Criminal Justice Review

http://cjr.sagepub.com

Parents, Friends, and Serious Delinquency: An Examination of Direct and Indirect Effects Among At-Risk Early Adolescents

Jason R. Ingram, Justin W. Patchin, Beth M. Huebner, John D. McCluskey and Timothy S. Bynum

Criminal Justice Review 2007; 32; 380
DOI: 10.1177/0734016807311436

The online version of this article can be found at:
http://cjr.sagepub.com/cgi/content/abstract/32/4/380

Published by:
SAGE Publications
http://www.sagepublications.com

On behalf of:
Georgia State University, College of Health and Human Sciences

Criminal Justice Review
Volume 32 Number 4
December 2007 380-400

10.1177/0734016807311436
http://cjr.sagepub.com
hosted at
http://online.sagepub.com

Parents, Friends, and Serious Delinquency

An Examination of Direct and Indirect Effects Among At-Risk Early Adolescents

Jason R. Ingram
Michigan State University, East Lansing
Justin W. Patchin
University of Wisconsin-Eau Claire
Beth M. Huebner
University of Missouri-St. Louis
John D. McCluskey
University of Texas at San Antonio
Timothy S. Bynum
Michigan State University, East Lansing

Family context has been identified as a central domain in the study of delinquency, particularly during early childhood. As youth enter adolescence peer associations become a much stronger influence. Using a sample of preadolescent youth, this research examines the effect of family and peer relationships on delinquency. Specifically, path analysis is used to test the effects of family structure, parental supervision, and parental attachment on serious delinquent behavior to determine if a youth's family life has a unique effect on serious delinquent behavior, or if familial relationships are mediated by peer associations. Findings suggest that parental variables are indirectly related to subsequent, serious delinquency, whereas delinquent peer association exerts a strong, direct effect. The study offers insight into the roles that a youth's family life and peer associations play in explaining delinquent behavior. In addition, the findings highlight the need for interventions that encourage pro-social relationships among youth.

Keywords: *adolescence; juvenile delinquency; parents; peers; poststructuralism*

Family and peer relationships are two central domains in the study of delinquency. With regard to family relationships, researchers have linked residence in single-parent homes, weak parental ties, and poor parental supervision to higher incidence of delinquency (Agnew, 2001; Canter, 1982; Gorman-Smith, Tolan, Loeber, & Henry, 1998; Hirschi, 1969; Jang & Smith, 1997; Rebellon, 2002; Sokol-Katz, Dunham, & Zimmerman, 1997; Wells & Rankin, 1991). In addition, association with antisocial peers has been linked to delinquent behavior (Elliott, Huizinga, & Ageton, 1985; Menard & Elliott, 1994;

Authors' Note: An earlier version of this article was presented at the Annual Meeting of the Academy of Criminal Justice Sciences, Chicago, IL (2005). We would like to thank the anonymous reviewers for their contribution to a previous version of this article.

Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994). This linkage has been deemed one of the strongest predictors of delinquency (Agnew, 1991; Thornberry et al., 1994; Warr, 1993, 2002; Warr & Stafford, 1991). Thus, the extant research within these two domains provides substantial support for family life and peer associations as important predictors of delinquency.

In the past, the effects of family and peers on delinquency were largely examined independently as competing theoretical frameworks (Kandel, 1996). Attempts have been made, however, to integrate these approaches into what Marcos, Bahr, and Johnson (1986) labeled "bonding/association theory" that considers the individual and combined effects of these domains on delinquency. Such integrated models typically focused on the relationship among attachment to parents, delinquent peers, and either minor delinquency or drug use in samples of older adolescents (e.g., Agnew, 1993; Aseltine, 1995; Kandel, 1996; Marcos et al., 1986; Warr, 1993). To date, fewer attempts have been made to extend this approach to other familial variables relevant to control theory, such as parental supervision (Aseltine, 1995, and Warr, 2005, are exceptions) or to examine these relationships in younger samples with attention given to more serious delinquent behaviors. The current study attempts to fill these voids by incorporating family structure, parental supervision, and parental attachment into a single framework. Furthermore, these relationships are tested using a sample of at-risk and delinquent preadolescent and adolescent youth (90% are between the age of 10 and 13 years). As prior research has identified a shift from parental to peer influence on behavior at around age 10 or 11 (Warr, 2005), the current work captures a transitional period for the sample youth where, unlike prior research involving older adolescents, familial and friend variables may be competing for importance in influencing the behavior of youth at this age. Also, by focusing on serious delinquency, the current study aids in determining if the integrated bonding/association approach holds for a type of deviance not widely studied within this framework.

Previous Theoretical and Empirical Research

Two theoretical perspectives stand above others in their recognition of the importance of intimate relationships with parents and friends and how these relationships can result in delinquent behavior. Control theory (Hirschi, 1969) emphasizes the importance of parents, whereas social learning/differential association theory (Akers, 1973; Sutherland, 1947) focuses on the influence of delinquent peers. The following sections review the theoretical foundations and empirical support for control and differential association/social learning theories and describe how these frameworks inform our understanding of the importance of family and peer domains.

Control Theory and Family Relationships

Social control theory posits that "delinquent acts result when an individual's bond to society is weak or broken" (Hirschi, 1969, p. 16). Social bonds become weak or broken when a person fails to (a) form positive attachments to significant others (notably parents), (b) develop a stake in conformity to conventional norms, (c) engage in conventional activities, or (d) believe in society's accepted norms (Hirschi, 1969; Rebellon, 2002; Toby, 1957). Control theory rests on the assumption that effective parenting, for example, can induce

conformity by insulating children from deviant influences (Hirschi, 1969; Sampson & Laub, 1993). Children who are strongly attached to their parents are less likely to engage in delinquency because they value their relationship and do not want to disappoint their parents by engaging in unacceptable behavior (Agnew, 2001; Hirschi, 1969; Sokol-Katz et al., 1997). As such, attachment acts as a buffer in which the child with strong bonds will consider potential negative impacts and not engage in delinquency.

Some control theorists have also focused on the role of supervision in determining child outcomes (Loeber & Stouthamer-Loeber, 1986; Patterson, 1982; Rankin & Wells, 1990; Sampson & Laub, 1993). Parents who are aware and knowledgeable about their child's activities are less likely to have delinquent children because they set clear rules, engage in active monitoring of behavior, and provide punishments for bad behavior (Patterson, 1980, 1982). In this sense, such active monitoring also serves as a buffer against delinquency.

Researchers have amassed considerable empirical evidence on the importance of parenting in understanding delinquency (Cernkovich & Giordano, 1987; Farrington, 1989; Gorman-Smith et al., 1998; Lipsey & Derzon, 1999; Loeber & Stouthamer-Loeber, 1986; McCord, 1991; Patchin, 2006; Rebellon, 2002; Sampson & Laub, 1993; J. Wright & Cullen, 2001; J. Wright, Cullen, & Miller, 2001). Prior research has considered the direct and indirect effects of family structure and parenting processes on delinquency. With respect to family structure, some researchers have found that youth from broken homes engage in more delinquency than youth from intact homes (Canter, 1982; Wells & Rankin, 1991), although the effect has been moderate at best and much weaker when considering more serious forms of delinquency (see Agnew, 2001; Wells & Rankin, 1991).

Other studies have found that the effect of family structure is largely an indirect one through parental process variables (Demuth & Brown, 2004; Kierkus & Baer, 2002; Sokol-Katz et al., 1997). Although these findings suggest that the effect of family structure is largely mediated by parental attachment and parental supervision, such an indirect relationship has been questioned by recent research reporting no differences between four different types of family arrangements (i.e., intact, divorced, widowed, and never married) and levels of parental attachment and control (Mack, Leiber, Featherstone, & Monserud, 2007). Thus, the extant research within this area has produced mixed results.

An abundance of research has also highlighted the importance of parental processes such as attachment and supervision on delinquency, independently of family structure (Agnew, 2001; Cernkovich & Giordano, 1987; Demuth & Brown, 2004; Hirschi, 1969; Mack et al., 2007; Patterson, 1982; Rankin & Wells, 1990; Sokol-Katz et al., 1997). Thus, children with weak parental attachments and/or children whose parents do not adequately supervise them are more likely to engage in delinquent behavior. Much of this body of research notes the importance of parental attachment in controlling delinquent behavior; although it should be noted past research has also shown parental attachment to be indirectly related to delinquency through parental supervision. Jang and Smith (1997), for example, noted that "strong affective ties promote the likelihood of perceptions of parental control, including close supervision, and . . . this has a proximal effect on reducing delinquency" (p. 312). In other words, parental attachment may not directly affect delinquency, but rather the effect that these weak bonds have on the amount of monitoring received leads to such behavior. In light of these mixed results concerning the roles of family structure, parental attachment, and parental supervision, incorporating and testing these relationships within a single framework is necessary.

Differential Association/Social Learning Theory and Peer Associations

Differential association theory proposes that delinquency is learned through interactions with intimate others. When an excess of these interactions favor deviant behavior, youth will tend to engage in such behavior (Sutherland, 1947). Similarly, social learning theory posits that juveniles learn to engage in crime through exposure to, and the adoption of, attitudes that are favorable to breaking the law (Akers, 1973; Sutherland, Cressey, & Luckenbill, 1992). Central to this perspective is the idea that youth who have friends who are delinquent are more likely to become delinquent themselves. These theoretical explanations have been widely regarded as one of the strongest correlates of delinquency (Agnew, 1991; Thornberry et al., 1994; Warr, 1993, 2002; Warr & Stafford, 1991).

Although prior research has generally indicated that association with delinquent peers is strongly associated with delinquency, the nature of this association has been debated. Matsueda and Anderson (1998) identify three competing views for explaining the relationship between peers and delinquency. First, some control theorists argue that the relationship is spurious; the cause of delinquency is low self-control (Gottfredson & Hirschi, 1990). Following this argument, the relationship between delinquent peer associations and delinquency is not as important as the "relevant antecedent causal variable" of low self-control (Matsueda & Anderson, p. 273; Matsuede & Anderson, 1998, p. 273).

A second argument is based on Thornberry's (1987) interactional theory that proposes that delinquent peers and delinquency are mutually related. Not only does the type of peer associations a youth develops affect delinquent behavior, but also delinquent behavior influences the type of peer associations formed (Matsueda & Anderson, 1998; Thornberry, 1987; Thornberry et al., 1994). Empirical tests of this theory have provided support for this argument whereby association with delinquent peers increases delinquency, which subsequently increases further association with delinquent peers (Thornberry et al., 1994).

Third, researchers have posited that delinquent peer associations have a distinct, direct effect on delinquency (Matsueda & Anderson, 1998). Within this perspective, it is argued that association with delinquent peers is an important explanation of delinquent behavior independent of levels of low self-control and prior delinquent behavior. Empirical tests of these three perspectives indicate that peer associations do likely exert a direct effect on delinquent behavior, even after controlling for self-control and prior delinquency, although the relationship may not be as strong as originally reported (Aseltine, 1995; Matsueda & Anderson, 1998; Unnever, Cullen, & Agnew, 2006; Warr, 2002). For example, Matsueda and Anderson (1998) found such a relationship after controlling for prior levels of delinquency. Other studies have also reported similar results when controlling for low self-control (see Pratt & Cullen, 2000; B. E. Wright, Caspi, Moffitt, & Silva, 1999). Overall, research within this domain clearly shows the importance of including measures of youths' peer networks in models of their behavior.

Family, Friends, and Delinquency

Although significant scholarly attention has been directed toward the influence of families and friends independently on delinquent behavior, fewer studies have attempted to assess these influences together. Akers (1989), for example, identified many areas of conceptual overlap between bonding and association/learning theories, particularly with bonding theory's

concept of attachment, and association/learning theories' concepts of reinforcement and imitation (see also Marcos et al., 1986). Applied to the current context, the argument can be made that a breakdown in support and control yields a social vacuum that may be filled by delinquent peers, thereby increasing opportunities for delinquent involvement (Sampson & Laub, 1993; Warr, 2002). In the same light, children with strong social bonds who have parents who are actively involved in monitoring their behavior are not as likely to associate with delinquent peers and are less likely to engage in delinquent behavior themselves (Warr, 1993, 2005).

Research examining parental attachment and association with delinquent peers suggests that youth with strong parental attachments are less likely to associate with delinquent peers. For instance, Marcos and colleagues (1986) found a significant but weak relationship between attachment and delinquent peer associations when examining adolescent marijuana use ($\beta = -.12$). Similar findings have also been reported by Warr (1993) who concluded that attachment "affect[s] the kind of friends that adolescents have, and thus appears to have an indirect effect on delinquency" (p. 258).

Furthermore, studies that have examined parental supervision and delinquent peer associations generally indicate that inadequate supervision increases the likelihood of developing antisocial peer ties (Aseltine, 1995; Sampson & Laub, 1993; Warr, 2005). It should be noted that research has also found parental supervision to mediate the relationship between attachment and delinquent peer association. In other words, parents who had strong emotional bonds with their children were more likely to monitor their child's activities, decreasing the likelihood that they would associate with delinquents (Warr, 2005).

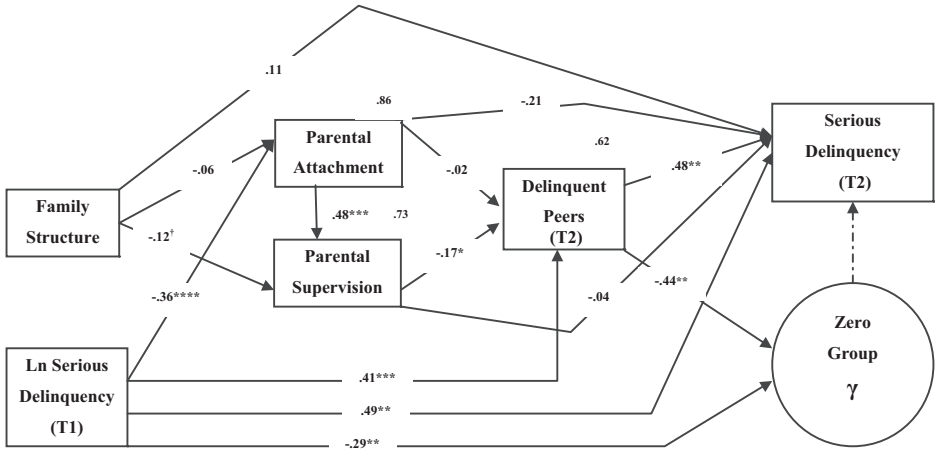
In addition, work examining family social capital also suggests that important ties exist between the family and peer domains. This framework "maintains that families that invest in their children are more able to create social bonds and to foster prosocial learning . . . decreasing access to delinquent peers" (J. Wright et al., 2001, p. 2). This familial investment, or "family capital," has been linked with lower levels of delinquent peer associations in the short term (e.g., contemporaneous effects) and the long term (e.g., longitudinal effects) (Wright et al., 2001, p. 6).

Current Study

The review of the literature within the family and peer domains highlight a number of complex relationships between parental and peer processes and their relationship with delinquency. Prior studies have found the structure of juveniles' home lives to be directly (but weakly) related to their delinquent behavior (Canter, 1982; Wells & Rankin, 1991), whereas other studies have indicated an indirect effect through parental processes (Demuth & Brown, 2004; Kierkus & Baer, 2002; Sokol-Katz et al., 1997) or have reported no such effect (Mack et al., 2007). Furthermore, research examining the role of parental bonds on delinquency has, in some instances, found it to be mediated by parental supervision (Jang & Smith, 1997).

Understanding of the parent–delinquency relationship is further complicated when integrated with youths' peer group relationships. Youth with weakened parental bonds or inadequate parental monitoring are more likely to develop antisocial peer group ties that in turn lead to delinquent behavior, suggesting another mediated relationship (Aseltine, 1995; Marcos et al., 1986; Warr, 1993). Finally and most recently, Warr (2005) found parental supervision to mediate the relationship between parental attachment and delinquent peer associations.[1]

Figure 1
Zero-Inflated Poisson (ZIP) Model of Family Life, Delinquent Peer Associations, and Serious Delinquency



Note: ln = natural log; CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation.
$\chi^2 = 21.75$, $df = 14$, $p > .05$, CFI = .99, TLI = .98, RMSEA = .06, Pseudo $R^2 = .62$.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

The purpose of the current study is to incorporate and empirically test the nature of these relationships within a single framework to determine if aspects of a youth's family life have a unique effect on delinquency or if they are mediated by peer associations. In this regard, the current study also builds on Warr's (2005) work to determine if the indirect effect of parental attachment on delinquent peer associations through parental supervision extends to youths' own delinquent behavior. The current work also contributes to the body of literature by focusing on serious delinquent behavior among a sample of preadolescent youth who are at an elevated risk for future criminal behavior.

To test these relationships, a path model is specified and estimated (see Figure 1). Specifically, the model follows the bonding/association approach and tests for any direct and/or indirect effects that familial factors might have on serious delinquency either through each familial process or through peer associations. These effects are estimated while controlling for respondents' age, race, gender, and prior delinquent behavior.

Method

Data

Data for the current study were obtained from a larger project that assessed the impact of community-based intervention programs on delinquency in youth between ages 9 and 15 years residing in a moderately sized Midwestern city. Within this city, target neighborhoods were selected to identify youth considered to be at high risk for engaging in

delinquent behavior. These target neighborhoods had higher crime, poverty, unemployment, and public assistance rates than the rest of the city, all factors previously shown to be related to delinquency (Fagan, Piper, & Moore, 1986; Herrenkohl, Hawkins, Chung, Hill, & Battin-Pearson, 2001; Patchin, Huebner, McCluskey, Varano, & Bynum, 2006; Sampson & Lauritsen, 1994).

Personal interviews were conducted with 221 youth from this target area that serves as the foundation of the research. Youth were selected to be included in the study in one of three ways. First, youth were recruited to be interviewed from the local middle school. Teachers informed youth in their classes about the project and interested students were required to have their parent or guardian sign and return a permission slip to participate. The participation rate was relatively low (25%), largely because of the requisite active consent procedure. Second, youth were recruited from two recreation centers within the target area. Flyers were distributed, and supervisors at each center agreed to solicit participants. Active consent was also secured from the parents of these youth. Finally, youth from these neighborhoods who had been arrested during a 3-year period were also included in the sample. Arrested youth were generally interviewed within a few weeks of coming into contact with the criminal justice system. In total, 34% of the youth were interviewed at the school, 29% were recruited from the recreation centers, and 37% were included because they were arrested.

Youth were interviewed at two points in time. Once at the initial point of contact (Time 1 [T1]) and 6 months following the initial interview (Time 2 [T2]). At T1, interviews were conducted with 221 youth. Respondents were asked to report their attitudes and beliefs across a number of different areas associated with their family life and friends' behaviors as well as their involvement in a number of delinquent and illicit activities during the past year. At T2, identical interviews were conducted with 152 (68%) of the youth initially interviewed. Delinquent activity, however, was assessed for the 6 months between interviews.

Although the research design does not capture a nationally representative sample of youth, the current data set is useful for the examination of the relationship between family social bonds, peer relationships, and delinquency because it builds on traditional school-only samples that often fail to capture the most active offenders (Fagan et al., 1986). By recruiting youth from recreational centers and including those who have been arrested, the sample attempts to include the most active and at-risk youth in the target neighborhoods. Studies employing nationally representative samples of youth are unlikely to have large proportions of serious offenders, which may limit the ability to assess such relationships (Blumstein, Cohen, Roth, & Visher, 1986; Patchin et al., 2006; Sampson & Laub, 1993).

Measures

Endogenous variables. Self-reported, serious delinquency (T2) serves as the primary dependent variable in the model. At the follow-up interview, youth were asked how many times in the past 6 months they had engaged in theft, shoplifting, robbery, stealing a car, assault against an adult, assault against a peer, arson or attempted arson, or carrying a weapon. Responses were summed across the behaviors to create a single frequency score. It should be noted that use of self-report data as measures of delinquency, particularly more serious delinquency, has raised questions of validity for quite some time (Farrington,

Loeber, Stouthamer-Loeber, Van Kammen, & Schmidt, 1996; Huizinga & Elliott, 1986). As Huizinga and Elliott (1986) stated, "[m]any of the indices of self-reported delinquency that have been used include items that do not involve violations of criminal statutes or involve such trivial infractions that they would rarely result in official action even if observed or discovered" (p. 309). To ensure that the current measure does indeed capture more serious forms of delinquent behavior, three checks of validity were employed.

First, only delinquent acts involving more serious violations of criminal laws or acts that would likely invoke official action were included in the index. Thus, unlike general delinquency indices that include acts such as underage drinking, truancy, violations of curfew, or other status offenses in addition to the above measures (see Agnew, 1993, p. 252), the seven measures included in the study appear to have face validity as indicators of more serious forms of delinquency. Descriptive statistics for the measure also provide evidence of face validity (see discussion of sample characteristics below) as three of the four most frequently reported delinquent acts involved violence (e.g., assaulting a peer or an adult) or the threat for violence (e.g., carrying a weapon).[2] Although the frequencies indicate that assault of a peer and shoplifting likely produce substantial variation in the measure, this is consistent with prior research that has attempted to assess serious delinquency (Agnew, 1993).

Finally, empirical validity of the measure was assessed by comparing the mean levels of reported delinquency across two groups: sample youth with an official arrest and sample youth without an arrest. Evidence of empirical validity would exist if arrested sample youth report significantly higher mean levels of serious delinquent behavior (Huizinga & Elliott, 1986). Results of the test (not shown) indicated that arrested youth did report significantly higher mean levels of serious delinquent involvement ($M = 5.08$ delinquent acts; $p < .001$) than non-arrested youth ($M = .89$ delinquent acts). Although the test is based on a non-probability sample, overall, the measure appears to be adequately valid as an indicator of serious delinquent involvement.

Parental supervision is a six-item mean score based on child queries of how much their parents knew about various aspects of their lives. Answers were based on a 4-point Likert-type scale ranging from 1 (*knows nothing*) to 4 (*knows everything*). The Appendix lists the exact items making up the parental supervision measure as well as the items used for all other endogenous and exogenous measures. Items were coded so that higher values indicate greater parental supervision. A mean score was computed by taking the average of the six responses for the primary parent involved in the youth's life (mother, $\alpha = .72$; father, $\alpha = .80$).[3] This measure was designed to reflect indirect parental supervision rather than direct supervision in which children are actually being watched by their parents. Such differentiation is important because prior research has suggested that the two forms are conceptually distinct (Warr, 2005, p. 95).

Parental attachment is an 11-item mean score. Respondents were asked a series of questions regarding the nature of the relationship with their parents. Youth were asked how often they felt each statement was true. Potential responses ranged from 1 (*never true*) to 4 (*always true*). Items were coded so that higher values indicate greater parental attachment and a mean scale score was computed (mother, $\alpha = .73$; father, $\alpha = .86$).

Delinquent peer associations reflect the involvement of the youth's friends in delinquent behavior. This measure was taken at T2 to establish proper temporal ordering in relation to the familial variables, and respondents were asked to report how many of their friends had

been involved in eight types of delinquent acts during the past 6 months. Potential responses ranged from 1 (*none of them*) to 4 (*all of them*). Similar to parental attachment and supervision, responses were coded so that higher values indicate more peer involvement in delinquent activity, and a mean score was computed ($\alpha = .85$).

Exogenous variables. Family structure is a dichotomous variable that reflects the living arrangements of the child during the past year (1 = single-parent household, 0 = two-parent household). A single-parent household includes youth who resided with either mother, father, or a single guardian, whereas a two-parent household reflects youth who lived with either both biological parents or one biological and one stepparent. It should be noted that the operationalization of this variable differs from that of recent research that measures specific types of "broken" households as a series of dummy variables (e.g., Demuth & Brown, 2004; Mack et al., 2007; Rebellon, 2002). Replicating these measures in the current study was problematic as more than 65% of the sample lived in either single-parent households with the mother being the parental figure or two-parent households containing both biological parents. This precluded any further breakdown of the structure variable as there would not be a sufficient number of cases for analytical purposes.

Serious delinquency (T1) is included as a control variable in the study. Past research has consistently shown that youths' prior delinquent behavior influences their family life, association with friends, and subsequent illegal behavior. Specifically, youths who engage in prior delinquent acts are more likely to have negative family relationships, to associate with delinquent peers, and to engage in future delinquency (Menard & Elliott, 1994; Thornberry, 1987; Thornberry et al., 1994). To account for these potential influences, a frequency measure of prior, serious delinquent behavior was created, reflecting the number of times respondents engaged in the same seven items used for the T2 measure during the 12 months prior to the initial interview.

Measures of race, age, and gender are included in the model as controls. In addition to the fact that these demographic characteristics are known correlates of delinquency, their inclusion as controls in the current study is also important because of the nonsystematic sampling design employed. Race is dichotomized into White and Non-White (1 = Non-White; 0 = White). Gender is also a dichotomous measure (1 = male; 0 = female). Finally, child's age is represented in years.

Results

Sample Characteristics

The study sample includes the 152 youth interviewed at two time periods. Table 1 displays descriptive statistics for the study and total sample. The majority (62%) of sample participants are male ranging in age from 9 to 15 years ($M = 12.04$, $SD = 1.28$) with roughly 90% of the sample being between ages 10 and 13 years. The racial composition is 57% minority, consisting of 42 African Americans, 40 Hispanics, and 5 who reported being some other race. Furthermore, 69 (45%) youth reported living in a two-parent home. In general, the sample reported rather high levels of parental attachment ($M = 3.43$, $SD = .44$) and supervision ($M = 3.05$, $SD = .67$) and low levels of peer involvement in delinquency ($M = 1.53$, $SD = .57$).

Table 1
Descriptive Statistics by Sample Group

	Total Sample $N = 221$		Time 1 Only $N = 69$		Study Sample $N = 152$	
Variables	M	SD	M	SD	M	SD
Demographics						
Age	12.08	1.22	12.16	1.09	12.04	1.28
Gender (1 = Male)	.66	.47	.75*	.43	.62	.49
Race (1 = Non-White)	.57	.50	.65	.48	.57	.50
Family variables						
Family structure (1 = single parent)	.53	.50	.49	.50	.55	.50
Parental attachment	3.42	.45	3.38	.46	3.43	.45
Parental supervision	3.06	.62	3.06	.54	3.05	.67
Peer delinquency						
Delinquent peers (T1)	1.59	.56	1.62	.53	1.58	.58
Delinquent peers (T2)	—	—	—	—	1.53	.57
Delinquency						
ln Serious delinquency (T1)	1.74	1.82	1.72	1.76	1.71	1.76
Serious delinquency (T2)	—	—	—	—	4.22	8.72

Note: ln = natural log. Time 1 Only and Study Sample groups are significantly different at *$p < .05$

Descriptive statistics also indicate that despite their young age, a significant portion of the sample youth were rather active offenders. Approximately one half (49%) of the youth reported engaging in at least one serious delinquent act at T2. More specifically, during the follow-up period 36.8% of sample youth reported assaulting a peer, 18.4% shoplifted, 15.1% carried a weapon (most commonly a knife), 9.9% reported assaulting an adult, 8.6% committed theft, 2.7% stole a car, and 3% reported being involved in a robbery or intentionally setting fire to property. It should also be noted that both measures of delinquency are highly skewed and to accommodate for this at T1, the natural logarithm was taken. This transformed variable is used in all subsequent analyses ($M = 1.71$, $SD = 1.76$). The original count measure at T2 is used for univariate and bivariate analyses; for the path model, however, a Poisson process is used to account for the skewness of the dependent variable.

Because of sample attrition, potential differences between the study sample and the total sample were also assessed. Results indicate a significant difference for gender. Specifically, girls were more likely than boys to be interviewed at both times ($t = 2.06$, $p < .05$). It should be noted that with respect to age, race, family life (structure, supervision, and attachment), peer involvement in delinquency at T1, and respondents' involvement in serious delinquency at T1 no significant differences were found between the two groups.

Bivariate Analysis

Table 2 presents a correlation matrix for the variables. All relationships are in the expected directions, and delinquent peer association is the strongest correlate of serious delinquency at T2 ($r = .58$, $p < .01$). Correlations among the familial variables and other

Table 2
Correlations Among Family Variables, Delinquent Peers, Controls, and Serious Delinquency

Variables	X1	X2	X3	X4	X5	Y1	Y2	Y3	Y4
Age (X1)	1								
Non-White (X2)	–.19*	1							
Male (X3)	–.05	.22**	1						
ln Serious delinquency (T1) (X4)	.12	.08	.24**	1					
Family structure (X5)	.09	.23**	.18*	.14	1				
Parental attachment (Y1)	–.10	.10	.05	–.34**	–.07	1			
Parental supervision (Y2)	.06	–.14	–.08	–.26**	–.19*	.47**	1		
Delinquent peers (T2) (Y3)	.26**	.04	.29**	.53**	.18*	–.24**	–.28**	1	
Serious delinquency (T2) (Y4)	.23**	–.04	.20*	.48**	.12	–.21**	–.15	.58**	1

Note: ln = natural log.
*p < .05 (2–tailed). **p < .01 (2–tailed).

endogenous variables are mixed. Although parental supervision and family structure are significantly correlated, parental attachment and family structure are not. Furthermore, neither family structure nor parental supervision is significantly correlated with serious delinquency (T2). These findings are in contrast to theory and prior research; however, measures of family structure and parental supervision are included in the final model to better determine their effects in a multivariate analysis that corrects for the skewness of the outcome of interest.

Path Analysis

Modeling serious delinquency (T2). To test the direct and indirect effects of family structure, parental attachment, and parental supervision on subsequent delinquency, a path model is tested (see Figure 1) using Mplus 3.12 and restricted maximum likelihood estimation (Muthén & Muthén, 2004). Recall that serious delinquency (T2) is a count variable measuring the total number of delinquent acts reported by youth during a 6-month period. Due to the nature of the data, the estimation of a path model treating serious delinquency (T2) as a continuously distributed variable would likely result in biased parameter and standard error estimates (Kline, 1998; Long, 1997). In such instances, Poisson models are used to estimate count outcomes.

Further examination of the data, however, reveal that a traditional Poisson model is also not appropriate in this case. A large number of youth (n = 78) reported no involvement in delinquency during the follow-up period. The number of zeros exceeds the number that would be expected following a Poisson distribution. In a sample with a mean of 4.224, one would expect approximately 2.22 zeros in the data under a Poisson distribution, substantially less than the 78 actually observed.[4] To account for these violations a zero-inflated Poisson (ZIP) model is employed.

A ZIP model is based on a dual-regime data-generating process, or the assumption that the data consists of two groups (Lambert, 1992; Long, 1997). In one group, there are those observations that will always have a zero value, and in the other group, there are those observations that follow a Poisson distribution, which might also contain zero values (Lambert, 1992).

Applied to the current data, the assumption is that there are sample youth who will never commit a serious delinquent act as well as sample youth who engage in serious delinquent activities but may not have done so during the 6-month follow-up period. Thus, there are two modeling components for ZIP regression. The first component models a binary latent variable (denoted hereafter as zero group γ) that predicts being in the group that must have a zero count, whereas the second component models the Poisson process after correcting for group membership (Lambert, 1992).[5] An advantage of this modeling approach, then, is that the independent variables in the model can be regressed on both components.[6]

Model results. Results of the path model are presented in Table 3 and Figure 1. Table 3 reports the unstandardized and standardized path coefficients with standard errors. Also, because mediated effects are of interest, indirect effects are included as well.[7] Figure 1 illustrates the final, trimmed model including standardized coefficients for significant and nonsignificant estimated paths. Due to the size of the sample and the complexity of the model, some control variable paths were trimmed from the model de facto to ensure the stability of the remaining path estimates. This was done by first estimating an initial model with all parameters estimated freely. Estimates for control variables close to zero were fixed in the final model. For clarity, the estimated paths for the control variables of age, race, and gender are not depicted in Figure 1 but are included in the table.

Overall, the low and non-significant chi-square statistic ($\chi^2 = 21.75$, $df = 14$, $p = .08$) along with the values of the Comparative Fit Index (CFI = .99), Tucker–Lewis Index (TLI = .98), and the root mean square error of approximation (RMSEA = .06) indicate good fit between the model and the data. Specifically, the CFI indicates that the model tested is 99% better than the estimated null model, while the TLI suggests that the overall fit of the model remains good after correcting for model complexity (Kline, 1998).[8] The RMSEA value of .06 is also acceptable. Finally, in assessing the adequacy of the model, it should be noted that the variables included explain a substantial portion of the variance (Pseudo $R2 = .62$) in serious delinquency (T2).[9]

Direct effects. When examining the effects of the familial and peer variables on the count process of serious delinquency (T2), delinquent peers (T2) is the only variable found to have a direct effect. Specifically, youth with a greater number of delinquent peers are more likely to engage in delinquent acts, and this relationship is strong ($\beta = .48$, $p < .01$). It should be noted, however, that the direct effect of parental attachment on serious delinquency (T2) is the strongest of the familial variables ($\beta = -.21$). This may prove to be important when potential indirect effects on delinquency are assessed later in the analysis. In addition, the natural log of serious delinquency at T1 ($\beta = .49$, $p < .01$) and race ($\beta = -.33$, $p < .05$) are directly related to the count process of serious delinquency (T2).

Findings for the remaining endogenous variables indicate that youth with higher levels of parental supervision are less likely to associate with delinquent peers ($\beta = -.17$, $p < .05$). Furthermore, youth from single-parent households have lower levels of parental supervision compared to youth residing in two-parent households, and youth with higher levels of parental attachment also experience higher levels of parental supervision. Compared to their direct effects on delinquency, these results lend support to the possibility that, even in a sample consisting primarily of preadolescent youth, the effect of familial variables on delinquency may be mediated by peer affiliations.

Table 3
Path Analysis Results Including Direct and Indirect Effects (N = 152)

Effect	b	SE	β
Direct effects			
Serious delinquency (T2)			
Family structure	.19	.21	.11
Parental attachment	–.40	.31	–.21
Parental supervision	–.05	.30	–.04
Delinquent peers (T2)	.72**	.25	.48
ln Serious delinquency (T1)	.24**	.08	.49
Non-White	–.57*	.23	–.33
Zero group γ			
Delinquent peers (T2)	–1.84**	.60	–.44
ln Serious delinquency (T1)	–.39**	.16	–.29
Delinquent peers (T2)			
Parental attachment	–.02	.11	–.02
Parental supervision	–.14*	.07	–.17
ln Serious delinquency (T1)	.13***	.03	.41
Age	.10***	.03	.23
Male	.22***	.07	.19
Parental supervision			
Family structure	–.16†	.09	–.12
Parental attachment	.73***	.11	.48
Non-White	–.22*	.09	–.16
Parental attachment			
Family structure	–.06	.07	–.06
ln Serious delinquency (T1)	–.09***	.02	–.36
Non-White	.10	.08	.12
Male	.11	.07	.12
Indirect effects			*Z* Test
Serious delinquency (T2)			
Family structure via Attachment	.02	.04	.51
Family structure via Supervision	.02	.05	.40
Parental supervision	–.10†	.06	–1.68
Parental attachment	–.01	.08	–.17
Delinquent peers (T2)			
Parental attachment via Supervision	–.10*	.05	–2.04
Model fit			
χ^2 =21.75 *df* = 14, *p* = .08			
CFI = .99, TLI = .98, RMSEA = .06			
Pseudo R^2 = .62			

Note: ln = natural log; CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

The effects of the control variables on the other endogenous variables reveal several significant findings. Youth who reported engaging in prior serious delinquency were significantly more likely to have delinquent peer associations at T2 and were significantly less likely to have strong bonds with their parents. This finding suggests that the behaviors of

parents and children influence each other, further verifying the need to estimate integrated theories of delinquency (see Farrington, 1987). The relationships between age, gender, delinquency, and negative peer association were consistent with past research. Older and male respondents were significantly more likely to report delinquent peer associations at T2. Finally, compared to White respondents, non-Whites reported significantly lower levels of parental supervision.

Indirect effects. Due to the nature of the hypothesized relationships between the familial, peer, and delinquency measures, indirect effects are reported, and two are worth noting. A significant, indirect effect is found for parental attachment on delinquent peers (T2) via parental supervision ($\beta = -.10$, $p < .05$). This suggests that the youth with strong emotional ties to their parents are also more likely to have their actions monitored, decreasing the chances that they will develop deviant peer relationships. By extension, youth are less likely to engage in serious delinquency.[10] Recall, however, that of the familial variables, parental attachment had the strongest direct effect. To determine which effect is stronger, another model was run with the direct path from attachment to delinquency removed. A Satorra-Bentler scaled chi-square difference test was conducted revealing no significant difference between the two models ($\chi^2_{diff}=1.84$, $df = 1$, $p > .05$), suggesting that the effect of attachment on delinquency is largely mediated by supervision and peer affiliations.

Relatedly, a weak indirect effect is also present for parental supervision on serious delinquency (T2) through delinquent peers (T2) ($\beta = -.10$, $p < .10$). Youth who are adequately monitored are less likely to have delinquent friends, thereby decreasing the likelihood that they will engage in delinquency themselves. Overall, both of these effects indicate that parenting processes are largely indirectly related to delinquency through peer affiliations.

Zero group membership. An advantage of the ZIP model is that, in addition to modeling the count process, independent variables can also be regressed on the component that predicts membership into the group that should never commit a serious delinquent act during the follow-up period. Thus, in addition to examining factors important for explaining involvement in delinquent activities, we can also determine what factors are the most important for explaining why youth would never engage in such behaviors. Results from the final, trimmed model yield two interesting results. The model indicates that prior delinquency and delinquent peer associations are important for predicting membership into this group. For example, a one-unit increase in delinquent peers (T2) leads to an 84% decrease in the odds of being in the Zero Group, whereas a one-unit increase in the natural log of serious delinquency (T1) leads to a 33% decrease in the odds of being in the Zero Group. In other words, having delinquent friends and engaging in prior serious delinquent acts greatly increases the likelihood of engaging in serious delinquent behavior at T2. Thus, within the current model, these two variables are important for explaining not only why youth might engage in serious delinquent acts (based on the results from the count process) but also why they might not.

Discussion and Conclusion

The goal of the current analyses was to explore the effect of parental and peer relationships on youth delinquency. Specifically, the model developed considered not only if family and peers affect delinquency but also how the measures collectively influence youth involvement in serious delinquency. Furthermore, the research hypotheses were tested using a

unique sample of adolescents that have not been typically captured in prior studies on this topic: younger juveniles who are most at risk for engaging in future serious delinquent behavior. Several implications arise from the results.

First, the results of the study offer insight into the role of family structure in explaining delinquent behavior. No significant direct or indirect effects on subsequent serious delinquency were found when comparing single-parent households to two-parent households. Furthermore, residence in a single-parent household was only marginally associated with lower levels of supervision and not associated with parental bonds. These results are similar to recent research also reporting such null findings for a broader range of structural arrangements (Mack et al., 2007). Consistent with this line of research, it may be the case that it is the nature of the parental process variables that are important in controlling delinquent behavior, irrespective of the type of family in which youth reside.

The current null findings, however, may also be due to limitations of the study. The sampling method and small sample size precluded a more explicit operationalization of the family structure measure. Prior research has noted the inadequacies associated with dichotomizing family structure (Free, 1991; Kierkus & Baer, 2002; Rebellon, 2002; Wells & Rankin, 1991).[11] For example, studies have indicated that the presence of a stepparent places a child at risk to engage in delinquency because children are less likely to be strongly attached to nonbiological parents (McCarthy, Gersten, & Langner, 1982; Rankin, 1983; Rebellon, 2002). As such, employing a simple dichotomy that was unable to differentiate biological from stepparents may have affected the results and could account for the fact that structure was unassociated with parental attachment. Furthermore, Rebellon (2002) found that the type of family was not as important in explaining delinquency as the timing of family disruption (e.g., distal or recent divorce) in youths' lives, a characteristic that also could not be captured in the current work. Future research would benefit by examining the current model with respect to other structural arrangements as well as the timing of parental separation in the youth's life.

Second, when looking at the results of the parental process variables, the findings suggest that the role of parental supervision is an important component for effectively addressing antisocial behavior. Consonant with control theory, youth who reported higher levels of indirect, parental supervision were less likely to associate with delinquent peers. The indirect effect of supervision on delinquency through peer associations (although weak) also suggests that, for this population of youth, the role of parental supervision is important for monitoring the types of friends youth associate with, independent of the type of social bonds between parent and child, though further research is warranted.

The finding that the effect of parental attachment is mediated by supervision and peer associations is also similar to recent research reporting similar findings (Jang & Smith, 1997; Warr, 2005). As Warr (2005) contended, "[p]arents who are close to their children, it seems, are more consistently conscious of their children's associates, and that awareness reduces the chances that their children will take up with delinquent friends" (p. 96). Such a relationship decreases the likelihood that children will engage in delinquency themselves. This indirect relationship further illustrates that effective parental monitoring is a key factor for the sample youth.

Our finding that attachment had no direct effect on delinquency, however, is not consistent with a larger body of research suggesting otherwise (Demuth & Brown, 2004; Hirschi, 1969; Kierkus & Baer, 2002; Mack et al., 2007; Sokol-Katz et al., 1997). Although it may be the

case that parental attachment operates through parental supervision, the implication of this finding must again be tempered by the nature of the sample under study. The current sample includes an overrepresentation of delinquent and minority youth who reside in disadvantaged areas many of whom reside in single-parent, female-headed households. Prior research assessing the role of parents in such disadvantaged areas has stressed the importance of direct and indirect supervision (Anderson, 1999). Thus, the findings for parental supervision in the current work as a direct influence on delinquent peer associations and a mediator of parental attachment may be due to the context from which the sample was drawn. Although the characteristics of the current sample do allow for an examination of a population at a high risk for engaging in future criminal activity, it is not representative of adolescents in this age group and the generalizability of the findings to the larger juvenile population may be limited.

Third, the results indicate that in addition to its mediating effects and consistent with differential association and social learning theories, association with delinquent peers increased the likelihood of delinquent behavior, even after controlling for parental relationships and past involvement in delinquency. Conversely, youth without delinquent friends were significantly more likely to be in the group that would be the least likely to have committed a delinquent act at T2. These were some of the strongest effects of all the relationships observed in the model.

The current results are consistent with prior research suggesting that parents and peers matter in determining youth delinquency relationship and delinquency; however, in addition to the limitations associated with the measurement of family structure and with generalizability, two additional caveats require mention. First, the small sample size precluded the ability to include other theoretically meaningful variables that might influence the familial, peer, or delinquency measures included in the model (e.g., self-control). Second, the relationship between delinquent peers (T2) and serious delinquency (T2) may be overestimated. Because the measure is based on respondents' self-reports and was taken at the same time as the delinquency measure, some of the observed effect could be the result of response bias. This aspect of the research design was beyond the control of the research team; however, actions were taken to reduce overestimation by including prior serious delinquency as a control and by modeling serious delinquency (T2) as a Poisson process.[12] In spite of these precautions, this relationship should be interpreted conservatively.

Overall, it appears that strong family relationships and parental supervision can reduce the chances of negative relationships between youth; however, friends are strong models of delinquent behavior. These results suggest the need for a comprehensive delinquency prevention strategy that focuses on ameliorating risk factors and buttressing protective factors from within multiple social domains. Early involvement in delinquent behaviors is influenced by parents and peers, and as such, interventions aimed at early offenders should include elements intended to improve relationships with prosocial others and reduce contacts with antisocial associates. Effective family-oriented programs such as Functional Family Therapy (Sexton & Alexander, 2000) or Parent Management Training (Kazdin, 2005; Perkins-Dock, 2001) may have the desired collateral effect of decreasing youth's exposure to delinquent peers. Essentially, developing good parenting practices at an early age can protect youth from other emerging noxious influences, most notably antisocial peers, while introducing other prosocial individuals (such as mentors) can help guide them to make constructive decisions. Finally, the research findings provide additional support for the blending of differential association and control theories when examining youth delinquency.

Appendix A
Description of Variables

Variable	Description
Endogenous variables	
Parental attachment	An 11-item mean score measuring child perceptions of parental involvement. Youth were asked to indicate the frequency of positive interactions including: You get along well with your mother/father; You feel you can really trust your mother/father; You really enjoy your mother/father; You have a lot of respect for your mother/father; You think your mother/father is terrific; You feel proud of your mother/father. Response items included: 1 = *never*, 2 = *once in a while*, 3 = *sometimes*, or 4 = *always true*. Youth were also asked to note how often the following negative interactions occurred including: Your mother/father does not understand you; Your mother/father is too demanding; Your mother/father interferes with your activities; You feel angry toward your mother/father; You feel violent toward your mother/father. Response items included: 1 = *always true*, 2 = *sometimes*, 3 = *once in a while*, 4 = *never*.
Parental supervision	A 6-item mean score in which youth were to respond how much they thought their parents knew about certain aspects of their lives including close friends, what you do with your friends, close friends' parents, who you are with when you are not at home, teachers, and what you are doing at school. Possible responses included 1 = *knows nothing*, 2 = *knows very little*, 3 = *knows something*, 4 = *knows everything*.
Delinquent Peer Association	An 8-item mean score measuring peer engagement in delinquent behaviors in the past 6 months including drinking beer, wine, or liquor; used a weapon or force to get money or things from people; attacked someone with the idea of seriously hurting them, hit someone with the idea of hurting them; stole something worth more than US$100; stole something worth more than $5 but less than $50; damaged or destroyed someone else's property on purpose; took a car for a ride without the owner's permission. Responses included 1 = *none of them*, 2 = *a few of them*, 3 = *some of them*, or 4 = *all of them*.
Exogenous variables	
Age	Youths' age in years at Time 1
Race	A dichotomous measure with 1 = Non-White; 0 = White
Gender	A dichotomous measure with 1 = male; 0 = female
Family structure	Dichotomous variable with 1 = child lived in a single parent/guardian household during the past year, 0 = child lived with two parents/guardians during the past year.
Serious delinquency	A seven-item additive scale measuring types of delinquent acts committed during the past year (Time 1) or 6 months (Time 2) including theft, shoplifting, robbery, stealing a car, assault against an adult or peer, arson or attempted arson, and carrying a weapon.

Notes

1. Warr's (2005) study assessed the effect of parental attachment and parental supervision on youths' association with delinquent peers. The analysis did not examine their effect on delinquent behavior as an outcome of interest.

2. Questions regarding the assault measures were asked so that respondents would equate their behavior in terms of getting into a physical fight, indicating a more serious behavior than simple "rough housing."

3. The structure of the interviews measured familial aspects separately for each parent that the youth lived with. Therefore, if the youth reported living with both parents, separate measures of supervision and attachment were recorded for the mother and father. To be able to assess the effect of family structure on attachment and

supervision, only one score (either the mother's or father's) was used. At the beginning of the initial interview, youth in two-parent households were asked which parent was considered their primary caretaker. Attachment and supervision scores based on the responses for the primary caretaker were used as the measures for these two variables. Although not ideal, the above approach is consistent with prior research that has encountered this issue (see Demuth & Brown, 2004).

4. This was calculated using $N \bullet \exp(-\lambda_i)$ or the formula for the Poisson distribution when the count $(y_i) = 0$ multiplied by the sample size.

5. The binary variable is latent because it cannot be determined from the data which group youth who report no involvement in delinquency belong in (Long, 1997, p. 242).

6. In this context, a zero-inflated Poisson (ZIP) model is deemed appropriate because the technique relaxes the assumption that the mean of the dependent variable equals the variance (Long, 1997, p. 249). It should be noted that the ZIP model only applies to the portion of the path model where serious delinquency (T2) is the dependent variable. All other endogenous variables are treated as continuous, and their effects on each other are assessed using the maximum likelihood estimation (MLR) restricted estimator and correspond to ordinary path coefficients.

7. Mplus does not estimate indirect effects for count outcomes because they are modeled as latent variables. Indirect effects, however, can still be calculated using the Delta method where the parameter estimates equal the products of the unstandardized coefficients and standard errors computed accordingly: $SE_{ab*} = \sqrt{b^{*2}\ SEa^2\ a^2SEb^{*2} + SEa^2SEb^{*2}}$ where b^* denotes the unstandardized regression coefficient for the latent response variable. Significance is determined using a Z statistic equal to $ab^*/SEab^*$ (see Muthén & Muthén, 2004).

8. In this case, the null model is one in which no relationships are specified and all variables are assumed uncorrelated with each other (Kline, 1998, p. 129).

9. Calculated by taking $1- (-LL_{\text{final model}} / -LL_{\text{null model}})$ which can be interpreted as a pseudo R^2 statistic (Chin & Quddus, 2003). This statistic includes explained variation for the latent binary process and Poisson process for modeling serious delinquency (T2).

10. Kline (1998, pp. 150-151) noted that indirect effects involving more than three variables can be considered significant when all of the paths comprising the effect are significant which is the case here.

11. We thank an anonymous reviewer for directing us to this literature.

12. The Poisson modeling process used does not allow for an explicit test for a bidirectional relationship between peers and delinquency, nor does it allow for their measurement errors to be correlated because no residual variance is computed for serious delinquency (T2).

References

Agnew, R. (1991). The interactive effects of peer variables on delinquency. *Criminology, 29*(1), 47-72.

Agnew, R. (1993). Why do they do it? An examination of the intervening mechanisms between "social control" variables and delinquency. *Journal of Research in Crime and Delinquency, 30*(3), 245-266.

Agnew, R. (2001). Juvenile delinquency: Causes and control. Los Angeles: Roxbury.

Akers, R. L. (1973). *Deviant behavior: A social learning approach.* Belmont, CA: Wadsworth.

Akers, R. L. (1989). A social behaviorist's perspective on integration of theories of crime and deviance. In S. F. Messner, M. D. Krohn, & A. E. Liska (Eds.), *Theoretical integration in the study of deviance and crime: Problems and prospects* (pp. 23-36). Albany: State University of New York Press.

Anderson, E. (1999). Code of the street: Decency, violence, and the moral life of the inner city. New York: Norton.

Aseltine, R. (1995). A reconsideration of parental and peer influences on adolescent deviance. *Journal of Health and Social Behavior, 36*, 103-121.

Blumstein, A., Cohen, J., Roth, J. A., & Visher, C. A. (1986). *Criminal careers and career criminals.* Washington, DC: National Academy Press.

Canter, R. (1982). Family correlates of male and female delinquency. *Criminology, 20*(2), 149-167.

Cernkovich, S. A., & Giordano, P. C. (1987). Family relationships and delinquency. *Criminology, 25*(2), 295-321.

Chin, H. C., & Quddus, M. A. (2003). Modeling count data with excess zeros: An empirical application to traffic accidents. *Sociological Methods & Research, 32*(1), 90-116.

Demuth, S., & Brown, S. L. (2004). Family structure, family processes, and adolescent delinquency: The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency, 41*(1), 58-81.

Elliott, D., Huizinga, D., & Ageton, S. (1985). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Fagan, J. A., Piper, E. S., & Moore, M. (1986). Violent delinquents and urban youth: Correlates of survival and avoidance. *Criminology, 24*, 439-471.

Farrington, D. P. (1987). Early precursors of frequent offending. In J. Q. Wilson & G. C. Loury (Eds.), *From children to citizens* (pp. 27-50). New York: Springer-Verlag.

Farrington, D. P. (1989). Early predictors of adolescent aggression and adult violence. *Violence and Victims, 4,* 79-100.

Farrington, D. P., Loeber, R., Stouthamer-Loeber, M., Van Kammen, W., & Schmidt, L. (1996). Self-reported delinquency and a combined delinquency seriousness scale based on boys, mothers, and teachers: Concurrent and predictive validity for African-Americans and Caucasians. *Criminology, 34*(4), 493-517.

Free, M. D., Jr. (1991). Clarifying the relationship between the broken home and juvenile delinquency: A critique of the current literature. *Deviant Behavior, 12*(2), 109-167.

Gorman-Smith, D., Tolan, P., Loeber, R., & Henry, D. (1998). Relation of family problems to patterns of delinquent involvement among urban youth. *Journal of Abnormal Child Psychology, 26*(5), 319-333.

Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime.* Stanford, CA: Stanford University Press.

Herrenkohl, T. I., Hawkins, J. D., Chung, I.-J., Hill, K. G., & Battin-Pearson, S. (2001). School and community risk factors and interventions. In R. Loeber & D. P. Farrington (Eds.), *Child delinquents: Development, intervention, and service needs* (pp. 211-246). Thousand Oaks, CA: Sage.

Hirschi, T. (1969). *Causes of delinquency.* Berkeley: University of California Press.

Huizinga, D., & Elliott, D. (1986). Reassessing the reliability and validity of self-report delinquency measures. *Journal of Quantitative Criminology, 2*(4), 293-327.

Jang, S., & Smith, C. (1997). A test of reciprocal causal relationships among parental supervision, affective ties, and delinquency. *Journal of Research in Crime and Delinquency, 34*(4), 307-336.

Kandel, D. (1996). The parental and peer contexts of adolescent deviance: An algebra of interpersonal influences. *Journal of Drug Issues, 26*(2), 289-315.

Kazdin, A. E. (2005). Parent management training: Treatment for oppositional, aggressive, and antisocial behavior in children and adolescents. New York: Oxford University Press.

Kierkus, C. A., & Baer, D. (2002). A social control explanation of the relationship between family structure and delinquent behaviour. *Canadian Journal of Criminology, 44*(4), 425-458.

Kline, R. (1998). Principles and practice of structural equation modeling. New York: Guilford Press.

Lambert, D. (1992). Zero-inflated Poisson regression, with an application to defects in manufacturing. *Technometrics, 34*(1), 1-13.

Lipsey, M. W., & Derzon, J. H. (1999). Predictors of violent or serious delinquency in adolescence and early adulthood. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86-105). Thousand Oaks, CA: Sage.

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates of predictors of juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), *Crime and justice* (Vol. 7, pp. 29-149). Chicago: University of Chicago Press.

Long, J. S. (1997). Regression models for categorical and limited dependent variables. Thousand Oaks, CA: Sage.

Mack, K., Leiber, M., Featherstone, R., & Monserud, M. (2007). Reassessing the family delinquency association: Do family type, family processes, and economic factors make a difference? *Journal of Criminal Justice, 35*(1), 51-67.

Marcos, A., Bahr, S., & Johnson, R. (1986). Test of a bonding/association theory of adolescent drug use. *Social Forces, 65*(1), 135-160.

Matsueda, R., & Anderson, K. (1998). The dynamics of delinquent peers and delinquent behavior. *Criminology, 36*(2), 269-308.

McCarthy, E. D., Gersten, J. C., & Langner, T. S. (1982). The behavioral effects of father absence on children and their mothers. *Social Behavior and Personality, 10,* 11-23.

McCord, J. (1991). Family relationships, juvenile delinquency, and adult criminality. *Criminology, 29,* 243-266.

Menard, S., & Elliott, D. (1994). Delinquent bonding, moral beliefs, and illegal behavior: A three-wave panel model. *Justice Quarterly, 11*(2), 173-188.

Muthén, L., & Muthén, B. O. (2004). *Mplus user's guide* (3rd ed.). Los Angeles, CA: Muthén & Muthén.
Patchin, J. (2006). *The family context of childhood delinquency.* New York: LFB Scholarly.
Patchin, J. W., Huebner, B. M., McCluskey, J. D., Varano, S. P., & Bynum, T. S. (2006). Exposure to community violence and childhood delinquency. *Crime & Delinquency, 52*(2), 307-332.
Patterson, G. R. (1980). Children who steal. In T. Hirschi & M. Gottfredson (Eds.), *Understanding crime: Current theory and research* (pp. 73-90). Beverley Hills, CA: Sage.
Patterson, G. R. (1982). *Social learning approach to family intervention.* Eugene, OR: Castilia.
Perkins-Dock, R. E. (2001). Family interventions with incarcerated youth: A review of the literature. *International Journal of Offender Therapy and Comparative Criminology, 45*(5), 606-625.
Pratt, T., & Cullen, F. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology, 38*(3), 931-963.
Rankin, J. H. (1983). The family context of delinquency. *Social Problems, 30,* 466-479.
Rankin, J. H., & Wells, L. E. (1990). The effect of parental attachments and direct controls on delinquency. *Journal of Research in Crime and Delinquency, 27*(2), 140-165.
Rebellon, C. (2002). Reconsidering the broken homes/delinquency relationship and exploring its mediating mechanism(s). *Criminology, 40*(1), 103-135.
Sampson, R. J., & Laub, J. H. (1993). *Crime in the making: Pathways and turning points through life.* Cambridge, MA: Harvard University Press.
Sampson, R. J., & Lauritsen, J. L. (1994). Violent victimization and offending: Individual-, situational-, and community-level risk factors. In A. J. Reiss & J. A. Roth (Eds.), *Understanding and preventing violence* (Vol. 3, pp. 1-114). Washington, DC: National Academy Press.
Sexton, T. L., & Alexander, J. F. (2000). *Functional family therapy* (Juvenile Justice Bulletin). Washington, DC: Office of Juvenile Justice and Delinquency Prevention.
Sokol-Katz, J., Dunham, R., & Zimmerman, R. (1997). Family structure versus parental attachment in controlling adolescent deviant behavior: A social control model. *Adolescence, 32*(125), 199-215.
Sutherland, E. H. (1947). *Principles of criminology* (4th ed.). Philadelphia: J. B. Lippincott.
Sutherland, E. H., Cressey, D. R., & Luckenbill, D. F. (1992). *Principles of criminology* (11th ed.). New York: General Hall.
Thornberry, T. (1987). Toward an interactional theory of delinquency. *Criminology, 25*, 863-891.
Thornberry, T., Lizotte, A., Krohn, M., Farnworth, M., & Jang, S. (1994). Delinquent peers, beliefs, and delinquent behavior: A longitudinal test of interactional theory. *Criminology, 32*(1), 47-83.
Toby, J. (1957). Social disorganization and stakes in conformity: Complementary factors in the predatory behavior of hoodlums. *Journal of Criminal Law, Criminology, and Police Science, 48,* 12-17.
Unnever, J. D., Cullen, F. T., & Agnew, R. (2006). Why is bad parenting criminogenic? Implications from rival theories. *Youth Violence and Juvenile Justice, 4*(1), 3-33.
Warr, M. (1993). Parents, peers, and delinquency. *Social Forces, 72*(1), 247-264.
Warr, M. (2002). *Companions in crime.* Cambridge, UK: Cambridge University Press.
Warr, M. (2005). Making delinquent friends: Adult supervision and children's affiliations. *Criminology, 43*(1), 77-106.
Warr, M., & Stafford, M. (1991). The influence of delinquent peers: What they think or what they do? *Criminology, 29*(4), 851-865.
Wells, L. E., & Rankin, J. H. (1991). Families and delinquency: A meta-analysis of the impact of broken homes. *Social Problems, 38*, 71-93.
Wright, B. E., Caspi, A., Moffitt, T., & Silva, P. (1999). Low self-control, social bonds, and crime: Social causation, social selection, or both? *Criminology, 37*(3), 479 514.
Wright, J., & Cullen, F. (2001). Parental efficacy and delinquent behavior: Do control and support matter? *Criminology, 39*(3), 677-705.
Wright, J., Cullen, F., & Miller, J. (2001). Family social capital and delinquent involvement. *Journal of Criminal Justice, 29*(1), 1-9.

Jason R. Ingram is a PhD candidate in the School of Criminal Justice at Michigan State University. His primary research interests include policing and policy evaluation. His other research interests focus on juvenile delinquency and criminological theory.

Justin W. Patchin is an assistant professor of criminal justice in the Department of Political Science at the University of Wisconsin–Eau Claire. His research areas focus on policy and program evaluation, juvenile delinquency prevention, and school violence. For the past several years he has been exploring the online behaviors of adolescents, including social networking and cyberbullying.

Beth M. Huebner is an assistant professor in the Department of Criminology and Criminal Justice at the University of Missouri–St. Louis. Her principal research interests include the effect of incarceration on inmate opportunities for marriage and employment, parental incarceration and child outcomes, and the effect of race and gender on parole decisions. Her research has appeared in *Criminology, Justice Quarterly,* and the *Journal of Criminal Justice*.

John D. McCluskey is an associate professor in the Department of Criminal Justice at the University of Texas at San Antonio. His recent research has appeared in *Justice Quarterly, Crime & Delinquency*, and *Journal of Criminal Justice* on the topics of policing, delinquency, and violence.

Timothy S. Bynum is a professor in the School of Criminal Justice at Michigan State University. His principal research interests lie in the evaluation of public policies and interventions in the area of crime and justice. He is the director of the Michigan Justice Statistics Center, the state Criminal Justice Statistical Analysis Center, and is a coprincipal investigator for the national training, technical assistance, and research component for Project Safe Neighborhoods (PSN). His research has appeared in *Criminology, Justice Quarterly, Journal of Criminal Law and Criminology*, and other journals.