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Child and Adolescent Risk Factors that Differentially Predict Violent versus Nonviolent Crime

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Abstract

While most research on the development of antisocial and criminal behavior has considered nonviolent and violent crime together, some evidence points to differential risk factors for these separate types of crime. The present study explored differential risk for nonviolent and violent crime by investigating the longitudinal associations between three key child risk factors (aggression, emotion dysregulation, and social isolation) and two key adolescent risk factors (parent detachment and deviant peer affiliation) predicting violent and nonviolent crime outcomes in early adulthood. Data on 754 participants (46% African American, 50% European American, 4% other; 58% male) oversampled for aggressive-disruptive behavior were collected across three time points. Parents and teachers rated aggression, emotion dysregulation, and social isolation in fifth grade (middle childhood, age 10–11); parents and youth rated parent detachment and deviant peer affiliation in seventh and eighth grade (early adolescence, age 12–14) and arrest data was collected when participants were 22–23 years old (early adulthood). Different pathways to violent and nonviolent crime emerged. The severity of child dysfunction in late childhood, including aggression, emotion dysregulation, and social isolation, was a powerful and direct predictor of violent crime. Although child dysfunction also predicted nonviolent crime, the direct pathway accounted for half as much variance as the direct pathway to violent crime. Significant indirect pathways through adolescent socialization experiences (peer deviancy) emerged for nonviolent crime, but not for violent crime, suggesting adolescent socialization plays a more distinctive role in predicting nonviolent than violent crime. The clinical implications of these findings are discussed.

Keywords

Violent crime; nonviolent crime; aggression; emotion dysregulation; social isolation; parent detachment; peer deviancy

The annual cost of violent crime in the United States is estimated at hundreds of billions of dollars, including direct costs incurred by the medical, judicial and penal systems, as well as extensive direct costs to victims (Cohen & Piquero, 2009). *Violent crimes* include crimes directed toward people that use force or the threat of force to cause serious harm, such as aggravated assault, rape, and murder. In contrast, *nonviolent crimes* involve property or rule

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violations, such as theft, drug dealing, and burglary (Henry, Tolan, & Gorman-Smith, 2001; U.S. Office of Justice Programs, 2015). Despite rates of nonviolent crime that are lower than or equal to other industrialized nations, the United States has one of the highest rates of violent crime, especially lethal violent crime ("Countries compared by crime," 2009).

Research suggests that a majority of young offenders engage in nonviolent crime, whereas only a small subset escalates to violent crime (Cohen & Piquero, 2009). Understanding the risk factors that distinguish the small group at highest risk for future violent crime could aid in early detection efforts and inform prevention strategies (Broidy et al., 2003). Most risk research has focused on criminal behavior broadly defined, but a few studies have explored the differential prediction of nonviolent versus violent crime (Loeber & Farrington, 2012; Piquero, Jennings, & Barnes, 2012). This paper adds to this literature by exploring common versus unique predictors of early adult violent versus nonviolent crime in a large sample of at-risk youth followed longitudinally, using multiple informants to assess childhood and early adolescent characteristics, with arrest records to document adult crimes.

Common vs. Unique Pathways to Violent and Nonviolent Crime

Extensive research suggests that the roots of antisocial development emerge in childhood, marked by elevated aggression and emotional difficulties, and exacerbated by parent-child conflict and harsh discipline (Dodge, Greenberg, Malone, & CPPRG, 2008). By early adolescence, deviant peer affiliation accompanied by detachment from parents and reduced parental monitoring fosters the initiation of antisocial behavior (Loeber, Burke, & Pardini, 2009).

Within this broad framework, researchers have identified differentiated developmental patterns. For example, Moffitt (2006) introduced the distinction between childhood-onset and adolescent-limited patterns, documenting higher rates of childhood aggression and self-regulatory deficits among youth who initiated antisocial behavior early and showed chronic adult criminal activity, relative to those who began antisocial behavior later and desisted by early adulthood. In a parallel line of inquiry, researchers have documented different etiological and developmental pathways characterizing overt aggression versus covert rule-breaking behavior (see Burt, 2012 for a review). However, rarely are youth followed from childhood through adulthood to determine whether distinct childhood and adolescent experiences differentially predict persisting adult patterns of violent versus nonviolent crime (Loeber & Farrington, 2012). This is a question of high practical significance, given the inordinate human costs of violent crime relative to nonviolent crime (Reingle, Jennings, & Maldonado-Molina, 2012).

Some theorists have speculated that nonviolent and violent criminal behavior represent manifestations of the same underlying pathology (e.g., Sampson & Laub, 2003). Indeed, the frequency of nonviolent offending predicts future violent crime, suggesting they represent sequenced outcomes associated with a common antisocial developmental progression (Piquero et al., 2012). In contrast, research has also identified distinct risk factors that specifically predict violent offending (Broidy et al., 2003; Byrd, Loeber, & Pardini, 2012; Nagin & Tremblay, 1999).

Dysfunctional Social-emotional Development and Later Violent Crime

The most reliable predictor of later violent crime is elevated aggression in childhood (Loeber et al., 2009; Reingle et al., 2012). Trajectory studies by Nagin and Tremblay (1999) and replicated by Broidy et al. (2003) across six, cross-national, longitudinal data-sets found that boys' violent crime in late adolescence was best predicted by being in the highest trajectory of physical aggression from age 6–15 years. Similarly, several studies have documented higher levels of childhood physical aggression in samples of violent adolescents than those who committed nonviolent or no offenses (Lai, Zing, & Chu, 2015; Reingle et al., 2012). Theorists have suggested that adult violence emerges when an early propensity for hostile, domineering behavior is reinforced and overlearned during childhood and adolescence (Broidy et al., 2003).

In addition to aggressive behavior, significant social and emotional difficulties in childhood may increase risk for later violence. Elevated aggression and the emergence of violence have each been linked with negative emotionality and problematic peer relations (Burt, 2012; Lynam, Piquero, & Moffitt, 2004; Veltri et al., 2014). Developmental theorists have speculated that elevated childhood aggression often reflects reactivity in the more primitive neural circuits associated with the processing of fear and rage, evoked when children feel threatened (Vitaro, Brendgen, & Tremblay, 2002). Adverse living conditions and social isolation undermine the development of core self-regulatory capacities, eliciting defensive anger and fostering emotion dysregulation (Ciccheti, 2002).

Consistent with this developmental analysis, research has linked difficulties regulating emotion and managing anger in childhood with later criminal activity (Eisenberg, Spinrad, & Eggum, 2010), and in some studies, specifically later violence. For example, in the Dunedin longitudinal study, boys who were emotionally dysregulated were more likely to engage in violent (but not nonviolent) offending in early adulthood (Henry, Caspi, Moffitt, & Silva, 1996).

Aggressive children who are emotionally dysregulated are particularly likely to experience peer rejection and social isolation, and thereby become excluded from positive peer socialization opportunities that facilitate the growth of communication skills, empathy, and general social competence (Bierman, 2004). Social isolation, in turn, increases risk for later violence (Hawkins et al., 2000). Children who are isolated from mainstream peers often play with other aggressive children who encourage rebellious behavior and reinforce antisocial norms (Powers & Bierman, 2013). Peer-rejected children appear particularly vulnerable to developing a heightened vigilance for social threat and cues of impending conflict, choosing to act aggressively rather than experience vulnerability (Erath, El-Sheikh, & Cummings, 2009). For these reasons, the combination of childhood aggression, emotion dysregulation, and social isolation may reflect dysfunction in social-emotional development that primes children for later violence, making them more angry, reactive, and easily provoked to attack compared to aggressive children without the same level of concurrent social-emotional risks.

Adolescent Predictors of Nonviolent and Violent Crime

The transition into adolescence, generally considered a second phase in the development of antisocial behavior, is normatively accompanied by autonomy-seeking behavior. For many adolescents, the drive to establish autonomy involves purposeful distancing from parents and increased peer engagement (Dishion, 2014). From a social control perspective, distancing from parents, who are likely to reinforce socially normative values, coupled with engagement with peers who are more likely to embrace nonconventional attitudes and rebellious behavior, can lead to the initiation of delinquency (Loeber & Farrington, 2012). When detaching adolescents cease sharing personal information with their parents, it greatly diminishes their parents' ability to monitor them and protect them from risky situations or risky peers (Kerr & Stattin, 2002).

Several studies suggest that adolescent risk-taking, detachment from parents, and deviant peer affiliation may be more strongly associated with nonviolent crime than with the escalation from nonviolent to violent crime, although evidence is mixed (Dishion, 2014; Dodge et al., 2008; Veltri et al., 2014). For example, Capaldi and Patterson (1996) found that reduced parental monitoring predicted both violent and nonviolent arrests in early adulthood, but did not explain unique variance in violent offending once nonviolent offending was considered. In another study, peer delinquency predicted both violent and nonviolent delinquency but showed a stronger association with milder and nonviolent forms of delinquency (Bernburg & Thorlindsson, 1999). In contrast, however, other studies have found peer violence and peer delinquency to predict later engagement in and trajectories of both violent and nonviolent crime (Henry et al., 2001; MacDonald, Haviland, & Morral, 2009).

From a theoretical perspective, detaching from parents and affiliating with deviant peers changes the social norms and controls to which adolescents are exposed and leads to increased engagement in unsupervised activity, often facilitating self-serving behavior and corresponding rule-violations (Dishion, 2014). Most peer-facilitated adolescent antisocial activities fall in the category of nonviolent crimes (e.g., substance use, theft) rather than interpersonal violence. Hence, detaching from parents and affiliating with deviant peers may increase risk for nonviolent crimes, but not necessarily increase risk for the escalation to violent crime, once the association with nonviolent crime is accounted for. Additional research is needed to test this hypothesis.

The Present Study

A growing base of research suggests that social-emotional dysfunction in childhood, along with elevated aggression, may indicate unique risk for the emergence of violent crime in later adulthood, both because these characteristics may increase parent detachment and deviant peer affiliation at the transition into adolescence, as well as because these characteristics indicate difficulty managing feelings of intensive anger and social alienation. Yet, unique pathways to violent and nonviolent crime remain under-studied, particularly because few longitudinal studies include measures of childhood social-emotional dysfunction and aggression, and measures of adult violent and nonviolent crime. The present

sample included a large number of children living in risky contexts selected from four different areas of the United States and followed longitudinally from elementary school through early adulthood, with multiple measures of child social-emotional and behavioral functioning as well as court records of adult crime. As such, it offered a unique opportunity to explore differential predictors of violent and nonviolent crime, particularly the role of early social-emotional development along with early aggression. A key goal of this study was to better understand the relative roles of childhood social-emotional dysfunction and early adolescent risk factors as differential predictors of violent and nonviolent forms of early adult crime.

Based on research suggesting different pathways to violent and nonviolent crime (Hawkins et al., 2000; Loeber & Farrington, 2012), it was predicted that child aggression, emotion dysregulation and social isolation (reflecting childhood social-emotional dysfunction) would predict violent and nonviolent crime by increasing parent detachment and peer deviance, and also make a direct unique contribution to the prediction of violent crime. Given the less consistent research on associations between early adolescent social experiences and violent versus nonviolent crime, it was predicted that parent detachment and peer deviance would predict both forms of crime, with stronger (unique) contributions to nonviolent crime.

Method

Participants

Participants were 754 youth (46% African American, 50% European American, 4% other; 58% male) from a multi-site, longitudinal study of children at risk for conduct problems (Fast Track) that also involved a preventive intervention. This study used data collected from 1995 through 2009. Participants were recruited from 27 schools in high-risk areas located in four sites (Durham, NC; Nashville, TN; Seattle, WA; and rural PA.) In the large urban school districts, schools with the highest risk statistics (e.g. highest student poverty; lowest school achievement) were selected for participation; in the three participating rural school districts, all schools participated. All participating schools had kindergartens.

The sample selection proceeded as follows. First, in the late fall of three successive years, teachers rated the aggressive-disruptive behavior of all kindergarten children (total N = 9,594) on 10 items from the Authority Acceptance subscale of the TOCA-R (Werthamer-Larsson, Kellam, & Wheeler, 1991). Children who scored in the top 40% on this teacher screen at each site were identified (N = 3,274) and their parents rated aggressive-disruptive child behavior at home (Achenbach, 199l). Teacher and parent screen scores were averaged, and children were recruited beginning with the highest score and moving down the list until desired sample sizes were reached within sites (N = 891 high risk children, including 446 randomized by school to the control group and eligible for this study; see Lochman & CPPRG, 1995 for details). In addition, a *normative* sample (N = 396) was recruited to be representative of the school population at each site. The normative sample was recruited only from the control schools, so that intervention effects would not affect longitudinal course. For this sample, children were stratified to represent each site population on dimensions of race, sex, and decile of the teacher screen, and then chosen randomly within these blocks for study recruitment. The normative sample included a portion of the high-risk

control group to the proportional degree that they represented the school population. The selection of participants into the study is illustrated in Figure 3 (in the on-line appendix). The present study oversampled higher-risk students, including children from both the high-risk (59%) and normative (41%) samples, in order to increase variability in the risk factors and crime outcomes of interest. Of the 754 participants, 20 participants (3%) had no arrest records available. A MCAR test (Little, 1988) indicated that adult crime outcomes were missing completely at random. However, participants with missing data had higher levels of childhood aggression, emotion dysregulation, and youth-rated parent detachment and peer deviancy than participants with data. In structural equation models testing the study hypotheses, full information maximum likelihood estimation was used to account for missing data.

Measures

One parent, the primary caregiver, and one teacher (the primary classroom teacher) rated child social-emotional functioning (aggression, emotion dysregulation, social isolation) in fifth grade (age 10–11). Primary caregivers included biological mothers (86%), biological fathers (5%), a grandparent (5%), or other (e.g., step-parents, adoptive parents, or other guardians; 4%). Parents and youth rated parent detachment, and youth rated peer deviancy in early adolescence (age 12–14). Arrest records were collected in early adulthood. Measures are described below; technical reports that provide items and psychometric properties of all measures, are available at the Fast Track study website, http://fasttrackproject.org/data-instruments.php.

Child characteristics in late childhood—At the end of fifth grade, parents and teachers completed the Child Behavior Checklist – Parent and Teacher Report Forms (Achenbach, 1991). To assess aggression distinct from oppositional or hyperactive behavior, a 9-item narrow-band scale validated in a prior study (Stormshak, Bierman, & CPPRG, 1998) was used (e.g., gets in many fights, threatens, destroys things) (α = 0.91 parents, α = .92 teachers). Similarly, nine items were used to assess a narrow-band scale of social isolation (e.g., withdrawn, sulks, shy) (α = 0.72 parents, α = .79 teachers). For both measures, raw scores were standardized and averaged to create a parent-teacher composite. At the end of fifth grade, teachers also completed the emotion regulation subscale of the Social Competence Scale (CPPRG, 1995), comprised of nine items (each rated on a 5-point scale) assessing the child's ability to regulate emotions under conditions of elevated arousal (e.g., controls temper in a disagreement, calms down when excited or wound up; α = .78). The scale was reverse-scored to represent emotion dysregulation.

Socialization influences in early adolescence—During the summers following seventh and eighth grade, youth and parents completed the Parent-Child Communication Scale, adapted for the Fast Track Project from the Revised Parent-Adolescent Communication Form (Thornberry, Huizinga, & Loeber, 1995). The youth version included 10 items, all reverse scored for this study, assessing perceptions of parent unreceptiveness (e.g., my parent is a good listener, my parent tries to understand my thoughts) and child secrecy (e.g., I discuss problems with my parent, I can let my parent know what bothers me; α = .59). The parent version included 11 items, reverse scored, assessing perceptions of

child secrecy (e.g., my child talks to me about personal problems, my child tells me what is bothering him/her), and poor parent communication (e.g., I discuss my child's problem with my child; α = .53). All items were rated on a 5-point scale (from 1 = almost never to 5 = almost always), with high scores indicating more problems.

To assess peer deviancy, youth completed the Self Report of Close Friends (O'Donnell, Hawkins, & Abbott, 1995), describing their first-best and second-best friends' antisocial behavior with a 4-point Likert scale (1 = very much to 4 = not at all). In seventh grade, a 5-item version of this scale was used (e.g., gets in trouble with teachers, drinks alcohol, gets in trouble with police; α = .82). In eighth grade, seven additional items were added focused on joint antisocial activities (e.g., you and best friend got in trouble with the police; α = .89).

Arrest records—Adult arrest data were collected from the court system in the child's county of residence and surrounding counties when youth were 22–23 years old. A record of arrest corresponded to any crime for which the individual had been arrested and adjudicated. Exceptions were probation violations and referrals to youth diversion programs for first-time offenders. Court records of conviction were also collected and revealed that 65% of arrests resulted in convictions. Due to the high correlation between arrest and conviction data (.95 for males, .91 for females), only arrest data were examined in this study.

Trained research assistants assigned a severity score to each offense, using a cross-site coding manual based on the severity coding system used by Cernkovich and Giordano (2001). Status offenses and traffic offences were not included in this study due to their frequent occurrence and relatively normative nature among the general population. *Nonviolent crimes* included those coded at severity levels 2 (trespassing, vandalism, disorderly conduct, possession of stolen goods, possession of a controlled substance) and 3 (theft, breaking and entering, arson, prostitution). Violent crimes included those coded at severity levels 4 (second-degree assault, assault with a deadly weapon, domestic violence, robbery) and 5 (murder, aggravated assault, rape). As such, and consistent with the U.S. Office of Justice Programs definitions (U.S. Office of Justice Programs, 2015), violent crimes represented crimes directed towards people that used force or the threat of force to cause serious harm, and nonviolent crimes represented crimes that did not involve a threat of harm or attack upon a victim. The total number of life-time arrests for nonviolent and violent crimes were tabulated and used as the outcome variables.

Procedures

In the spring of children's fifth grade year, research assistants delivered measures to teachers, who then completed them. Parents and youth were interviewed at home in the summer following children's fifth, seventh, and eighth grade years; parents provided informed consent and youth provided assent. Parent interviews were conducted by research assistants who read through the questionnaires and recorded responses. Youth interviews were conducted using computer-administered processes, in which youth completed questionnaires on the computer while listening to the questions via headphones. Prior to all assessments, research assistants were trained in questionnaire administration and all assessment procedures. Financial compensation for study participation was provided to

teachers, parents, and children. All study procedures complied with the ethical standards of the American Psychological Association and were approved by the Institutional Review Board of the Pennsylvania State University (#103909).

Plan of Analysis

Data analyses proceeded in three stages. First, correlations were run to provide descriptive analyses and demonstrate the simple associations among the study variables. Then, a measurement model was evaluated, to determine the fit of the data to represent five latent constructs (childhood social-emotional dysfunction, early adolescent parent detachment, early adolescent deviant peer affiliation, adult nonviolent crime, adult violent crime). Finally, structural equation models were used to test the study hypotheses. Statistical power analysis, using the Preacher and Coffman (2006) method, indicated a power of 1, indicating high power for detecting poor model fit.

Results

Descriptive Analyses and Correlations

The means, standard deviations, and ranges for all study variables are shown in Table 1. Tests for sex differences demonstrated that, compared to girls, boys had significantly higher levels of aggression, emotion dysregulation, parent-rated child secrecy, parent-rated poor parent communication, first best friend's antisocial behavior (7^{th} and 8^{th} grade), second best friend's antisocial behavior (8^{th} grade), and nonviolent and violent crime (for all four severity levels).

Correlations among measures of childhood social-emotional dysfunction, parent detachment, and peer deviancy are shown in Table 2. Measures representing the latent constructs used in this study were significantly inter-correlated, ranging from $r = .27$ to $r = .64$ (child social-emotional functioning), $r = .29$ to $r = .72$ (parent detachment), and $r = .30$ to $r = .61$ (peer deviancy). Measures of child social-emotional dysfunction were significantly correlated with all measures of parent detachment, ranging from $r = .14$ to $r = .32$, and with most measures of peer deviancy, ranging from $r = .06$ to $r = .20$. Most correlations between parent detachment and peer deviancy were significant, ranging from $r = .06$ to $r = .22$.

Correlations between the childhood and adolescent risk factors and adult crime are shown in Table 3. Child aggression and emotion dysregulation significantly predicted all levels of nonviolent and violent crime (range $r = .16$ to $r = .29$). Social isolation significantly predicted only violent crime (severity levels 4 and 5, $rs = .09$ and .08, respectively). Peer deviancy predicted adult nonviolent crime (severity levels 2 and 3, range $r = .09$ to $r = .28$) but not violent crime. Parent detachment showed a mixed pattern of significant and non-significant associations with adult crime (range $r = .01$ to $r = .20$). These correlations confirm anticipated links between the risk factors and adult crime, with childhood aggression and emotion dysregulation predicting both nonviolent and violent crime, social isolation predicting only violent crime, and peer deviancy and parent detachment predicting primarily nonviolent crime.

Structural Equation Models

Next, a measurement model was estimated, with four latent constructs: 1) childhood social-emotional dysfunction (parent and teacher ratings of aggression, emotion dysregulation, and social isolation), 2) early adolescent parent detachment (parent and youth ratings of parent unreceptiveness, poor parent communication, and child secrecy), 3) early adolescent deviant peer affiliation (youth ratings of best friends' deviant behavior), 4) early adult nonviolent crime (severity levels 2 and 3), and 5) early adult violent crime (severity levels 4 and 5). Model fit indices indicated that the predicted relations among observed measures and latent constructs did an acceptable job of representing patterns in the data, χ^2 (df = 76) = 180.79, p < .001, relative χ^2 = 2.38, CFI = .96, RMSEA = .043, 90% CI [.035, .051]. Even though a non-significant χ^2 is preferred, this is rare in large samples, and the relative χ^2 and other fit indices indicate an adequate fit (see Figure 1).

The structural equation model compared the predictive links between child social-emotional dysfunction, early adolescent parent detachment and peer deviancy, and early adult violent and nonviolent crime when examined together in the same model. The overall fit of the structural model was satisfactory, χ^2 (df = 78) = 279.51, p < .001, relative χ^2 = 3.58, CFI = .92, RMSEA = .059, 90% CI [.051, .066]. As shown in Figure 2, child social-emotional dysfunction in late childhood made significant unique contributions to parent detachment and deviant peer affiliation in early adolescence, as well as significant unique contributions to nonviolent and violent crime in early adulthood, with the strongest contribution to violent crime (β = .48). Deviant peer affiliation in early adolescence made significant unique contributions to nonviolent, but not violent, crime. Parent detachment did not show unique significant associations with nonviolent or violent crime.

Discussion

Despite the many serious consequences associated with violent crime, limited research exists on risk factors that uniquely predict violent versus nonviolent crime. In the present study, different pathways to violent and nonviolent crime emerged. The severity of child social-emotional dysfunction (aggression, emotion dysregulation, social isolation) was a powerful and direct predictor of violent crime. Although child dysfunction also predicted a direct pathway to nonviolent crime, the variance accounted for was approximately half the variance accounted for in violent crime. Significant indirect pathways through peer deviancy emerged for nonviolent but not violent, crime, suggesting that this adolescent socialization process plays a more distinctive role in shaping nonviolent than violent crime when both are considered together. Despite significant associations between parent detachment and nonviolent crime, when considered with the other child and adolescent factors, no significant unique pathway emerged.

Predicting Violent Crime

In this study, risk for future violent crime was indicated by a childhood profile that included emotional and social dysfunction, as well as aggressive behavior. As children, individuals who later became violent criminals were aggressive (fighting, physically attacking others, destroying others' things) and interpersonally hostile (teasing, threating others). They were

also frequently angry and volatile emotionally (difficulties tolerating frustration, calming down when upset, and controlling anger), and socially isolated, reflecting social discomfort (prefers to be alone, shy) and social demoralization (sulks, unhappy). The results are consistent with studies showing robust associations between later violent offending and both childhood aggression (Broidy et al., 2003; Lai et al., 2015) and childhood emotional dysregulation and social isolation (Hawkins et al., 2000; Henry et al., 1996). In addition, by demonstrating the coherence and predictability of a childhood latent factor of social-emotional dysfunction, the present findings extend prior research by suggesting that the behavioral, emotional, and social difficulties experienced by these vulnerable children need to be considered together, and their developmental interplay understood.

It is well-established that children who grow up in contexts characterized by high levels of exposure to conflict and violence are more likely to display aggression and develop anti-social behavior than children growing up in more protected environments (Dodge et al., 2008). Largely, this has been explained by social learning and social control theories that emphasize the role that parents and peers play in modeling, normalizing, and reinforcing aggression (Dishion, 2014; Loeber, et al., 2009). Recent research has also highlighted the way in which chronic stress associated with violence exposure can negatively impact developing neural systems that affect emotional functioning and support self-regulation (Blair & Raver, 2012). Exposure to environments with high levels of conflict and violence may both teach aggressive behavior and undermine the development of emotion regulation, empathy, and self-control. The result may be a transactional process in which emotion dysregulation, aggressive behavior, and social alienation interact over time to increase the propensity for violence (Vitaro et al., 2002). For example, when frustrated or disappointed, emotionally-dysregulated children are less able to modulate their feelings of anger or inhibit their aggressive impulses. Consequently, they are prone to react aggressively when upset, eliciting negative reactions from others, limiting opportunities for positive social interactions, and exacerbating feelings of social alienation (Bierman, 2004; Dodge et al., 2008). This is the first long-term predictive study to document a unique link between these childhood characteristics and later violence, distinguished from nonviolent crime.

Predicting Nonviolent Crime

Nonviolent crime in early adulthood was predicted by elevated child social-emotional dysfunction; however, in contrast to violent crime, the direct pathway between child dysfunction and nonviolent crime was smaller and was accompanied by indirect pathways that included deviant peer affiliation. The findings support a cascade model in which childhood social-emotional dysfunction increases risk for peer deviance in early adolescence, which, in turn, increases risk for initiation of crime (Dishion, 2014). The present findings also extend the existing literature, suggesting that deviant peer affiliation predicts primarily to nonviolent (rather than violent) crime when both are modeled together (Bernburg & Thorlindsson, 1999; Veltri et al., 2014). Relatedly, the findings suggest that social control models emphasizing the influence of deviant norms reinforced by antisocial friends (Bernburg & Thorlindsson, 1999) may explain more of the variance in nonviolent than violent crime. This may be in part because deviant peers often endorse rule-breaking behavior, motivated by self-gain, but less often endorse interpersonal violence, which

involves a more radical dismissal of social mores with potentially deleterious effects on group cohesion (Bernburg & Thorlindsson, 1999). In the present study, parent detachment was correlated with deviant peer affiliation and adult crime; however, in the structural model, parent detachment made no unique contribution to crime. This suggests that parent detachment alone does not increase risk for engagement in nonviolent crime.

Limitations

Several limitations of the current study warrant consideration. First, although the use of the current at-risk sample conferred many advantages by providing rich data on childhood and adolescent risks and adult crime, the sample was not nationally representative. The extent to which the current findings can be generalized to normative populations is not clear. The sample was selected from at-risk communities characterized by elevated rates of poverty and crime which may have heightened the capacity to predict future crime; prediction may be more difficult in communities with lower base rates of crime (Lochman & CPPRG, 1995). Second, although the study utilized several widely-used measures, the parent detachment measure was adapted for the present study and was based on parent and child ratings; a validated observational index of parent-child communication would have strengthened the assessment model. Third, only two indices of adolescent social experiences were assessed in this study (parent detachment, deviant peer affiliation), and other indices may have shown additional effects on crime outcomes. Relatedly, although the assessments in seventh and eighth grade captured risk during the transition to adolescence, it is possible that assessments in later adolescence and more proximal to early adulthood might have yielded somewhat different findings. Still, the study of risk factors in early adolescence is likely to be most informative for early intervention efforts targeting the prevention of criminal behavior.

Clinical Implications

The findings suggest that the developmental roots of violent crime may be evident by the end of childhood, that children at high risk for later violence might be identified by late childhood, and that interventions designed to reduce violent crime may be more powerful when they start in childhood. The current findings also suggest that preventive interventions would benefit by focusing concurrently on addressing the emotional and social difficulties of children at high risk, as well as their high levels of aggressive behavior. In contrast, the study findings suggest that prevention efforts targeting nonviolent crime may require particular attention to adolescent social experiences, particularly deviant peer affiliation during early adolescence. Fostering stronger parent-youth communication bonds and structuring free time to reduce opportunities for unstructured deviant peer activity in early adolescence may help in the prevention of nonviolent crime. Yet, given this study’s findings of differential patterns of associations between adolescent social experiences and type of adult crime, it is likely that prevention efforts targeting parent-youth bonding and communication and peer affiliations in adolescence alone will have less impact on the reduction of violent crime.

Strengths and Future Directions

To date, little longitudinal research has examined the relative roles of child and adolescent risk factors in the unique pathways to violent and nonviolent crime. The current study, with

its assessment of risk across two distinct developmental time periods, afforded a unique opportunity to explore the comparative roles of childhood social-emotional dysfunction and early adolescent risk in the development of violent and nonviolent crime. The findings suggest distinct as well as shared developmental pathways (Nagin & Tremblay, 1999), and challenge conceptual frameworks asserting the generality of all forms of criminal behavior. The implications are that deviant peer affiliation in adolescence contributes primarily to nonviolent crime. In contrast, child social-emotional development appears key in the pathway to violent crime. These findings parallel the differential predictors of overt aggression versus covert rule-breaking behavior in childhood and adolescence (Burt, 2012) and suggest potential continuity into differential patterns of adult crime. Given the limited research examining differential prediction of nonviolent and violent crime, and the serious consequences of violent crime, further investigation of pathways to violent crime is warranted. This research should examine risk factors across different developmental periods, include markers of social and emotional functioning, as well as aggressive and antisocial behavior, and explore potential mechanisms of transmission.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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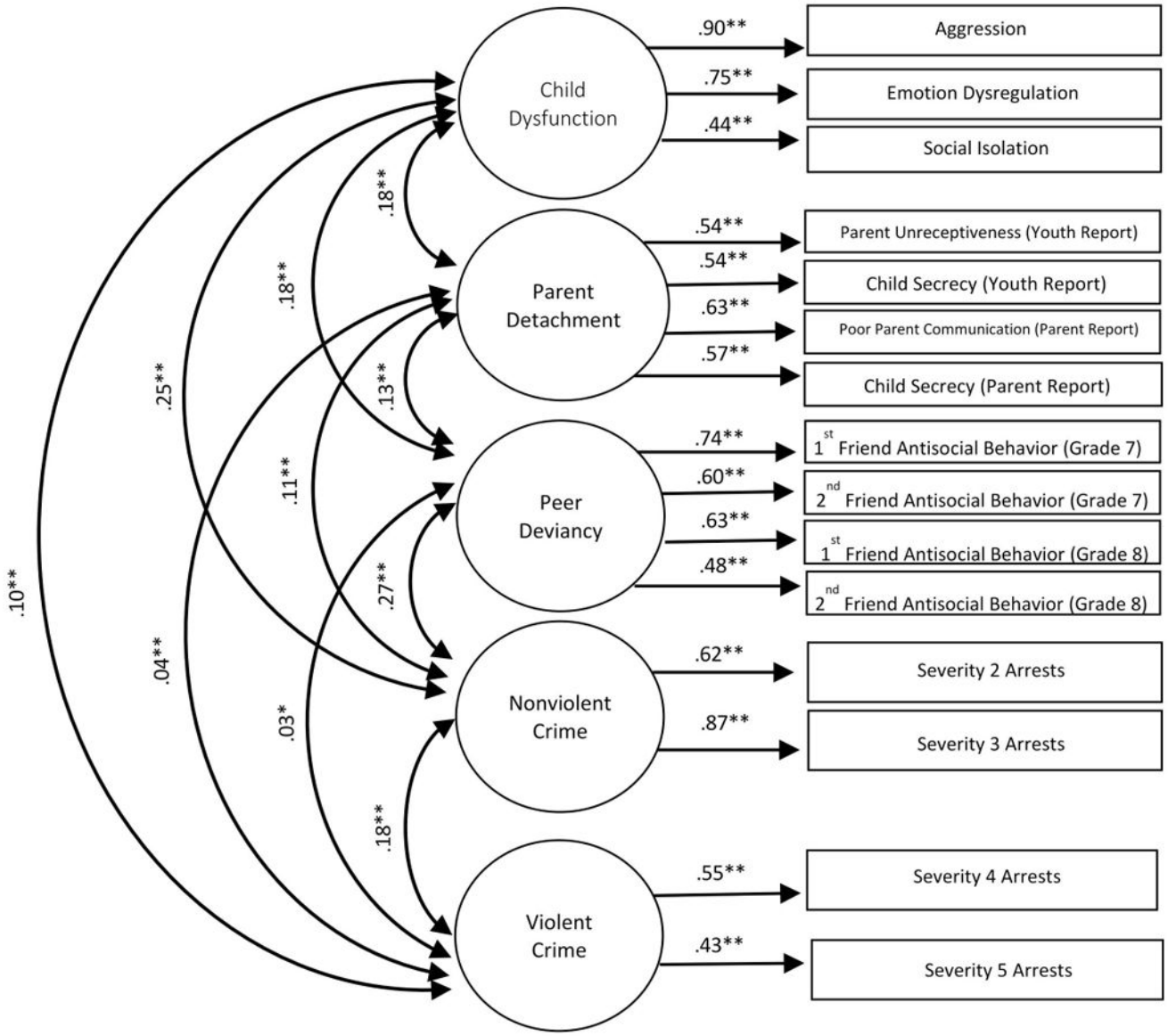


Figure 1.

Measurement Model: Childhood Dysfunction, Adolescent Social Experiences and Early Adulthood Crime Outcomes

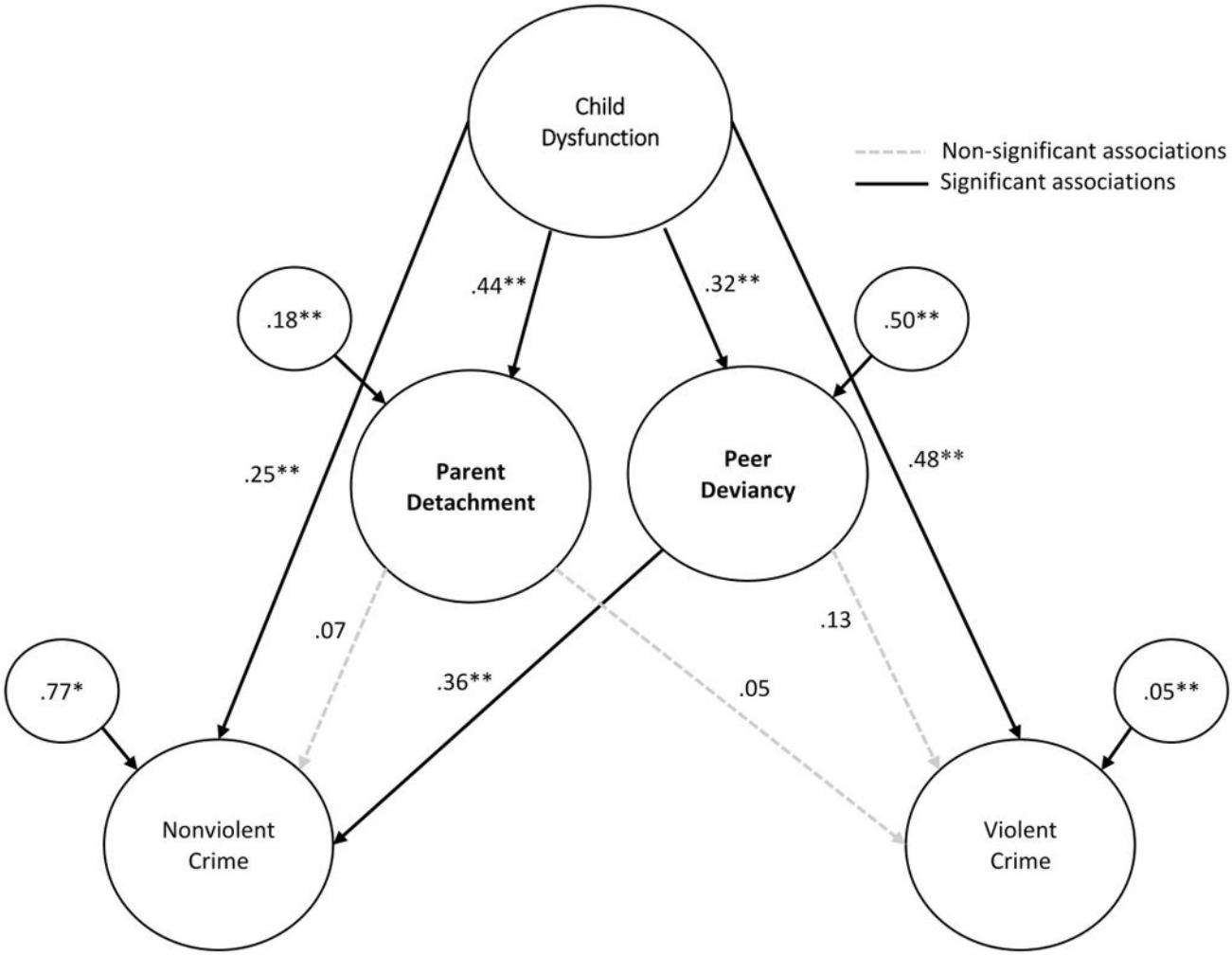
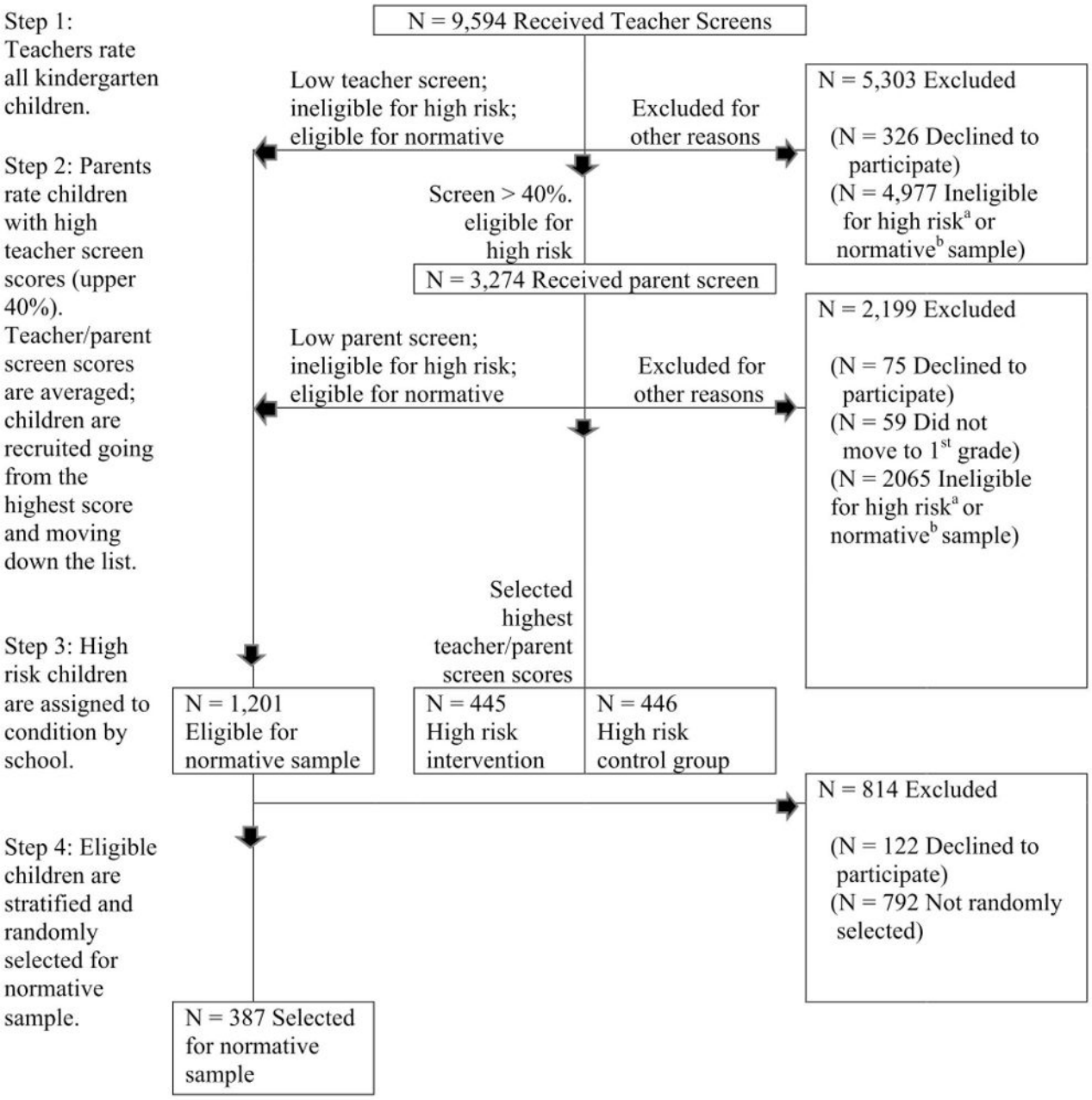


Figure 2.

Structural Models Predicting Early Adulthood Nonviolent and Violent Crime

Note: Child dysfunction was measured in fifth grade (age 10–11), parent detachment and deviant peer affiliation were measured in seventh and eighth grade (age 12–14), and nonviolent and violent crime were measured at ages 22–23. Standardized estimates arc shown. *p < .05; **p< .01.



Flow Chart.

Selecting High-Risk and Normative Samples

[a]Across three sequential years (cohorts 1–3) children were eligible for the high risk sample based on elevated teacher and parent screens, without regard for sex or race. Assignment to intervention or control group was based on the school they attended in first grade. [b]Children were eligible for the normative sample only if they were in cohort 1 (not cohort 2 or 3) and if they attended a control school (not an intervention school). Eligible children were stratified by sex and race to represent the school population and then randomly selected from those eligible.

Table 1

Descriptive Statistics for all Study Variables

Variables	N	Full Sample *M* (*SD*)	Full Sample Range	Male (N=437) *M* (*SD*)	Female (N= 317) *M* (*SD*)	Sex Diffs [a] *d*
Child Dysfunction (Grade 5)						
Aggression[b] - T, P	692	0.02 (0.85)	−0.91 to 3.53	0.22 (0.90)	−0.26 (0.70)	0.59
Emotion Dysregulation -T	642	3.19 (1.13)	1.00 to 6.00	3.40 (1.12)	2.90 (1.08)	0.46
Social Isolation [b] - T, P	692	0.02 (0.83)	−0.87 to 3.76	0.03 (0.82)	0.00 (0.86)	
Parent Detachment (Grade 7–8)						
Parent Unreceptiveness [b] -Y	630	0.00 (1.00)	−1.87 to 4.17	0.01 (0.93)	−0.01 (1.09)	
Child Secrecy [b] - Y	630	0.00 (1.00)	−1.80 to 2.60	0.03 (0.94)	−0.04 (1.08)	
Poor Communication [b] - P	636	0.00 (1.00)	−1.69 to 3.05	0.07 (0.98)	−0.10 (1.02)	0.17
Child Secrecy [b] - P	636	0.00 (1.00)	−1.88 to 3.10	0.14 (0.98)	−0.19 (0.99)	0.34
Peer Deviancy						
1st Friend Antisocial [b] -Y (Gr 7)	591	0.00 (1.00)	−0.59 to 4.09	0.08 (1.05)	−0.11 (0.91)	0.19
2nd Friend Antisocial [b] -Y (Gr 7)	590	0.00 (1.00)	−0.59 to 4.39	0.04 (1.05)	−0.05 (0.93)	
1st Friend Antisocial [b] -Y (Gr 8)	575	0.00 (1.00)	−0.67 to 4.53	0.08 (1.10)	−0.10 (0.84)	0.19
2nd Friend Antisocial [b] -Y (Gr 8)	566	0.00 (1.00)	−0.55 to 4.87	0.07 (1.14)	−0.10 (0.76)	0.17
Early Adult Crime						
Severity 2 Arrests – R	734	0.72 (1.51)	0.00 to 12.00	0.98 (1.77)	0.38 (0.96)	0.42
Severity 3 Arrests – R	734	0.61 (1.24)	0.00 to 10.00	0.86 (1.48)	0.26 (0.70)	0.52
Severity 4 Arrests - R	734	0.13 (0.45)	0.00 to 5.00	0.18 (0.50)	0.05 (0.37)	0.29
Severity 5 Arrests - R	734	0.13 (0.50)	0.00 to 5.00	0.21 (0.63)	0.03 (0.18)	0.39

Note:

[a] Significant sex differences ($p < .05$) are reported and indicated in bold, with the size of the effect shown in the final column.

T = teacher rating, P = parent rating, Y = youth report, R = records.

[b] indicates a standardized score.

Severity 2 arrests = trespassing, vandalism, disorderly conduct, possession of stolen goods, possession of a controlled substance; severity 3 arrests = theft, breaking and entering, arson, prostitution; severity 4 arrests = second-degree assault, assault with a deadly weapon, domestic violence, robbery; severity 5 arrests = murder, aggravated assault, rape.

Table 2

Correlations Among Risk Factors: Child Dysfunction, Parent Detachment, Peer Deviancy

	Variable	2	3	4	5	6	7	8	9	10	11
Child Dysfunction (Grade 5)											
1	Aggression-T, P	.64**	.40**	.19**	.15*	.26**	.23**	.20**	.15**	.19**	.16**
2	Emotion Dysregulation-T		.27**	.17**	.14**	.21**	.18**	.17**	.10*	.16**	.09*
3	Social Isolation -T, P			.14**	.17**	.22**	.32**	.08	.06	.11*	.09*
Parent Detachment (Grades 7 and 8)											
4	Parent Unreceptiveness -Y				.72**	.31**	.32**	.22**	.21**	.12**	.21**
5	Child Secrecy -Y					.29**	.36**	.18**	.21**	.13*	.17**
6	Poor Parent Communication - P						.59**	.06	.10*	.09*	.11**
7	Child Secrecy - P							.08*	.10*	.11**	.12**
Peer Deviancy (Grades 7 and 8)											
8	1st Friend Antisocial -Y (Gr. 7)								.55**	.44**	.33**
9	2nd Friend Antisocial -Y (Gr. 7)									.34**	.30**
10	1st Friend Antisocial -Y (Gr. 8)										.61**
11	2nd Friend Antisocial -Y (Gr. 8)										

Note: Correlations based on pairwise deletion.

T = teacher rating, P = parent rating, Y = youth report, Gr. = Grade.

* $p < .05$.

** $p < .01$.

Table 3

Correlations Between Child and Adolescent Risks and Early Adult Crime

	Early Adult Crime - R			
Child and Adolescent Risks	**Severity 2**	**Severity 3**	**Severity 4**	**Severity 5**
Child Dysfunction (Grade 5)				
Aggression - T, P	.19**	.29**	.29**	.19**
Emotion Dysregulation -T	.16**	.24**	.20**	.14**
Social Isolation - T, P	.03	.03	.09*	.08*
Parent Detachment (Grades 7 and 8)				
Parent Unreceptiveness -Y	.12**	.10*	.07	.01
Child Secrecy -Y	.07	.06	.07	.06
Poor Parent Communication - P	.20**	.11**	.04	.10*
Child Secrecy - P	.14**	.11**	.10*	.16**
Peer Deviancy (Grades 7 and 8)				
1st Friend Antisocial - Y (Grade 7)	.28**	.23**	.10*	.06
2nd Friend Antisocial -Y (Grade 7)	.22*	.18**	.01	.06
1st Friend Antisocial - Y (Grade 8)	.15**	.17**	.07	.04
2nd Friend Antisocial - Y (Grade 8)	.09*	.09*	.01	.02

Note: Correlations based on pairwise deletion.

T = teacher rating, P = parent rating, Y = youth report, R = records.

* $p < .05$.

** $p < .01$.