	0.388 (0.753)	1.119* (0.558)
Parental Monitoring Models	Model 16	Model 17	Model 18
<i>Parental Monitoring</i>	-0.037 (0.052)	-0.012 (0.048)	0.022 (0.027)
Delinquency	1.820*** (0.187)	1.966*** (0.159)	1.596*** (0.071)
Female	-0.486*** (0.133)	-1.044*** (0.152)	-0.583*** (0.071)
Grades	-0.259* (0.110)	-0.405*** (0.083)	-0.187*** (0.048)
Two-Parent Family	-0.156 (0.122)	0.038 (0.140)	-0.077 (0.072)
Age	-0.100 (0.056)	-0.096* (0.047)	-0.124*** (0.025)

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Parent's Education	-0.007 (0.035)	-0.011 (0.031)	-0.027 (0.016)
Race			
Hispanic	0.521* (0.226)	0.601** (0.193)	0.230* (0.101)
Black	0.581** (0.195)	0.901*** (0.157)	0.032 (0.092)
Other Race	0.662* (0.275)	0.144 (0.258)	0.195 (0.141)
Delinquent Peers	0.144*** (0.028)	0.180*** (0.027)	0.131*** (0.013)
Constant	-1.488* (0.725)	-1.178 (0.628)	0.209 (0.404)
Parental Involvement Models	Model 19	Model 20	Model 21
<i>Parental Involvement</i>	-0.023 (0.034)	-0.022 (0.036)	0.010 (0.016)
Delinquency	1.815*** (0.185)	1.960*** (0.156)	1.595*** (0.071)
Female	-0.480*** (0.135)	-1.037*** (0.153)	-0.586*** (0.072)
Grades	-0.255* (0.109)	-0.400*** (0.083)	-0.187*** (0.048)
Two-Parent Family	-0.145 (0.125)	0.046 (0.138)	-0.084 (0.072)
Age	-0.113* (0.052)	-0.101* (0.047)	-0.117*** (0.024)
Parent's Education	-0.006 (0.035)	-0.009 (0.031)	-0.027 (0.016)
Race			
Hispanic	0.529* (0.226)	0.604** (0.194)	0.225* (0.100)
Black	0.584** (0.193)	0.904*** (0.155)	0.030 (0.094)
Other Race	0.662* (0.275)	0.145 (0.259)	0.194 (0.142)
Delinquent Peers	0.141*** (0.028)	0.179*** (0.027)	0.133*** (0.013)
Constant	-1.409* (0.711)	-1.101 (0.642)	0.179 (0.404)

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

Table D10. Time 2 Delinquency Regressed on Monitoring, with Age Interaction

Variables	Overall Del.	Property Del.	Violent Del.
	b (s.e.)	b (s.e.)	B (s.e.)
Parental Monitoring	0.300** (0.112)	0.349* (0.136)	0.426* (0.197)
<i>Parental Monitoring * Age</i>	-0.020** (0.008)	-0.024* (0.009)	-0.029* (0.013)
Delinquency	0.281*** (0.010)	0.394*** (0.016)	1.491*** (0.076)
Female	-0.278*** (0.035)	-0.172*** (0.039)	-0.528*** (0.060)
Grades	-0.107*** (0.027)	-0.092** (0.032)	-0.298*** (0.049)
Two-Parent Family	-0.041 (0.037)	-0.028 (0.046)	-0.073 (0.071)
Age	-0.007 (0.039)	-0.009 (0.049)	-0.018 (0.065)
Parent's Education	0.008 (0.010)	0.011 (0.012)	-0.037* (0.014)
Race			
Hispanic	0.137* (0.061)	0.142* (0.068)	0.257* (0.103)
Black	-0.055 (0.061)	-0.181* (0.072)	0.110 (0.075)
Other Race	0.026 (0.078)	-0.049 (0.087)	0.302** (0.113)
Delinquent Peers	0.060*** (0.007)	0.045*** (0.009)	0.129*** (0.012)
Constant	-0.115 (0.589)	-0.562 (0.739)	-0.325 (0.981)

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

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