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PARENT-CHILD MUTUAL AFFECT AND FRIENDSHIPS DURING MIDDLE
CHILDHOOD AS PREDICTORS OF ADOLESCENT DEVIANT BEHAVIOR

A Thesis in

Psychology

by

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ABSTRACT

The current study examined how parent-child positive mutual affect, deviant friends, and friendship quality during middle childhood relates to levels of deviance during adolescence. Existing theoretical and empirical research suggests that the link between parent-child mutual affect and deviant behavior during adolescence may be mediated by children's selection of deviant friends during middle school. The current study, framed by social bond theory, examines whether children with high friendship quality may be less susceptible to the influence of a deviant friend. This study used a subsample of participants ($n = 500$) from the NICHD Study of Early Childcare Youth Development dataset. The results indicate that parent-child positive mutual affect during 5th grade is related to the levels of deviance exhibited by children and their best friends during 6th grade. Additionally, best friend's level of deviance during 6th grade was also related to study child's level of deviance at age 15. Friendship quality was unrelated to any study variables. Implications of these findings are discussed.

TABLE OF CONTENTS

LIST OF FIGURES	v
LIST OF TABLES.....	vi
Chapter 1. INTRODUCTION.....	1
Theories on Friends’ Influence on Adolescent Deviance.....	2
Social Bond Theory.....	5
Family Factors Related to Deviance	7
Parent-child Positive Mutual Affect	8
Links to Friend Selection.....	9
Links to Friendship Quality	10
Chapter 2. THE CURRENT STUDY	12
Research Aim I.....	12
Research Aim II.....	13
Research Aim III.....	14
Chapter 3. METHODS.....	15
Participants.....	15
Measures.....	16
Parent-child Positive Mutual Affect.....	16
Child’s Externalizing Behavior.....	17
Friendship Quality.....	18
Child Deviance.....	18
Adolescent Deviance.....	19
Chapter 4. RESULTS.....	20
Preliminary Analysis.....	20
Missing Data.....	20
Variable Transformations.....	20
Descriptive Statistics.....	21
Covariates.....	23
Path Analysis.....	24
Chapter 5 DISCUSSION.....	28
Chapter 6 CONCLUSION.....	35
Bibliography.....	36

LIST OF FIGURES

Figure 1: Path model for all study variables.	27
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LIST OF TABLES

Table 1: Mean scores and standard deviations for all study variables (n = 500).	22
Table 2: Correlations for all study variables.	23

Chapter 1

Introduction

Adolescence is a period of development that involves increasing autonomy and independence from parents. It is also a time where many adolescents seek out sensation and adventure (Zuckerman, 1994; Zuckerman, Eysenck, & Eysenck, 1978; Newcomb & McGee, 1991). Sensation-seeking behaviors may be related to the re-organization of the prefrontal cortex, an area of the brain associated with behavioral inhibition and moral reasoning (Yurgelun-Todd, 2007). Consequently, adolescents often participate in risky and impulsive behaviors that may be harmful to themselves and others, such as illicit drug use, misdemeanor crimes (e.g., vandalism), unprotected sex, and violence. Previous research indicates that these types of behaviors co-occur when adolescents endorse unconventionality (Jessor & Jessor, 1977; Donovan & Jessor, 1985; Farrell et al., 1992; Irwin & Millstein, 1992). Comorbidity of risky behaviors may increase the risk of detrimental consequences, such as physical impairment, legal consequences, and sexually transmitted diseases. Despite the potential negative ramifications of deviant behaviors, most adolescents view these types of behaviors as normative (Jessor & Jessor, 1977). Longitudinal research, however, has shown that levels of antisocial behavior during childhood remain relatively stable through adulthood (Loeber, 1982; Loeber, 1991). Therefore, examining the risk factors for deviance prior to high school can inform research on individuals' levels of problematic behavior throughout adolescence and young adulthood.

Developmental researchers have identified multiple risk factors for adolescent deviance. Levels of deviance can be accounted for by individual differences in psychobiology and their social environment. For example, adolescent twin studies reveal genetic contributions to a variety of deviant behaviors, including risky sexual behaviors, fighting, and destroying property (e.g., Stevenson & Graham, 1988; Rowe et al., 1989; Jacobson, Prescott, & Kendler, 2000; Feinberg et

al., 2007). Although genetic contribution to children's deviant behavior is important, it is also valuable to consider the environmental factors that interplay with genes to predict adolescent outcomes. For example, neighborhood characteristics, peer affiliation, classroom settings, and the home environment have been linked to levels of adolescent delinquent behaviors (e.g., Paetsch & Bertrand, 1997; Jang, 2006; Crooks et al., 2007). Therefore, the goal of the current study is to examine children's relationships with two important socialization agents, parents and friends, in an effort to determine which aspects of these relationships place children at risk for deviance during adolescence.

Theories on Friends' Influence on Adolescent Deviance

The ability to form and maintain harmonious friendships is considered to be an important developmental milestone during middle childhood, as it signifies the ability to develop meaningful relationships with others outside of the family (Sullivan, 1953). Furthermore, the absence of at least one friendship during middle childhood is linked to a wealth of adjustment problems during adulthood (Newcomb & Bagwell, 1996; Bagwell, Newcomb, & Bukowski, 1998; Bagwell, Schmidt, Newcomb, & Bukowski, 2001). There is some evidence, however, indicating that not all friendship experiences are positive for children's adjustment (Dishion, McCord, & Poulin, 1999; Berndt, 2002). Friends can be very influential and often provide socialization messages that endorse deviant behaviors, such as tobacco/alcohol use, aggression, and petty crime (e.g., theft, vandalism). Often, children's friends endorse risky behavior, and these messages may be at odds with parents' socialization goals and messages to avoid such behaviors (Hartup, 1996). Indeed, deviance researchers have cited the milieu of peer group affiliation and friend selection during late middle childhood (ages 11 -13) as

a “training ground” for the development of future deviant behavior because friends’ influence on behavior increases while parental influence begins to decrease (Patterson et al., 1984). Empirical research on deviant peers has demonstrated that having a deviant friend during middle childhood and early adolescence places children at risk for higher levels and more serious types of deviant behavior during late adolescence and early adulthood (Patterson, 1993; Tolan & Thomas, 1995; Loeber & Stouthamer-Loeber, 1986; Loeber, 1990; Agnew, 1991; Thornberry et al., 1994; Dishion & Owen, 2002). Thus, given that most children have at least one established friendship by the time they reach middle childhood, it may be important to understand which aspects of friendships and which personal characteristics of children and their friends are linked to a trajectory of increasing deviant behavior during the transition from middle childhood to adolescence.

One aspect of friendships that may be related to adolescent deviance is the quality of the friendships. In general, when children’s friendships have high levels of positive features and low levels of negative features, these friendships are regarded as high-quality (see Berndt, 1996, 2002). Typical positive features of friendship quality include prosocial behavior (e.g., helping, complimenting, sharing), intimate disclosure (e.g., sharing secrets), availability for companionship (i.e., the degree to which friends spend enjoyable time together), personal validation (i.e., mutual feelings of importance), loyalty, and good conflict management (Parker & Asher, 1993; Berndt, 2002). The negative features of friendship quality that are frequently examined include conflict, jealousy, rivalry, and betrayal (Berndt, 2002). However, examining specific friendship quality features in isolation may not provide a complete picture of the friendship, as this does not accurately depict how friendships are characterized. Thus, it is important to consider the balance between positive and negative features, in addition their frequency and intensity.

Research that has examined how friendship quality and friend's level of deviance operate together to influence adolescent deviance has produced inconsistent findings. Some evidence suggests that when children are involved in a high quality friendship that they are more likely to engage in higher levels of adolescent deviance when their friend is deviant (Dishion & Owen, 2002; Dishion, Nelson, Bullock, & Winter, 2004). This supports the deviancy training hypothesis (Dishion et al., 1995), which suggests that the process by which children are influenced by their deviant friends is through mutual acceptance of and satisfaction with antisocial behaviors. Mutual expression of joy when engaging in or discussing mischievous behavior may be an indicator of overall high friendship quality. In contrast, other evidence suggests that high friendship quality is a protective factor against adolescent deviance, even when children's friends are highly deviant (Poulin, Dishion, & Hass, 1999; Lansford, Criss, Pettit, Dodge, & Bates, 2002). Such evidence is consistent with social bond theory (also known as *social control theory*, Hirschi, 1969), which suggests that children who lack social bonds to conventional socialization agents (e.g., parents, teachers, friends, etc.) are at risk for high levels of deviant behavior. Additionally, some researchers have been unable to replicate any interaction effect between friendship quality and friend's deviance (Selfhout, Branje, & Meeus, 2008). Overall, it is difficult to draw conclusions on how childhood friendship quality and children's association with deviant friends operate together to influence risky behaviors during adolescence. Understanding the relation between friend characteristics and friendship quality might help researchers identify which children are at-risk for deviant behavior trajectories throughout adolescence.

Social Bond Theory

According to social bond theory, adolescents who have strong social bonds to their friends and family are less likely to engage in delinquent behaviors that create tension in the social relationships that are important to them. For instance, to avoid upsetting their friend, a child may avoid physical fights with other peers with whom their friend likes. Additionally, the consequences of deviant behavior, rather than the behavior itself, may negatively impact friendships. For example, a child may be deterred from smoking at school because going to detention after school may keep them from spending time with their friends. These scenarios, however, may not characterize children whose friends endorse deviant behavior. Social bond theory argues that friends who are highly deviant do not constrain children's deviance, but instead, potentiate deviant behavior (Krohn & Massey, 1980). However, aside from relatively minor rule-breaking behavior that is normative among children during middle school, attachment to friends appears to be a protective factor against serious deviant behaviors, although this effect may be moderated by friends' level of deviant behavior. Some evidence supports the notion that children who have high friendship quality engage in fewer deviant behaviors compared to those who have low friendship quality (Lansford et al., 2002; Poulin et al., 1999). Therefore, it may be the case that strong social bonds with friends constrict adolescents' delinquent behavior.

However, there is other research that has found that high friendship quality can be a risk factor, rather than a protective factor as posited by social bond theory (Dishion, Capaldi, Spracklen, & Li, 1995). According to the deviancy training hypothesis, children who build their friendships around a mutual acceptance of deviant behavior are more susceptible to the influence of deviant socialization from their friend, which has enduring effects during adolescence. The deviancy training hypothesis examines how dyadic processes that occur during children's

friendship interactions predict adolescent deviance (Dishion et al., 1995; Granic & Dishion, 2003; Granic & Patterson, 2006). Generally, two features of friendship interactions are examined from the deviancy training perspective: positive mutual affect and deviant talk. Positive mutual affect reflects the interactional style of the dyad in which mutual responsiveness, expression of joy, coordination, and relatively equal levels of interest and engagement between friends indicate a highly positive mutual affective state (Harrist & Waugh, 2002). In addition to mutual affect, children are coded for deviant talk, which involves the discussion of previous deviant acts children committed together or the planning of future deviant acts. To obtain a score of deviancy training, deviant talk is examined concurrently with mutual affect while children are interacting with each other and engaging in discussion. When children exhibit high levels of positive mutual affect while engaging in deviant talk, they are more likely to exhibit high levels of deviant behaviors during adolescence or young adulthood (Dishion et al., 1999; Dishion & Owen, 2002; Piehler & Dishion, 2007; Dishion, et al., 2004; Snyder et al., 2005). Within the friendship literature, positive mutual affect is generally considered a positive aspect of friendship quality. If it is believed to represent one aspect of high friendship quality, then one way to interpret the results of the body of deviancy training research is that high friendship quality is actually a *risk factor* for adolescent deviance when engaged in a friendship with a deviant peer.

Whether friendship quality is a risk factor or protective factor may differ depending on how friendship quality is measured. Deviancy training hypothesis focuses primarily on one aspect of friendship quality, positive mutual affect, whereas social bond theory research has examined relationship quality with peers in a variety of ways (Krohn & Massey, 1980; Agnew, 1985, 1991; Paetch & Bertrand, 1997). The current study proposes that it is the

overall quality of friendship, rather than one particular dimension of friendship quality, that serves as a protective factor against risky behaviors.

Family Factors Related to Deviance

The trait-confluence model of adolescent deviance (Stoolmiller, 1994) takes a family systems approach to understanding how early parent-child relationships affect children's peer affiliation during middle school. Early delinquent peer affiliation in turn affects delinquent behaviors during adolescence. The model proposes that children who have difficulties with their parents during early childhood may be on a trajectory for engaging in high levels of deviance during adolescence and receiving less parental guidance on their behavior. If children have poor-quality relationships with their parents at an early age, then this may result in children rejecting their parents during middle childhood and push them prematurely towards their friends as their primary source of social support (Dishion & McMahon, 1998; Laird, Pettit, Bates, & Dodge, 1993). In a process coined "wandering," these children often befriend highly antisocial peers (Stoolmiller, 1994). Children who wander towards antisocial peers may in turn influence their parents to emotionally disengage from them and "give up" on trying to steer their children towards other less anti-social activities. Without parental guidance, adolescents' antisocial behavior may remain at high levels.

In addition to problematic behavior during adolescence, children's family relationships are generally considered important for multiple developmental outcomes. A family systems perspective is effective for organizing the research on family risk factors for children's deviance. It proposes that a family is composed of a hierarchy of relational subsystems (Minuchin, 1985; Cox & Paley, 1997). These relational subsystems can be dyadic (e.g., parent-child, sibling-sibling, mother-father) or include multiple members of the family. Research suggests that

characteristics of dyadic subsystems, particularly aspects of the parent-child relationship, are associated with a variety of children's developmental outcomes (Brody, Stoneman, & McCoy, 1994; Volling, McElwain, Notaro, & Herrera, 2002; Kochanska, Aksan, Prisco, & Adams, 2008; DuBois, Eitel, & Felner, 2004). Overall, by taking a family systems perspective, we acknowledge that children have simultaneous relationships with multiple family members (Minuchin, 1985), and that to fully understand how characteristics of family relationships are associated with children's outcomes, it is more informative to examine multiple subsystems within one study. Previous research on the familial antecedents of adolescent deviant behavior have been limited by not examining multiple subsystems simultaneously. The current study aims to address this limitation by examining both mother- and father- child relationship quality and their associations with adolescent deviance.

Parent-Child Positive Mutual Affect

Positive mutual affect is one aspect of parent-child relationship quality that may be important for children's social development. For instance, it has been associated with children's ability or willingness to receive parental guidance on behavior (Kochanska & Aksan, 1995; Kochanska, 1997). The function of parent-child positive mutual affect in children's socialization is similar to how the deviancy training perspective purports that positive mutual affect between friends is related to the degree to which a child may be influenced by that friend. When levels of parent-child positive mutual affect are high, children may be more likely to internalize and subsequently carry out parental goals without persistent prompting from parents. Parent-child positive mutual affect generalizes into a dyadic style that lays the foundation for internalization of parents' values and expectations as children get older (Grusec & Goodnow, 1994; Grusec, Goodnow, & Kuczynski, 2000). As such, when children experience low levels of positive mutual

affect with their parents throughout childhood, they may be less receptive to parents' stated guidelines for appropriate behavior during adolescence. When adolescents do not heed their parents' socialization goals, this may lead to engagement in higher levels of deviant behavior (Brody, Ge, Katz, & Arias, 2000). Therefore, given its association with children's reception to parental goals, parent-child positive mutual affect during middle childhood may be an important predictor of adolescent deviance.

The structure of children's social interactions undergo significant changes during middle childhood (Epstein, 1989), which makes parent-child mutual affect particularly important to examine during this time. Notably, it is during the middle school years that children increase time spent with friends without any adult supervision (Epstein, 1989). Therefore, whether or not children have internalized their parents' standards of conduct and behavior becomes an important factor in predicting whether children will engage in antisocial behaviors when adults are not present. Internalization of parental messages reflects an intrinsic motivation to behave according to parental rules rather than an extrinsic motivation, such as punishment avoidance (Grusec & Goodnow, 1994). If children have internalized their parents' socialization goals, then they do not require as much parental monitoring or oversight of their activities (Maccoby, 1994). Accordingly, high levels of parent-child positive mutual affect prior to entrance in middle school may increase the likelihood that children will adhere to their parents' expectations during social interactions without adult supervision.

Links to Friend Selection

Levels of parent-child positive mutual affect during childhood may indirectly affect adolescent deviance through its effect on children's friend selection during middle school. Different peer groups emerge during 6th grade as children seek social support outside of their home and desire to form their own non-familial identity (Coleman, 1961; Gavin & Furman, 1989;

Patterson, 1993). Because it is a time when children are introduced to new peer groups, the middle school years may be a critical period to examine deviance risk factors. As explained in the trait-confluence model (Stoolman, 1994), children who share low levels of positive mutual affect with their parents may be at risk for seeking out friendships with deviant peers because they may reject any parental efforts to keep them away from deviant peers and/or convince them to befriend well-adjusted peers. Some research shows that parents do provide direct messages to their children about which peers to befriend and which peers to avoid (Mounts 2000, 2001). Therefore, low levels of positive mutual affect between children and their parents may place children at risk for befriending deviant peers.

Links to Friendship Quality

In addition to friend selection, positive parent-child mutual affect also appears to be related to aspects of children's friendship quality (Carson & Parke, 1996; Lindsey, Mize, & Pettit, 1997; Criss, Shaw, & Ingoldsby, 2003; Deater-Deckard, Atzaba-Poria, & Pike, 2004; Lindsey, Creemens, Colwell, & Caldera, 2008). Sharing positive affect with their parents affords children the opportunity to develop their ability to accept and reciprocate positive emotions in other social interactions, such as play activities with friends (Clark & Ladd, 2000). Conversely, shared negative affect between parent and child may be related to problematic peer relationships and other adjustment difficulties (Harrist & Waugh, 2002). For example, fathers' shared negative affect with their preschoolers during a play interaction was related to less sharing, more verbal insults, and more peer avoidance in the classroom (Carson & Parke, 1996). In the same study, however, shared affect with mother, whether it was positive or negative, was not related to any peer-related outcomes. Subsequent research did reveal a link between mother-child shared positive affect and friendship quality such that when kindergarteners and their mothers engage in more shared positive affect, children's friendships were less conflictual and more harmonious

(Clark & Ladd, 2000). Among ten-year-olds, mother-child positive mutual affect was negatively related to child and best friend's antisocial behavior (Criss et al., 2003). Taken together, the findings of these studies suggest that the possibility that the association between parent-child mutual affect and children's peer relationships depends on both the gender of the parent and valence of the emotion.

Findings linking friendship outcomes and parent-child negative and positive mutual affect should be interpreted with caution because of differences in how mutual affect is measured across studies. High levels of negative mutual affect is not necessarily the same as low levels of positive mutual affect, and each may be related to different child outcomes. For instance, high levels of negative mutual affect may indicate that although both parent and child are involved in a hostile or highly contentious interaction, both are engaged and invested in the interaction. Low levels of positive mutual affect, however, may indicate that either one or both of the dyadic partners are not devoted to the interaction. The potential mechanism that links low levels of parent-child positive mutual affect and poor friendship quality is that children are not able to use their interactions with parents as an opportunity to hone the skills required to maintain social interactions. When children are not able to engage in synchronous and mutually engaging interactions with their parents, it is thought that they are less likely to extend these skills to other dyadic interactions, such as friendships.

Chapter 2

The Current Study

The current study is aimed at testing the social bond theory of adolescent deviance by examining the moderating role of friendship deviance. It is hypothesized that high friendship quality is a protective factor against adolescent deviance, although this effect is attenuated when the child's friend is highly deviant. In addition, the current study examines from a family systems perspective the family processes indirectly affect adolescent deviant behavior by their influence on children's peer interactions and friendships. The current state of the literature suggests that family-focused research on children's risk for deviance may be best led by a two-pronged approach to understanding the family factors that predict both a) the selection of deviant peers as friends, and b) which factors protect children from the influence of deviant peers after they have been chosen as friends. Parent-child positive mutual affect may be one family factor that is related to both the friend selection process and susceptibility to the influence of deviant friends. Additionally, examining both fathers and mothers will add to the literature that focuses mainly on mother-child relationships. Including fathers in our study may provide more robust findings on the deviance development process and supports one of the main goals of family systems research, which is to further examine how dyadic processes that occur outside of the mother-child subsystem relate to children's social development.

Research Aim I

The first goal of the current study is to determine if father- and mother- child positive mutual affect during 5th grade predicts friendship quality during 6th grade. Previous research suggests that both parental relationships are linked to children's friendship quality during middle

childhood (Franco & Levitt, 1998; Schneider et al., 2005). More specifically, there is evidence to suggest that high levels of positive mutual affect shared between parent and child may be linked to higher friendship quality (Carson & Parke, 1996; Criss et al., 2003; Clark & Ladd, 2000).

Children who share high levels of positive mutual affect with their parents have learned to receive and reciprocate positive emotions with others, thereby carrying these positive relationship expectations and dyadic processes to their friendships. It is hypothesized that *a*) father- and mother- child mutual affect will predict friendship quality such that high levels of positive parent-child mutual affect will be linked to higher friendship quality.

Research Aim II

The second goal is to examine friendship quality as a protective factor against adolescent deviance by determining if the relation between friendship quality during 6th grade and study child's level of deviance during adolescence is moderated by their best friend's level of deviance. There is some research to suggest, that highly deviant adolescents have weaker social bonds than do less deviant adolescents, and social bond theorists explain this association by suggesting that adolescents who have strong emotional attachments to their peers are less likely to commit deviant acts because these behaviors often create a strain on the relationship (Hirschi, 1969). Therefore, it is hypothesized that when best friend's deviance level is high, then *c*) high friendship quality will predict lower levels of adolescent deviance, and *d*) low friendship quality will predict higher levels of adolescent deviance.

Research Aim III

The third goal is to examine if low levels of shared positive affect between parent and child during 5th grade have a direct association with adolescent deviance or is mediated through the selection of a deviant friend during 6th grade. Because children who share low levels of positive mutual affect with their parents may be less receptive to their guidance and socialization efforts (e.g., Dishion et al., 2004), these children may be more likely to reject their parents' efforts to keep them away from deviant peers. Additionally, these children may be at risk for deviant behavior themselves and choose to affiliate with peers who engage in the same behaviors (Cairns et al., 1996). Therefore, it is hypothesized that *e*) children who share low levels of positive mutual affect with their parents will be more likely to have deviant friends and that *f*) children who share low levels of positive mutual affect will exhibit more deviant behavior than those who do share high levels of positive mutual affect with their parents.

Chapter 3

Methods

Participants

Data for the present study were obtained from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). This is a longitudinal dataset that assesses various aspects of child development from birth (1991) to age 15 years. Participants were recruited from 10 different locations across the United States. Although the sample is not representative of the general U.S. population, it does include participants from diverse families with regard to income, race/culture, education attainment, family structure (e.g., single-parent, step-families, etc.), and geographic region (see NICHD Early Child Care Research Network, 1997, for further information about recruitment procedures). The original sample included 1,364 children. Data for the present study were drawn from the Phase III (Grades 2nd-6th) and Phase IV (ages 14-15) datasets.

Of the 1,077 participants who remained in the study during Phase III (79% retention rate), only children with intact families during Phase III were considered for the current analyses ($N = 500$). Fifty-one percent of the sample were female ($n = 254$). The sample included White (85%), Black (5%), Hispanic (5%), Asian (1%), and Native American (< 1%) children, and 3% of parents reported their children's ethnicity as

“other.” The median annual income for families was \$85,000 ($M = \$100,390$, $SD = \$69,252$, range = \$7,500 - \$500,001). The mother- and father- child interaction tasks occurred at different times when the child was in 5th grade. Children were on average 10.6 years old ($SD = .29$) when the home visit that included the father- child interactions occurred and 11.0 years old ($SD = .29$) when the laboratory visit that included the mother-child interactions occurred. Regarding the self-report measures, children were on average 11.9 years old ($SD = .32$) when completing the 6th grade questionnaires and 15.0 ($SD = .13$) when completing the adolescent questionnaires.

Measures

Parent-Child Positive Mutual Affect

Father- and mother- child positive mutual affect were assessed during dyadic observation tasks during 5th grade. Father-child interactions took place in the home, whereas mother-child interactions occurred in the lab. Children and their parents participated in both a *discussion task* and *planning task*, which were both videotaped for later coding. The discussion task required the parent and child to choose 3 of 22 “family issues” presented on index cards and discuss them for 7 minutes. Sample topics include bedtime, chores, homework, and privacy. The planning task required the parent and child to build a tower out of toothpicks in 7 minutes.

Coders watched both tasks and rated each dyad on a scale of 1 – 9 for overall affective mutuality across tasks, with higher scores indicating higher levels of positive mutual affect. Dyads were coded for how frequently they reciprocated positive emotions,

showed genuine concern for each other, and displayed warmth. Interrater reliability was obtained for 157 father-child interactions and 259 mother-child interactions that were double-coded. The parent-child dyads that were used for reliability calculations were randomly selected from the entire SECC sample. The reported Pearson correlations were moderate for both father-child ($r = .68$) and mother-child ($r = .56$) overall positive mutual affect codes.

Child's Externalizing Behavior

In 5th grade, mothers completed the Child Behavior Checklist (CBCL/4–18; Achenbach, 1991). Only the aggressive and delinquent behavior subscales were examined in the current study. The aggressive behavior subscale consisted of 20 items, and participants indicated on a 3-point Likert scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true) how often their children engaged in various aggressive behaviors, including destroying things belonging to others, fighting, and making threats. The delinquent behavior subscale consisted of 13 items, and participants indicated on a 3-point Likert scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true) how often their children engaged in various delinquent behaviors, including lying, cheating, stealing, vandalism, and using drugs. Using the Cross-Informant Program for the CBCL/4-18, a T score for externalizing behavior was derived from the aggressive and delinquent behavior subscales of the CBCL (see Achenbach, 1991 for further details on T score calculations). Based on reliability assessments for the entire SECC sample ($N = 1070$), the T score for externalizing behavior had high internal consistency ($\alpha = .89$).

Friendship Quality

In 6th grade, the study child completed the Friendship Quality Questionnaire (FQQ; Parker & Asher, 1993) in the lab. Children were asked to answer questions about their best friendship. The questionnaire consisted of 29 items that assessed friendship quality on six dimensions: conflict and betrayal (e.g., “My best friend and I fight,”; $\alpha = .78$), conflict resolution (e.g., “My best friend and I always get over our arguments really quickly,”; $\alpha = .67$), help and guidance (e.g., “My best friend and I loan each other things all the time,”; $\alpha = .81$), companionship and recreation (e.g., “My best friend and I always sit together at lunch,”; $\alpha = .78$), intimate disclosure (e.g., “My best friend and I are always telling each other about our problems,”; $\alpha = .83$), and validation and caring (e.g., “My best friend and I make each other feel important and special,”; $\alpha = .90$). A total score was computed for child’s overall friendship quality by summing the average scores of the three subscales and reflecting the conflict and betrayal subscale items ($\alpha = .90$). Higher scores indicate better friendship quality.

Child Deviance

Both the study child and her/his best friend completed the Risky Behavior questionnaire in the lab during 6th grade. The scale consisted of 19 items. Sample items include, “Smoked cigarettes or used tobacco,” “Broken into a building to take or steal something,” and “Had a first fight with another person.” Participants indicated on a 3-point scale how frequently they engaged in each behavior during the past year (0 = not at all, 1 = once or twice, 2 = more than twice). Responses were re-coded on a 2-point scale

(0 = never occurred, 1 = occurred at least once) due to the lack of variance in responses for both the study child and their best friend. The items were summed to create an overall risky behavior score with higher scores representing more deviance (best friend $\alpha = .70$; study child $\alpha = .68$).

Adolescent Deviance

At age 15, the study child completed an extended version of the Risky Behavior questionnaire. In addition to the 19 items that were previously administered in 6th grade, the extended version included 36 additional items (total = 55). The new items pertained to violence (e.g., “Use a weapon to threaten or bully someone,”) and sexual behaviors (e.g., “Had oral sex,”). Participants indicated on a 3-point scale how frequently they engaged in each behavior during the past year (0 = not at all, 1 = once or twice, 2 = more than twice). Responses were re-coded on a 2-point scale (0 = never occurred, 1 = occurred at least once) due to the lack of variance in responses. The items were summed to create an overall risky behavior score with higher scores representing more deviance ($\alpha = .88$).

Chapter 4

Results

Preliminary Analysis

Missing Data

In order to ensure that the linear regression models for path analysis included the same data, the patterns of missing data for continuous variables were examined to determine if the data was missing at random. The results of Little's MCAR test, $\chi^2(76) = 99.17, p < .05$, indicate that the data was missing at random as opposed to missing completely at random (Little & Rubin, 1987). Thus, all missing values were imputed through maximum likelihood estimation using the expectation maximization method (EM) algorithm in SPSS 18. The amount of missing data for each study variable was relatively small: mother-child positive mutual affect (9%), father-child positive mutual affect (2%), study child's externalizing behavior at 5th grade (<1%), friendship quality (<1%), study child's deviance at 6th grade (0%), best friend's deviance at 6th grade (0%), and study child's deviance at age 15 (5%). Imputed data was used for all analyses in the current study.

Variable Transformations

Before main analyses were conducted, the distribution of all study variables were analyzed for normality and skewness. Variables that were moderately skewed were transformed in order to satisfy the assumption of homoskedasticity of the linear regression models

(Tabachnick & Fidell, 2007). Three study variables were moderately positively skewed: study child deviance at 6th grade (skewness = 1.54, kurtosis = 3.92), best friend deviance at 6th grade (skewness = 1.66, kurtosis = 4.78), and study child deviance at age 15 (skewness = 2.36, kurtosis = 7.80). Each of the positively skewed variables were log transformed. Prior to log transformation, the scales for each of the three deviance measures were recoded by adding 1 to each of the scores. This step was necessary because values less than one cannot be log transformed (Tebachnick & Fidell, 2007). One study variable, friendship quality at 6th grade, was moderately negatively skewed (skewness = -1.08, kurtosis = 1.18). Therefore, friendship quality scores were reflected and log transformed.

Descriptive Statistics

The descriptive statistics for all study variables is presented in Table 1. Additionally, bivariate correlations were computed for all of the study variables, and the results are shown in Table 2. As indicated, several significant correlations emerged. Study child's externalizing behavior during 5th grade was significantly positively correlated with levels of deviance at age 15 but was not significantly correlated with levels of deviance during 6th grade. Additionally, externalizing behavior was significantly negatively correlated with both mother- and father- child positive mutual affect during 5th grade. Children who shared high levels of positive mutual affect with their mother and father during 5th grade reported less deviant behavior in 6th grade and at age 15. They also had best friends with relatively lower levels of deviance in 6th grade compared to children who shared low levels of positive mutual affect with their parents. Children's level of deviance during 6th grade was significantly positively correlated with their best friend's level of deviance and their own levels of deviance at age 15. Additionally, children who reported higher levels of deviance during 6th grade also reported lower levels of friendship quality, although

friendship quality was not significantly correlated with their best friend's level of deviance. Best friend's level of deviance did, however, positively correlate with study child's level of deviance at age 15. High levels of mother- and father- child positive mutual affect were significantly correlated with higher levels of friendship quality, and friendship quality was not correlated with study child's level of deviance at age 15.

Table 1

Mean Scores and Standard Deviations for All Study Variables (N = 500)

Variables	Mean	Standard Deviation	Range
Study Child externalizing behavior (5 th grade)	44.32	9.52	30 - 75
Mother-child positive mutual affect	5.17	.82	3 - 7
Father-child positive mutual affect	5.23	.85	2 - 7
6 th grade friendship quality	4.28	.54	1 - 5
6 th grade Study Child deviance	1.88	1.65	0 - 11
6 th grade Best Friend deviance	2.10	1.69	0 - 11
Age 15 Study Child deviance	5.21	5.07	0 - 37

Table 2

Correlations for All Study Variables

Variables	1	2	3	4	5	6	7
1. SC ext. behavior (5 th grade)	-----						
2. F-C mutual affect (5 th grade)	-.20**	-----					
3. M-C mutual affect (5 th grade)	-.17**	.27**	-----				
4. 6 th grade FQ	-.04	.11*	.12**	-----			
5. 6 th grade SC risky	.09	-.19**	-.29**	-.14**	-----		
6. 6 th grade BF risky	.05	-.13**	-.17**	-.05	.33**	-----	
7. Age 15 SC risky	.11*	-.11*	-.24**	-.01	.60**	.27**	-----

Covariates

Twenty-nine participating families (6%) experienced divorce or separation after 5th grade. A t-test was performed to determine if there were differences among the study variables for those children whose parents separated during the study. Children with divorced or separated parents had significantly higher levels of externalizing behavior during 5th grade ($M = 49.80$, $SD = 11.37$; $t(481) = 3.33$, $p < .001$) and higher levels of deviant behavior at age 15 ($M = 7.39$, $SD = 5.96$; $t(481) = 2.41$, $p < .05$) compared to children whose parents remained together. However, for all other study variables, children whose parents separated after 5th grade did not differ from children whose parents stayed together.

A second t-test was performed to assess gender differences among the study variables. Relative to boys ($M = 5.08$, $SD = .86$), girls ($M = 5.27$, $SD = .77$) had significantly higher levels of mother-child positive mutual affect ($t(498) = 2.61$, $p < .01$). However, there was no significant difference ($t(498) = .96$, ns) in levels of father-child positive mutual affect between girls ($M =$

5.27, $SD = .86$) and boys ($M = 5.19$, $SD = .84$). Additionally, there was no significant gender difference between boys ($M = 45.04$, $SD = 8.96$) and girls ($M = 43.57$, $SD = 1.00$) externalizing behavior during 5th grade ($t(498) = 1.73$, ns). However, girls ($M = 4.36$, $SD = .48$) reported significantly higher friendship quality than did boys ($M = 4.19$, $SD = .57$; $t(498) = 3.59$, $p < .001$). Regarding deviance during 6th grade, boys ($M = 2.24$, $SD = 1.82$) reported significantly higher levels of deviance than did girls ($M = 1.54$, $SD = 1.38$; $t(498) = -4.91$, $p < .001$). There was also a significant gender difference for best friend reports of deviance during 6th grade such that boys ($M = 2.54$, $SD = 1.98$) had higher deviance scores than did girls ($M = 1.68$, $SD = 1.21$; $t(498) = -5.89$, $p < .001$). The same gender difference also was found at age 15 in which boys ($M = 6.22$, $SD = .58$) reported higher levels of deviance than did girls ($M = 4.24$, $SD = 4.32$; $t(498) = -4.45$, $p < .001$).

Path Analysis

To test our hypotheses, a path analysis based on a series of linear regression analyses was performed (Klem, 1995). Prior to analysis, all study variables were centered, and gender was dummy-coded (0 = female, 1 = male). Three separate regression analyses were performed to examine whether the 5th grade variables predicted the three 6th grade variables: study child deviance, best friend deviance, and friendship quality. A fourth regression analysis was performed to examine whether any of the 6th grade variables (study child deviance, best friend deviance, and friendship quality), including interaction terms, predicted study child's level of deviant behavior at age 15. Results for this series of analyses are depicted in Figure 1. The path coefficients shown are standardized regression coefficients.

The first regression model examined whether the study child's mother- and father- child positive mutual affect predicted study child's deviant behavior during 6th grade. Gender was

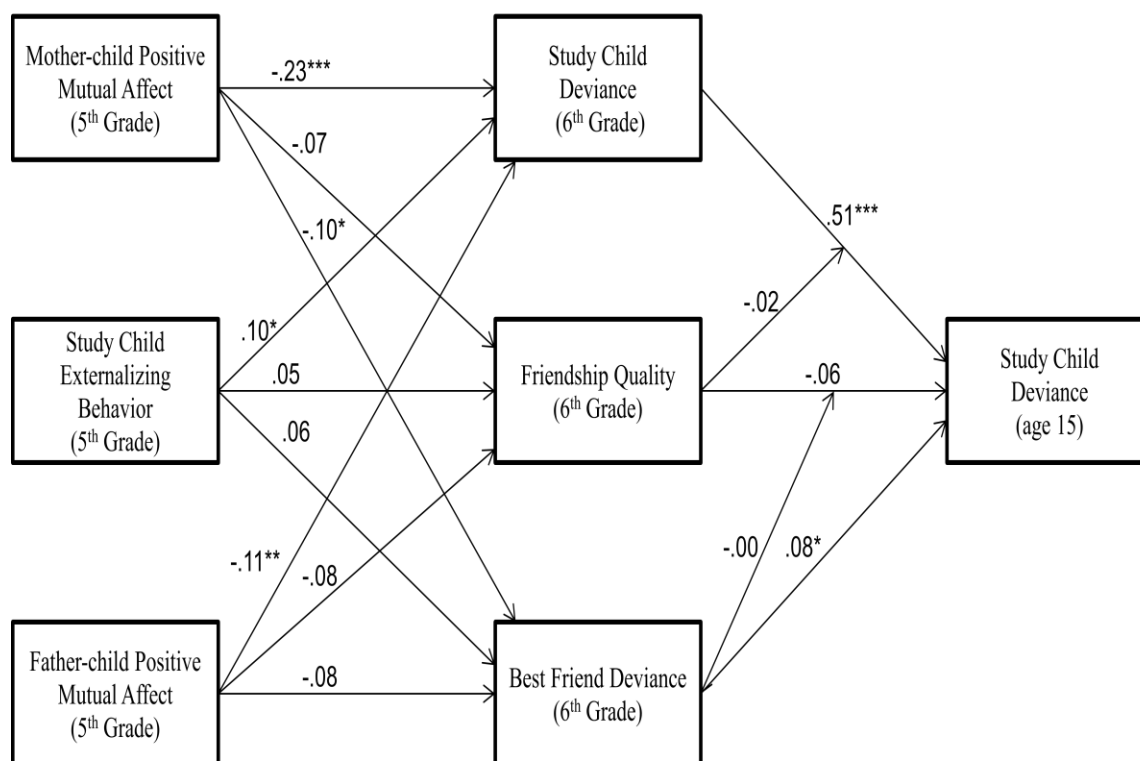
entered in Step 1, study child's 5th grade externalizing behavior was entered in Step 2, and mother- and father- child positive mutual affect were both entered in Step 3. As shown in Figure 1, externalizing behavior during 5th grade significantly positively predicted study child's deviant behavior during 6th grade after controlling for gender ($R^2 = .05$, $\Delta R^2 = .01$). Additionally, study child's level of deviance was significantly negatively predicted by both mother- and father- child positive mutual affect ($R^2 = .13$, $\Delta R^2 = .08$) after controlling for study child's gender and externalizing behavior.

The second regression model examined whether the study child's mother- and father- child positive mutual affect predicted best friend's deviant behavior during 6th grade. Gender was entered in Step 1, study child's 5th grade externalizing behavior was entered in Step 2, and mother- and father- child positive mutual affect were both entered in Step 3. As shown in Figure 1, externalizing behavior during 5th grade did not significantly predict best friend's deviant behavior during 6th grade after controlling for gender ($R^2 = .05$, $\Delta R^2 = .00$). However, best friend's level of deviance was significantly negatively predicted by mother-child, but not father-child, positive mutual affect ($R^2 = .07$, $\Delta R^2 = .02$) after controlling for study child's gender and externalizing behavior.

The third regression model examined whether the study child's mother- and father- child positive mutual affect predicted friendship quality during 6th grade. Gender was entered in Step 1, study child's 5th grade externalizing behavior was entered in Step 2, and mother- and father- child positive mutual affect were both entered in Step 3. As shown in Figure 1, externalizing behavior during 5th grade did not significantly predict friendship quality during 6th grade after controlling for gender ($R^2 = .03$, $\Delta R^2 = .00$). Additionally, mother- and father- child positive mutual affect also did not significantly predict friendship quality after controlling for study child's gender and externalizing behavior ($R^2 = .04$, $\Delta R^2 = .01$).

The fourth linear regression was performed to determine whether any of the 6th grade variables (study child deviance, best friend deviance, and friendship quality) and interaction terms predicted the study child's level of deviant behavior at age 15. Gender was entered in Step 1. In Step 2, study child deviance (6th grade), best friend deviance (6th grade), and friendship quality (6th grade) were entered. Finally, in Step 3, Friendship Quality X Best Friend Deviance and Friendship Quality X Study Child Deviance (6th grade) interaction terms were entered. The results in Figure 1 indicate that two of the variables entered in Step 2, the study child and the best friend's level of deviance in 6th grade, significantly predicted levels of deviant behavior at age 15 ($R^2 = .32$, $\Delta R^2 = .28$). Additionally, neither of the interaction terms significantly predicted the study child's deviance at age 15. ($R^2 = .33$, $\Delta R^2 = .00$).

Figure 1: Path model for all study variables



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

Chapter 5

Discussion

The main goal of the current study was to determine which familial and friendship factors during middle childhood are associated with delinquent behavior during adolescence. Social bond theory suggests that in general, children who have strong ties to their friends will be less likely to engage in deviant behaviors, except when children are strongly tied to delinquent peers.

Therefore, the factors that relate to both friend selection and quality of friendships are important to consider when examining adolescent deviance. Early parent-child relationships may be one such factor. The trait-confluence model of deviant behavior suggests that children who have difficulties in their relationships with their parents may wander towards deviant peers at a young age, and this early exposure to deviant peers during middle school may increase the likelihood that they will stay on a deviant behavior trajectory during adolescence (e.g., Patterson, 1993; Thornberry et al., 1994). To address the issues raised by both social bond theory and the trait-confluence model, we examined the interplay between parent-child positive mutual affect, friendship quality, best friend characteristics during middle childhood and their associations with deviant behavior during adolescence.

The first research aim was to examine the association between parent-child positive mutual affect and friendship quality during middle childhood. It was predicted that levels of parent-child positive mutual affect in 5th grade would be related to friendship quality a year later when children entered middle school. Given that prior research on the topic has shown a link between parent-child mutual affect and children's friendship quality (e.g., Carson & Parke, 1996; Clarke & Ladd, 2000), it was proposed high levels of positive mutual affect shared between children and their parents would promote harmonious and positive childhood friendships.

Therefore, it was expected that high levels of parent-child positive mutual affect would be related

to higher overall friendship quality during 6th grade. The results indicated that neither mother- nor father- child positive mutual affect during 5th grade were associated with children's friendship quality when they were in 6th grade. One explanation for the current findings is that parent-child positive mutual affect may not be related to overall friendship quality as measured in the current study, but rather, certain features of friendship quality. It may be more important to focus on the behavioral aspects of friendship quality, such as conflict and prosocial behaviors, rather than the emotional aspects of friendship quality, such as personal validation and friendship satisfaction. Prior research linking friendship quality with parent-child mutual affect has primarily focused on behavioral features of friendships (e.g., Carson & Parke, 1996; Lindsey et al., 1997; Lindsey et al., 2008; Deater-Deckard et al., 2004). The mechanism by which low levels of parent-child positive mutual affect impairs friendship quality is by impeding children's ability to hone the behavioral skills required for interactions with their friends, such as conflict management and cooperation. It may be useful for future research to examine the different features of friendship quality separately to determine if parent-child positive mutual relates differentially to behavioral and emotional features of friendship quality.

In addition to being unrelated to parent-child positive mutual affect, friendship quality during 6th grade was also unrelated to deviance at age 15. Although this finding is contrary to our prediction, it is consistent with other research that has not found a link between attachment to friends during early adolescence and delinquency during high school (Haynie & Osgood, 2005; Selfhout et al., 2008). It may be the case that concurrent friendship quality during adolescence, rather than friendship quality during middle childhood friendships, may be more strongly associated with adolescent deviance. Around age 13, friends become more important than parents in fulfilling the provision of personal validation and feeling important (Buhrmester & Fuhrman, 1997; Buhrmester, 1990). Therefore, it is possible that 6th grade may be too soon to begin examining the effect of friendship bonds constraining delinquent behavior. One study that

examined the process of wandering towards delinquent peers from 4th to 8th grade found that although antisocial children steadily increased delinquent peer association across all grades, the sharpest increase in their association with delinquent peers occurred between 7th and 8th grade (Stoolmiller, 1994). Other research examining social bond theory across development has found that the strongest effects of friends containing deviance did not emerge until age 15 (LaGrange & White, 1985; Thornberry, 1987). Taken together, these findings suggest that high friendship quality during 6th grade may not have the effect of constraining later risky behaviors because children do not yet consider friends to be their primary source of social support.

Another explanation for why friendship quality did not predict study child's deviance at age 15 is that peer group factors, rather than best friendship factors, may be a stronger indicator of future behavior. The dynamics of children's larger peer networks can also influence the developmental trajectories of delinquency from middle childhood to adolescence. For instance, some research suggests that it is the proportion of antisocial friends within a child's peer group that is related to children's proneness to engage in risky behaviors (Haynie, 2002). There is also some evidence suggesting that distal peers (i.e., peers with whom children have little interpersonal contact) also have a strong influence on children's antisocial behavior apart from their close friends' influence namely because children tend to engage in similar behavior to whoever is present at the moment (Payne & Cornwell, 2007). Therefore, children may behave more similarly to antisocial peers that they wish to impress whenever their less antisocial friend is not present (Payne & Cornwell, 2007). One limitation of the studies on peer group influences on delinquency is that only short-term effects have been examined. Thus, it is difficult to make conclusions about the relative importance of best friendship quality and peer group factors on the developmental trajectories of delinquency during middle school.

Another key question about friendship quality that we aimed to address in the current study was whether high friendship quality would be a protective factor against the influence of

deviant friends. The results indicate that neither high or low friendship quality affected the positive association between best friend's level of deviance during 6th grade and study child's level of deviance at age 15. It may be the case that friendship quality is only a protective factor when friends engage in highly risky behaviors, such as use of hypodermic drugs and use of assault weapons. In contrast, high friendship quality may not protect against engagement in less risky behaviors that are generally considered more normative and are acceptable by most adolescents, such as smoking cigarettes and occasional alcohol consumption. Unfortunately, the lack of variance in risky behaviors in our sample did not permit analysis of each risky behavior separately, nor could we distinguish children who engaged in a particular behavior regularly from children who engaged in a particular behavior only once during the past year. Although the idea of friendship quality only protecting against highly risky behaviors is speculative, it is supported by the findings of another study examining the interplay between middle school friendship quality and the level of friend's engagement in minor delinquent acts (e.g., stealing inexpensive items; Poulin et al., 1999). The results of this study revealed that among children whose friend frequently engaged in minor delinquency, high friendship quality during middle school did not protect against that friend's influence on children's minor delinquency a year later (Poulin et al., 1999). These findings, in addition to the findings of the current study, suggest that it may be beneficial for future research on the development of adolescent deviance to take into account the severity and frequency of deviant behaviors during middle childhood because friendship quality may not affect all deviant behaviors in the same way.

Aside from research questions concerning friendship quality, we were also interested in how parent-child positive mutual affect during 5th grade related to children and their best friend's level of deviance during 6th grade. When mother- and father- child interactions were characterized by high levels of positive mutual affect, children were less likely to engage in deviant behavior at in 6th grade. Furthermore, high levels of mother-child positive mutual affect were also negatively

related to children's best friend's level of deviance during middle childhood. Our results support prior research that has found a link between high levels of mother-child positive mutual affect and the selection of less deviant friends during middle childhood (Criss et al., 2003). We expanded on this prior work by taking a family systems perspective and including fathers in our study. However, father-child positive mutual affect was not associated with best friend's level of deviance. Our results on father-child positive mutual affect should be interpreted with caution because few studies exist that examine father-child positive mutual affect and deviance. More evidence is needed before making conclusions about father-child relationships and children's selection of friends.

The findings on study child and best friend's level of deviance support our speculation that high levels of positive mutual affect during parent-child interactions provides an optimal climate for children receive parental socialization messages about suitable behavior and friend selection. One interpretation of the findings is that even when these children are not under adult supervision, they may have internalized their parents' expectations for them to stay out of trouble and choose less antisocial friends. Because our study did not examine internalization of socialization messages specifically, the link between parent-child positive mutual affect and deviance could possibly be due to another factor unobserved in our study. For instance, it could be the case that when parents engage in more positive mutual affect with their children, they are also generally more engaged with their children's social lives. One study suggests that parents who share high levels of positive mutual affect with their children are more likely to monitor their children's behavior outside of the home (Criss et al., 2003). Therefore, the link between high levels of parent-child positive mutual affect may not be due to internalization of parental goals. Instead, low levels of deviant behavior may be due to children's concern of getting caught engaging in problematic behaviors or associating with disapproved friends.

The current study also examined whether children whose best friend in 6th grade tends to engage in more deviant behavior would be more likely to themselves engage in higher levels of deviant behavior during adolescence. The results indicated that best friend's level of deviance was associated with the study child's level of deviance at age 15. This was expected given the prior work on deviancy that suggests early exposure to delinquent or antisocial peers is linked to high levels of deviant behavior during later adolescence (e.g., Stoolmiller, 1994; Dishion et al., 1999). One proposed mechanism that links having deviant friends in middle school and later deviant behavior is that children self-select friends with similar interests, and as friendships develop over time, children become more alike in their behaviors (Cairns & Cairns, 1994). However, our adolescent deviance data was collected almost four years after our friendship data was collected, so it is possible that children's best friendships changed over time. The current study did not examine the stability of children's friendships after 6th grade, and therefore, it is unknown if the children in our sample continued to befriend risky peers throughout middle school. Because many children attend a new school and interact with new peers in 6th grade (Epstein, 1989), it may be the case that children's friendships at the time of data collection were relatively new and unstable. Children may not have selected a peer group with whom to affiliate until later in middle school, and their best friends during 6th grade may not reflect the whether or not children have settled on affiliating with deviant peers prior to entrance in high school. Longitudinal research examining delinquency throughout middle school suggests that the influence of delinquent friends is limited during this time due to the instability of friendships (de Kemp et al., 2006). Levels of deviance may persist or desist over time depending on the changes in affiliation with deviant peers over time (McGloin, 2009). Thus, in addition to examining best friend's levels of risky behavior, it may also be useful to examine how the stability of children's best friendships during middle school is related to adolescent risky behavior.

Some limitations of the current study need to be addressed. Because all of the children were from intact families during our first assessment, we may have examined children who were at low risk for later delinquency. This may have restricted the variance in deviant behaviors. It is possible that the relation between befriending antisocial friends during middle school and later antisocial behavior may be stronger among at-risk children from unstable homes. Adolescents whose parents recently divorced often exhibit increased levels of conduct problems due to perturbations in parent-child relationships (Fauber, Forehand, Thomas, & Wierson, 1990; Buchanan, Maccoby, & Dornbusch, 1991). Indeed, the children in the current study who experienced parental separation after our first assessment reported higher levels of deviance during adolescence. These children also exhibited higher levels of externalizing behaviors during 5th grade, which suggests that other factors may have put these children at risk for deviant behaviors prior to their parents' separation. It is possible that these children were exposed to high levels of maladaptive parental conflict in 5th grade before their parents separated (Cummings, Goeke-Morey, & Papp, 2003) and that this exposure may have affected children's externalizing behavior. In addition to sample characteristics that may have limited the current study, there were also limitations in our measures of parent-child positive mutual affect. Our reliabilities were relatively moderate, and therefore, our findings on both father- and mother- child positive mutual affect should be interpreted with caution.

Chapter 6

Conclusion

The findings of the current study add to literature on the adolescent deviance in a number of ways. Mainly, we were able to demonstrate that parent-child positive mutual affect influences adolescent deviance by directly influencing levels of deviance during middle childhood. It is also noteworthy that both father- and mother- child positive mutual affect were stronger predictors of children's deviance than children's own externalizing behavior one year earlier. We also demonstrated an indirect effect of mother-child positive mutual affect on adolescent deviance by influencing children's selection of highly deviant peers as friends during middle childhood. Additionally, we were able to provide robust findings on the familial factors related to adolescent deviance by including both fathers and mothers in our study. In sum, the implications of our findings suggest that the developmental trajectories of deviance during adolescence are preceded by specific relational dynamics between children and their parents during middle childhood.

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