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Violence Breeds Violence: Childhood Exposure and Adolescent Conduct Problems

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Abstract

The relationships between childhood exposure to violence and adolescent conduct problems were investigated in a sample of 88 primiparous adolescent mothers and their children. Regression analyses revealed that witnessing violence and victimization prior to age 10 predicted delinquency and violent behaviors, even after controlling for prenatal maternal and early childhood externalizing problems. Social competency and depression during middle childhood moderated the relationship between victimization and violent behaviors for girls, but not boys: Lower levels of social competency and depression served as risk factors for delinquency among teenage girls who experienced victimization during childhood. These findings have important implications for youth violence prevention programs.

Exposure to violence has been consistently linked to antisocial behavior among youth. For example, violence victimization was found to be the single best predictor of juvenile violent behaviors for both boys and girls in a nationally representative sample of adolescents (Blum, Ireland, & Blum, 2003). Among urban Black adolescents, retrospective reports of witnessing violence and victimization were the strongest predictors of current use of violence, such as involvement in fights and the carrying of weapons (Durant, Cadenhead, Pendergrast, Slavens, & Linder, 1994). Relatedly, Jenkins and Bell (1994) indicated that weapon carrying is often done out of a fear of victimization rather than a violent or malicious intent. Research is needed to identify the factors that precipitate, protect against, and exacerbate adolescent conduct problems so that successful preventive efforts may be developed and implemented. The current study investigated the effects of childhood exposure to violence on adolescent conduct problems among children of adolescent mothers.

Violence exposure occurring specifically in the home, school, or community has been associated with the development of conduct problems in children. For example, Flannery, Singer, Williams, and Castro (1998) found that violent behavior among adolescents who were exposed to high levels of home violence was three times higher for girls and two times higher for boys when compared with adolescents from low-violence homes. In a longitudinal study of inner city males, histories of maltreatment predicted higher levels of persistent serious delinquency over 6 years (between the ages of 8 and 12), even after controlling for family and demographic factors (Stouthamer-Loeber, Wei, Homish, & Loeber, 2002). Likewise, exposure to violence at school has been associated with concurrent violent behaviors as well as psychological trauma (Flannery, Wester, & Singer, 2004). Furthermore, witnessing of, and victimization from, community-based violence were found to contribute to the development of conduct problems over one year in a high-risk sample of urban adolescents, even after controlling for baseline levels of antisocial behavior (Pearce, Jones, Schwab-Stone, & Ruchkin, 2003). In addition to the locale of exposure, children may

be differentially impacted by violence because of risk or protective factors, such as socioemotional adjustment and social competency.

Children's Competency, Adjustment, and Conduct Problems

Children exposed to violence frequently experience difficulty in their interactions with peers and adults (cf. Margolin & Gordis, 2000), indicating underlying deficits in social skills. This lack of social competence may serve as a risk for later developing conduct problems. For example, low-quality friendships and associations with antisocial peers have been shown to increase the effect of negative parenting during childhood on conduct problems during early adolescence (Lansford, Criss, Pettit, Dodge, & Bates, 2003). From another perspective, peer acceptance and positive friendships can serve as protective factors mitigating relationships between family risks, such as marital violence and harsh discipline, and externalizing behaviors (Criss, Pettit, Bates, Dodge, & Lapp, 2002). These findings indicate that social competency has the potential to impact how early social risk factors affect the development of conduct problems during adolescence.

The association between children's depression and behavioral functioning has been well documented; less clear is the causal nature of these relationships. For instance, an investigation of comorbid depression and conduct disorder in a clinical sample demonstrated that in most cases conduct disorders were diagnosed after depression (Kovacs, Paulauskas, Gatsonis, & Richards, 1988). In contrast, Patterson, Reid, and Dishion (1997) developed a model which posits that depression is a consequence of early antisocial behavior. In an attempt to clarify the issue, Beyers and Loeber (2003) compared the effects of depression on the types of delinquent acts committed (i.e., "delinquency variety") to the effects of delinquency variety on depression in a sample of adolescent boys. Over time, depression had a more robust effect on trajectories of delinquency variety than delinquency variety had on depression trajectories (Beyers & Loeber, 2003). In other words, depression was a better predictor of how delinquency changed over time than was delinquency in predicting how depression changed over time. Nevertheless, it seems evident that depression and delinquency in adolescents are dynamically linked. Furthermore, depression may interact with contextual risk factors, creating a unique vulnerability for the development of conduct problems among children at risk for maladjustment.

Children of Adolescent Mothers

Among children of adolescent mothers, there seems to be a cycle of violence exposure and conduct problems. First, children of adolescent mothers have an elevated risk for becoming victims of violence, such as being maltreated by caregivers (Stouthamer-Loeber et al., 2002). In a study of substantiated cases of child abuse and neglect, Lee and Goerge (1999) found that children born to mothers under age 18 were 4 times more likely to be victims of abuse or neglect. Even after controlling for race, gender, and birth order, early childbearing and poverty significantly predicted the incidence of maltreatment in children of adolescent mothers as compared to children born to adult mothers.

Second, children of adolescent mothers are at risk for developing conduct problems (Whitman, Borkowski, Keogh, & Weed, 2001). Previous research has indicated that sons of adolescent mothers are 2.7 times more likely to be incarcerated than sons of mothers who delay childbearing until their early twenties (Maynard & Garry, 1997). Furthermore, maternal age at first birth was associated with conduct disorders in a clinical sample of boys (Wakschlag et al., 2000). It is likely that social circumstances typically surrounding young mothers, such as poverty and a lack of social support, create a special vulnerability to stressors (e.g., exposure to violence) that, in turn, influence their children's development.

Longitudinal investigations have suggested that conduct problems among youth are risk factors for adolescent parenthood, potentially perpetuating an intergenerational cycle of antisocial behavior and teen childbearing. For example, adolescent conduct disorders have been shown to increase the risk of teen motherhood (Bardone, Moffitt, Caspi, Dickson, & Silva, 1996). In a longitudinal study of urban males, repeat serious delinquents were almost 3 times as likely to have fathered a child by age 19 than less serious delinquents (Wei, Loeber, & Stouthamer-Loeber, 2002). Even after controlling for race, the pathway between serious delinquency and teen fatherhood remained significant (Wei et al., 2002).

There is evidence of a cycle of violence perpetuating itself through families, schools, and communities in interactive and complex patterns. Despite a great deal of research examining the precursors to, and effects of, violence exposure in children and adolescents, there are several limitations in the extant literature that merit further investigation. For instance, research is needed to investigate the impact of violence exposure that occurs during early and middle childhood (cf. Ingoldsby & Shaw, 2002). Few studies have investigated how conduct problems develop among children of adolescent mothers as a result of preadolescent violence exposure. This is important due to the special circumstances that apply to children of teen parents, such as environmental stressors (i.e., poverty) and social problems (i.e., emotional adjustment).

Relatedly, research on the effects of violence exposure on adolescent aggression has typically failed to account for histories of maternal and early childhood aggression. It has been documented that children's aggression at a young age is linked to later exposure to violence (Boyd, Cooley, Lambert, & Jalongo, 2003). By controlling for levels of behavior problems in early childhood, in addition to maternal age at childbirth and early maternal aggression, it is less likely that linkages with adolescent conduct problems are artifacts of very early environmental effects, but instead are consequences of the exposure to violence during middle childhood.

The Present Study

The present study utilized data from the Notre Dame Adolescent Parenting Project (NDAPP), which is an ongoing prospective longitudinal study investigating the effects of adolescent parenting on child development (Whitman et al., 2001). Teen mothers were recruited in the late 1980s and early 1990s during their third trimester of pregnancy. The mother-child dyads were followed for 14 years. The NDAPP represented a unique opportunity to investigate the effects of childhood exposure to violence on the development of adolescent conduct problems among children of adolescent mothers. In addition, the design of the NDAPP allowed for prenatal maternal aggression and early child aggression to be accounted for, thereby allowing for more accurate predictions regarding the effects of childhood violence exposure on adolescent conduct problems.

Hypothesized relationships among childhood violence exposure, adolescent conduct problems, gender, social competence, and depression during middle childhood are presented in Figure 1. The model suggests that higher levels of childhood exposure to violence prior to age 10 should lead to higher levels of delinquency and violent behaviors during adolescence, even after controlling for maternal age at childbirth, prenatal maternal aggression, and early childhood aggression. Furthermore, gender, social competency, and depression during middle childhood were hypothesized to moderate the relationships between childhood exposure to violence and adolescent conduct problems. Depression was expected to act as a risk factor for adolescent conduct problems, especially at higher levels of childhood violence exposure. Social competency was expected to protect against the development of conduct problems; however, the buffering effect may be mitigated at higher levels of violence exposure. Finally, social competency and depression were assumed to function differentially

depending upon gender as there is consistent evidence supporting gender differences in the development of conduct problems (Blum et al., 2003; Moffitt & Caspi, 2001).

In summary, the major purposes of the current study are the following: (a) determine the incidence of violence exposure, violent behaviors, and delinquency in an at-risk sample of children born to adolescent mothers; (b) assess whether adolescent delinquency and violent behaviors can be predicted from violence exposure in childhood, while controlling for maternal age at childbirth, prenatal maternal aggression, and children's externalizing problems at age 3; (c) investigate social/ emotional factors during middle childhood (e.g., social competency and depression) as potential moderators of adolescent conduct problems; and (d) examine gender differences that may differentially impact important relationships between childhood exposure to violence and the emergence of adolescent conduct problems.

Method

Participants

Participants were 88 primiparous adolescent mothers and their children recruited during their third trimester of pregnancy through hospitals and community agencies in South Bend, Indiana, and Aiken, South Carolina. All dyads were drawn from the NDAPP (Whitman et al., 2001). The racial composition of the sample was 61.5% African American, 32% European American, and 6.5% Hispanic American. The average age of the mothers at childbirth was 17 years, with a range from 14 to 19 years; 51% of their children were boys. When their children were 18 months old, the mothers completed an average of 11.31 years of education, with a range from 8 to 13 years. The average score on the Hollingshead Index of Social Position (Hollingshead & Redlich, 1958) was 56.13, indicating overall low socioeconomic levels. Generally, children were born in good health as indicated by birth weight in grams ($M = 3310.91$, $SD = 505.21$) and Apgar scores ($M = 8.93$, $SD = .64$).

Design and Procedure

Data for the proposed research were collected at five time points: prenatally; when the children were ages 3, 10, and 14; and a follow-up assessment occurred when children were between the ages of 14 and 17. Maternal and children's externalizing behaviors were measured via maternal reports prenatally and when the children were 3 years of age, respectively; maternal reports of children's social competence and self-reports of children's depression were measured at 10 years of age; self-reported adolescent delinquency was measured at age 14. At the follow-up assessment, participants were asked to report retrospectively their exposure to violence before age 10 as well as their own violent behaviors since they turned 10 with the aid of individualized, event-anchored timelines. Past research has supported the use of timelines to obtain valid and reliable retrospective reports of various problem behaviors such as substance use (e.g., Sobell, Sobell, Leo, & Cancilla, 1988). Recently, findings regarding the reliability of timelines have been extended to populations of adolescents with conduct disorders (Donahue et al., 2004). Additionally, Ouimette, Read, and Brown (2005) found that among traumatized individuals between the ages of 15 and 55, the recall of stressful events was stable over time.

Maternal Measure of Externalizing Behaviors

Prenatal maternal behavioral problems were measured using the externalizing subscale of the Youth Self-Report Profile (YSR; Achenbach, 1991). The YSR is a 112-item measure of a broad range of behavioral problems and yields internalizing (withdrawal, anxiety/ depression, and somatic complaints), externalizing (delinquency and aggression), and total problems scores. Items are rated on a 3-point Likert-type scale consisting of 0 for *not true*, 1 for *somewhat or sometimes true*, and 2 for *very true or often true*. Sample items from the

externalizing subscale include “I destroy things belonging to others” and “I physically attack people.” Internal consistency for the total problems scale was found range from 0.47 to 0.79, and test–retest reliability ranged from 0.71 to 0.95 (Achenbach, 1991).

Measures of Children's Violence Exposure, Socioemotional Adjustment, and Social Competence

Exposure to Violence Scales: Grades 6–12 (EVS)—Witnessing of, and victimization from, five specific violent acts prior to age 10 were assessed: threats, slapping/hitting/punching, beatings, knife attacks, and shootings (Singer, Anglin, Song, & Lunghofer, 1995). Items regarding sexual abuse were not administered. A 4-point Likert scale ranging from *never* (0) to *almost every day* (3) was used to assess level of exposure. For this study, the past exposure to violence subscale was used, which collapses across setting to gain more reliable retrospective reports of violence exposure. A sample witnessing item is, “Seeing someone else being beaten” and a victimization item is “You being told by someone that they were going to hurt you.” A detailed event-anchored timeline was developed with each child to facilitate accurate reporting of events. Children were asked to reflect on anchors such as where they lived, what school they attended, what grade they were in, and who their friends were at the age of 10. Next, they were instructed to report their exposure to violent events that occurred either at home, in the neighborhood, or in school before they turned 10. Item responses were summed, yielding both witnessing of violence and victimization from violence subscores, each with a possible range of 0 to 15. Alpha reliability of the 10 items for our sample was 0.73.

Achenbach Child Behavior Checklist for Ages 2–3 (CBCL/2–3)—Children's behavioral problems were assessed using the externalizing subscale of the CBCL/2–3 (Achenbach, 1992). The CBCL/2–3 is a 100-item measure using a 3-point rating scale consisting of 0 (*very true or often true*), 1 (*somewhat or sometimes true*), and 2 (*not true*). Mothers reported how true each item was for their child over the past 2 months. The CBCL measures two major constructs: internalizing and externalizing behaviors. The internalizing scale consists of a depression and an anxiety subscale. The externalizing scale consists of an aggression and a delinquency subscale. Reliability and validity of this measure have been well established; the average test–retest was 0.89 to .93 over a 7-day period.

Children's Depression Inventory (CDI)—The CDI is a 27-item inventory that measures level of depression in children (Kovacs, 1992). Each child chose one of three statements that best described his or her feelings or ideas regarding various depressive symptoms such as worthlessness, suicidality, and changes in sleeping and eating patterns over the past 2 weeks. A sample sentence grouping is “I am sad once in a while,” “I am sad many times,” or “I am sad all the time.” Internal consistency has been found to be .86 with a clinical sample and .87 with a large sample of school-age children. It should be noted that the CDI correlates highly with the Revised Children's Manifest Anxiety Scale (Kovacs, 1992).

Vineland Adaptive Behavior Scales (VABS)—The VABS (Sparrow, Balla, & Cicchetti, 1984) is a 297-item semistructured maternal interview that measures children's social and personal competence, indicating global adaptive behaviors. For this study, social competence was measured using the 66-item socialization domain subscale, which assesses the child's functioning in each of three subdomains: (a) interpersonal relationships, (b) play and leisure time, and (c) coping skills. Items were scored 0 (*activity is ever performed*), 1 (*activity is sometimes performed with partial success*), or 2 (*activity is usually performed*). Sample items include “Initiates conversations on topics of particular interest to others,” “Shares toys or possessions without being told to do so,” and “Follows school or facility

rules.” The VABS was found to have good validity and reliability. Split-half reliability coefficients for the socialization domain subscale ranged from 0.78 to 0.94. Test–retest reliability ranged from 0.78 to 0.88 (Sparrow et al., 1984).

Measures of Adolescent Conduct Problems

Delinquency Scale—Delinquent behaviors were assessed using a 16-item self-report from the National Longitudinal Study of Adolescent Health (UNC Carolina Population Center, 2003). Participants were asked to rank how often they have participated in various delinquent acts over the past year using a 4-point scale ranging from *Never* to *5 or more times*. Sample items included the frequency of running away from home and selling marijuana or other drugs. For the purpose of this study, one item measuring violence exposure was omitted. Items were scored using summed totals of item responses, yielding a possible range of 0 to 45. Reliability for this measure was reported to be 0.84 (Demuth & Brown, 2004). For our sample, the alpha reliability was 0.86. In general, the validity of self-reported delinquency among adolescents has been supported (Jolliffe et al., 2003).

Violent Behaviors Scale (VBS)—Violent behaviors were assessed using this self-report measure, which assessed five types of violent acts: threatening harm to others; slapping, punching, hitting someone before the child was hit; slapping, punching, hitting someone after being hit; beating up someone; attacking or stabbing someone with a knife; and shooting at someone. Using the individualized event-anchored timeline, each participant rated how often he or she engaged in each act since the age of 10 on a 4-point scale ranging from 0 for *never* to 3 for *almost every day*. Items were summed creating a violent behaviors total score, with a possible range of 0 to 15. Principle component analysis revealed that the items loaded on a single factor, which accounted for 51% of the variance among the items (Song, Singer, & Anglin, 1998). Each item correlated with the variable cluster, with a range of 0.56 to 0.81. The internal consistency of the items was acceptable, with a Cronbach's alpha of 0.79 (Song et al., 1998). Alpha reliability of the items in our sample was 0.67.

Results

Descriptive Data

Means, standard deviations, and ranges associated with past exposure to violence, delinquency, violent behaviors, prenatal maternal and early childhood externalizing behaviors (covariates), and potential moderators (e.g., depression and social competency during middle childhood) are presented in Table 1; *T*-scores (i.e., $M = 50$, $SD = 10$) are reported for maternal externalizing behaviors, children's externalizing behaviors, and children's depression. On average, participants scored within the normal range in most domains. However, maternal reports of children's social competency at age 10 indicated that on average, they were performing more than one standard deviation below the normative mean. It should be noted that the following sections of key descriptive statistics are reported for nontransformed variables.

Past exposure to violence—In terms of witnessing violent acts prior to age 10, the most commonly reported event was seeing someone slapped, punched, or hit (64.4%), followed by seeing someone beaten (60.2%), threatened with harm (54.8%), attacked or stabbed with a knife (13.7%), and shot or shot at (9.6%). Among boys, witnessing someone being slapped, punched, or hit and witnessing beatings were the most frequently reported events (71.8% for each event), whereas girls most frequently reported seeing someone slapped, punched, or hit (55.9%). Compared to girls, boys were more likely to witness beatings (71.8% vs. 47.0%), $\chi^2(1, N = 73) = 4.64, p < .05$. There was a trend towards boys having a

greater likelihood of witnessing someone being threatened with physical harm as compared to girls, (64.1% vs. 44.1%), $\chi^2(1, N = 73) = 2.93, p < .10$.

The most frequently reported incident of victimization was being slapped, punched, or hit (32.9%), followed by being threatened by harm (26.0%), beaten (8.2%), attacked or stabbed with a knife (1.4%), and shot or shot at (1.4%) with a gun. However, boys were most often slapped, hit, or punched (30.8%), whereas girls had equal rates of being threatened with harm and being slapped, punched, or hit (27.9%). Only boys reported being attacked or stabbed with a knife (3.8%) or shot or shot at with a gun (1.9%). There were no significant gender differences for victimization from violence during childhood.

Delinquency—At age 14, adolescents reported their own delinquent behaviors over the past year. Among the total sample, the most commonly reported delinquent activity was lying to parents about whereabouts (56%), with boys being more likely to lie than girls, $\chi^2(1, N = 84) = 5.61, p = .01$. Girls most frequently reported becoming loud, rowdy, or unruly in a public place (45%). About 46% of the sample reported getting into a serious fight and over 30% participated in a group fight. Boys were more likely than girls to hurt someone badly enough to require bandages or medical care, $\chi^2(1, N = 84) = 4.07, p < .05$. Selling drugs was the least frequently reported delinquent activity (5% of boys, 4.6% of girls).

Violent behaviors—The perpetration of violent behaviors since the age of 10 was reported retrospectively with the aid of an individualized timeline. Slapping, hitting, or punching someone after being hit was the most commonly reported event among the total sample (74.0%) as well as within gender (84.6% of boys, 61.7% of girls) with boys being more likely than girls to engage in this behavior, $\chi^2(1, N = 73) = 4.93, p < .05$. Slapping, hitting, or punching someone before they were hit was less frequent among both boys (46.2%) and girls (47.1%). Over 65% of boys threatened someone with harm as compared to about 41% of girls, $\chi^2(1, N = 73) = 4.76, p < .05$; 53.8% of boys reported beating someone as compared to 29.4% of girls, $\chi^2(1, N = 73) = 4.44, p < .05$.

Relationships Among Covariates, Exposure to Violence, Conduct Problems, and Moderators

The distributions of scores for exposure to violence (total score, witnessing subscale, and victimization subscale) and violent behaviors were moderately positively skewed. Square root transformations were performed on these measures, as recommended by Tabachnick and Fidell (2001). A logarithm transformation was conducted on the delinquency distribution due to substantial positive skewness. Bivariate correlations among the total sample revealed that past witnessing of violence was significantly positively correlated with past victimization from violence, $r(71) = .46, p < .001$, adolescent delinquency, $r(67) = .34, p < .05$, and violent behaviors, $r(71) = .42, p < .001$. Victimization from violence was also positively correlated with both adolescent delinquency, $r(67) = .28, p < .05$, and violent behaviors, $r(71) = .36, p < .01$. Delinquency and violent behaviors, $r(67) = .50, p < .001$, maternal age at childbirth and violent behaviors, $r(71) = -.24, p < .05$, prenatal maternal externalizing and children's 3-year externalizing problems, $r(61) = .42, p < .001$, early childhood externalizing behaviors and children's 10-year social competency, $r(57) = -.25, p = .05$, and children's depression and social competency at age 10, $r(69) = -.29, p < .05$, were also significantly correlated. Relationships between early childhood externalizing problems and adolescent violent behaviors, $r(56) = .24, p < .10$, and social competency at age 10 and adolescent violent behaviors, $r(58) = .23, p < .10$, approached significance.

Table 2 contains intercorrelations among the predictors, outcomes, and potential moderators for boys and for girls. Witnessing of violence prior to age 10 was significantly correlated

with both adolescent delinquency and violent behaviors for boys, $r(36) = .39, p < .05$ and $r(37) = .65, p < .001$, respectively, but not for girls, $r(29) = .20, p = .29$ and $r(32) = .20, p = .26$, respectively. Victimization from violence was correlated with delinquency for girls, but not for boys, $r(29) = .43, p = .01$ and $r(36) = .19, p = .25$, respectively. In addition, there was a significant negative relationship between early childhood externalizing problems and social competency at age 10 for boys, but not for girls, $r(30) = -.39, p < .05$ and $r(25) = -.04, p = .34$, respectively.

Data Analytic Procedure

Regression analyses were used to predict adolescent conduct problems based on exposure to violence prior to age 10. First, the subscores for witnessing of violence and victimization from violence during childhood were used to predict adolescent delinquency and violent behaviors, while controlling for the effects of prenatal maternal externalizing problems and children's 3-year externalizing problems. Note that because maternal age at childbirth was not significantly associated with delinquency at age 14, it was not included as a covariate; however, it was included in all regression models involving violent behaviors as the outcome. Missing data were handled using maximum likelihood estimates with Mplus software (Muthén & Muthén, 1998).

Potential moderational effects of children's social competency, depression, and gender on the relationships between childhood violence exposure and adolescent conduct problems were tested using regression analyses according to the steps outlined by Baron and Kenny (1986). In all tests of two- and three-way interactions, covariates, predictors, the main effect(s) of moderator variables, and interaction term(s) were simultaneously entered into each regression model. Interactions with both witnessing violence and victimization were tested. Specifically, each potential moderator was first tested using an interaction term involving witnessing of violence while the variance associated with victimization was accounted for in the model. Next, each potential moderator was tested using an interaction term involving victimization while witnessing of violence was entered into the model. Finally, this process was repeated to investigate the role of gender, yielding potential three-way interactions.

Exposure to violence and adolescent conduct problems—Regression statistics (β , SE , T -ratio, and R^2) related to the effects of childhood exposure to violence on adolescent conduct problems are presented in Table 3. Delinquency at age 14 and adolescent violent behaviors were regressed on the witnessing of, and victimization from, violence prior to age 10. Higher rates of witnessing of violence in childhood significantly predicted higher levels of delinquency at age 14, controlling for prenatal maternal externalizing problems and early childhood externalizing problems, $\beta = 0.10, p < .05$. Victimization from violence during childhood did not account for a significant portion of the variance above and beyond the effect of witnessing violence. The total model accounted for 14% of the variance in delinquent behaviors at age 14.

Next, the predictive relationship between childhood exposure to violence and adolescent violent behaviors was tested while controlling for maternal age at childbirth, prenatal maternal externalizing behaviors, and early childhood externalizing behaviors. There was a trend towards higher levels of childhood witnessing of violence predicting higher rates of adolescent violent behaviors while including all covariates, $\beta = .17, p < .10$. Furthermore, higher levels of childhood victimization predicted higher levels of violent behaviors during adolescence, even after accounting for the effect of witnessing of violence, $\beta = .23, p < .01$, with the total model explaining 28% of the variance in violent behaviors.

Childhood social competency, depression, and gender as potential moderators

Social competency and depression at age 10 and children's gender were tested as potential moderators of the relationships between exposure to violence (i.e., witnessing of violence and victimization) and adolescent conduct problems. A trend for a two-way interaction between witnessing of violence and gender in predicting violent behaviors was found, $\beta = .15, p < .10, R^2 = 0.35$. Regression lines for girls and boys were calculated for 1 standard deviation above and below the mean of witnessing violence, indicating higher and lower levels of this variable. At lower levels of witnessing violence, there were no gender differences in violent behaviors. At high rates of witnessing violence, violent behaviors among boys significantly increased, $\beta = .19, p < .05$. The simple slope for violent behaviors among girls was nonsignificant.

There were two significant three-way interactions: Social competency at age 10 and gender moderated the relationship between childhood victimization from violence and delinquency at age 14, $\beta = .26, p < .01, R^2 = 0.32$; this interaction is presented in Figure 2. Regression lines were calculated for 1 standard deviation above and 1 standard deviation below the means of both social competency and victimization for boys and girls. Follow-up analyses revealed that the slopes of delinquency within both higher and lower levels of social competency were nonsignificant for boys; however, delinquency at age 14 among girls with lower social competencies increased with more victimization, $\beta = .42, p < .001$. In contrast, the slope for delinquency among girls with higher social competencies was not significant.

Additionally, children's depression at age 10 and gender moderated the relationship between victimization during childhood and delinquency at age 14, $\beta = .15, p < .05, R^2 = 0.28$ (see Figure 3). Regression lines were calculated for 1 standard deviation above and 1 standard deviation below the means of both depression and victimization for boys and girls, indicating higher and lower levels of each variable. The slopes for delinquency for lower and higher levels of depression among boys were not significant. Among girls with lower levels of depression, delinquency increased as levels of childhood victimization increased, $\beta = .33, p < .05$. The slope for delinquency among girls with higher levels of depressive symptoms was not significant.

Discussion

Whereas the high rates of violence exposure during childhood for children of adolescent mothers in our sample are alarming, they were somewhat lower than might be expected in at-risk samples (cf. Osofsky, 1998). For example, among inner-city children in a Chicago neighborhood, 39% reported witnessing a shooting (Bell & Jenkins, 1993) as compared to 7.3% of our sample. The rates of violence exposure observed in our sample, however, were more similar to those found among children in grades 3 through 8 from a small Midwestern city characterized as primarily blue collar workers (Singer et al., 1999): 18% of boys and 11% of girls had been beaten up as compared to 13% of boys and 5% of girls in our sample. Similarly, self-reported violent behaviors coincided with those found in a large sample of urban and suburban adolescents, ages 14 to 19 (Flannery et al., 1998).

Consistent with the previous literature on both low- and high-risk children, we found that children of adolescent mothers who were exposed to higher levels of violence had higher rates of adolescent conduct problems than those who experienced less violence (e.g., Blum et al., 2003; Durant et al., 1994; Flannery, Singer, & Wester, 2001; Singer et al., 1999). Although victimization did not significantly impact delinquency above and beyond the effects of witnessing violence, victimization had a unique and significant impact on self-reported violent behaviors: Adolescents with higher rates of victimization during childhood reported engaging in higher levels of violent behaviors even when the effects of witnessing

violence were controlled. Moreover, these relationships held even after accounting for maternal age at childbirth as well as early maternal and children's externalizing problems.

Research in this area has typically controlled for children's baseline problem behaviors in the prediction of future problems by obtaining these measures during middle to late childhood (e.g., Attar, Guerra, & Tolan, 1994; Gorman-Smith & Tolan, 1998), leaving open the possibility that problem behaviors problems themselves at a much earlier age. Thus, this study represents an important contribution to the literature because maternal externalizing behaviors were measured during the last trimester of pregnancy and children's externalizing problems were measured at 3 years of age. These methodological strengths allowed for more precise estimates of the effects of childhood violence exposure on the development of conduct problems during adolescence.

We found support for a three-way interaction between social competency and gender on the relationship between victimization and 14-year delinquent behaviors. The findings suggested that among girls with higher levels of childhood victimization, lower social competency during middle childhood served as a risk factor for delinquency at age 14. Interestingly, higher social competency did not protect against delinquency among girls who had higher rates of victimization. Also, social competency did not impact the relationship between victimization and delinquency for boys.

The findings for girls were consistent with previous research on the impact of social functioning on problem behaviors which has revealed a protective role for positive peer relationships and the avoidance of deviant peers on the development of externalizing problems during adolescence (Lansford et al., 2003). Furthermore, research on coping strategies among adolescents exposed to home violence squared with our findings: Girls exposed to home violence were more likely than boys to endorse interpersonal coping skills (e.g., talking to friends or family members or going to a teacher or counselor for support), whereas boys were more likely to report instrumental coping strategies such as playing sports (Flannery et al., 1998). Relatedly, coping among college-aged women tended to be emotionally focused and involved social support, whereas coping among young men was more problem-focused (Ptacek, Smith, & Dodge, 1994). It may be that low levels of social competencies among girls sometimes lead to inadequate social support systems, which, in turn, are associated with dysfunctional coping and delinquent behaviors during adolescence. In contrast, among boys who are victimized by violence, low social competency may not additionally compromise their abilities to effectively cope with stressors in their home, school, or neighborhood environments.

Interestingly, lower levels of depression among girls who experienced higher levels of victimization actually functioned as a risk factor. In contrast, higher depression was not a risk factor that moderated the relationship between victimization and adolescent delinquency. Similarly, depression did not impact the relationship between victimization and delinquency among boys. These findings were contrary to the extant literature, which has consistently demonstrated positive relationships between depression and delinquency among both boys (e.g., Beyers & Loeber, 2003) and girls (e.g., Flannery et al., 2001; Ruffolo, Sarri, & Goodkind, 2004). However, longitudinal research has found a complex, transactional pattern between depression and delinquency among girls (Wiesner, 2003). Because depression was measured during middle childhood and delinquency was measured during adolescence in the current study, a dynamic interplay between depression and delinquency among girls may not have been captured.

Our findings have important implications, particularly for children who are at risk for maladjustment. The finding that childhood exposure to violence predicted adolescent

conduct problems, with maternal age at childbirth as well as early maternal and childhood externalizing problems controlled, suggests an environmental impact during childhood on the development of behavioral problems among at-risk adolescents above and beyond early markers for maladjustment. These findings underscore the importance of youth violence prevention and intervention program development and implementation. Specifically, prevention programs should target children and their families who are at risk for being exposed to violence (e.g., those living in dangerous communities), regardless of whether they are displaying early behavioral maladjustment to protect them from developing conduct problems during adolescence. Furthermore, the identification of a vulnerability to witnessing violence in terms of adolescent violent behaviors among boys, but not girls, suggests that prevention efforts should target young boys who are at risk for witnessing high rates of violence. Our research also implies that intervention programs should incorporate training to increase children's social competence, especially for girls who are at risk for being victimized by violence.

Future research should investigate children's exposure to violence and conduct problems longitudinally using prospective measures beginning in early childhood and extending into early adulthood, yielding trajectories of how these interrelated factors unfold over time. Furthermore, transactional effects over time should be investigated. For example, how does violence exposure at age 3 affect children's negative behaviors at age 4, and, in turn, how do these behavioral problems influence exposure at age 5? In addition to exploring these types of cross-lagged models, future research should investigate the differential impact of exposure to violence on the development of conduct problems, depending upon the patterns of adolescent offenses (e.g., chronic vs. adolescent limited). Identification of the effects of socioemotional factors (e.g., depression) on trajectories of violence exposure should be explored among children from diverse family and neighborhood contexts that might magnify or mitigate these relationships. By gaining a greater understanding of how levels of violence exposure and the development of conduct problems unfold over time, as well as how these factors are ameliorated or exacerbated, more effective, individualized, and well-timed violence prevention programs can be developed and implemented in high-risk communities.

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Figure 1.
Theoretical model of the effects of childhood exposure to violence on adolescent conduct problems.

Figure 2. Social competency (SC) as a moderator of the relationship between violence exposure and delinquency for females and males.

Figure 3. Depression as a moderator of the relationship between violence exposure and delinquency for females and males.

Table 1
Descriptive Statistics for Measured Variables

	M	SD	Range
Past witnessing of violence	2.80	2.62	0–12
Past victimization from violence	0.81	1.08	0–5
Delinquency	5.12	6.24	0–33
Violent behaviors	2.64	1.92	0–8
Maternal externalizing behaviors	52.39	8.97	32–77
Children's externalizing behaviors	53.27	9.21	30–72
Social competency	77.61	8.78	53–101
Depression	45.07	7.72	35–75

Table 2
Correlation Matrix of Measured Variables for Boys (Above the Diagonal) and Girls (Below the Diagonal)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Past witnessing of violence		.391*	.387*	.649**	.013	.283	-.135	.097	-.214
2. Past victimization from violence	.572**		.190	.399*	.039	-.031	.241	-.040	.203
3. Delinquency	.196	.426*		.476**	-.073	.100	-.123	-.100	-.076
4. Violent behaviors	.197	.352*	.460**		.002	.297†	-.193	-.054	-.183
5. Maternal externalizing behaviors	.092	.198	-.053	-.031		.473**	.312***	-.076	0.92
6. Children's externalizing behaviors	.178	.008	-.131	.279	.353***		-.386*	.251	-.004
7. Children's social competency	.339*	-.178	-.095	-.261	-.229	-.039		-.433**	.284***
8. Children's depression	.014	.169	.046	-.046	.014	-.148	-.172		-.177
9. Maternal age at childbirth	-.194	-.009	-.131	-.277	-.060	-.063	-.054	.198	

*
 $p < .05$,

**
 $p < .01$,

 $p < .001$,

†
 $p < .10$.

Table 3
Multiple Regression Analyses of Adolescent Conduct Problems on Childhood Exposure to Violence

	Delinquency			Violent behaviors		
	β	SE	T-ratio	Model R ²	β	SE
Maternal age at childbirth	—	—	—	—	-0.12 [†]	0.07
Maternal externalizing problems	-0.02	0.05	-0.45	—	-0.14	0.10
Children's externalizing problems	-0.03	0.04	-0.55	—	0.18 [†]	0.09
Witnessing of violence	0.10 [*]	0.05	2.16 [*]	—	0.27 [†]	0.09
Victimization from violence	0.06	0.05	1.33	0.14	0.23 [*]	0.10
						0.28

* $p < .10$,

[†] $p < .05$.