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Role of Parent and Peer Relationships and Individual Characteristics in Middle School Children's Behavioral Outcomes in the Face of Community Violence

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Abstract

This study examines processes linking inner-city community violence exposure to subsequent internalizing and externalizing problems. Hypothesized risk and protective factors from three ecological domains -- children's parent and peer relationships and individual characteristics -- were examined for mediating, moderating or independent roles in predicting problem behavior among 667 children over three years of middle school. Mediation was not found. However, parent and peer variables moderated the association between exposure and internalizing problems. Under high exposure, normally protective factors (e.g., attachment to parents) were less effective in mitigating exposure's effects than under low exposure; attachment to friends was more effective. Individual competence was independently associated with decreased internalizing problems. Variables from all domains, and exposure, were independently associated with externalizing problems. Protective factors (e.g., parent attachment) predicted decreased problems; risk factors (e.g., friends' delinquency) predicted increased problems. Results indicate community violence reduction as essential in averting inner-city adolescents' poor behavioral outcomes.

Inner-city middle school children are confronted with high levels of community violence (e.g., Anderson, 1999; Bell & Jenkins, 1994; Gorman-Smith, Henry, & Tolan, 2004; U.S. Surgeon General, 2001). It is not surprising that in these circumstances children suffer adverse effects. Prominent among these are both internalizing and externalizing problems (e.g., Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Kliewer et al., 2004; Lynch, 2003; Margolin & Gordis, 2000; McCabe, Lucchini, Hough, Yeh, & Hazen, 2005; Schwab-Stone et al., 1999; Wilson & Rosenthal, 2003).

Ecological framework

The current study utilizes a developmental ecological framework (Bronfenbrenner, 1979) to examine the processes that link community violence exposure to outcome for inner-city boys and girls. The framework considers development to be a function of transactional relations among multiple levels of influence ranging from proximal to distal with respect to the child. Consequently, models of these processes must include risk and protective factors from multiple ecological levels (Salzinger, Feldman, Stockhammer & Hood, 2001), because many levels are implicated in both risk for exposure (Gorman-Smith, Henry, & Tolan, 2004; Lambert, Ialongo, Boyd, & Cooley, 2005; Salzinger, Ng-Mak, Feldman, Kam, & Rosario, 2006) and in the intervening processes linking exposure and outcome (Fitzpatrick, 1997; Kliewer et al., 2004). In the present study, risk and protective factors located within the domains of parent relationships, peer relationships, and individual characteristics are examined.

The processes we are studying are embedded within the context of children's lives when they first enter middle school. At this early adolescent stage, children begin to seek and are allowed more independence from parents, and they develop a wider peer network and become relatively more influenced by their friends (Salzinger, 1992). They engage in more risk-taking and sensation-seeking behavior (Sternberg, 2004) and develop more mature cognitive capabilities. These abilities and behaviors are supported not only by institutional changes such as larger classes and schools situated further from home, but they are also associated with developmental changes in the brain which are thought to reflect adaptive evolutionary patterns and perhaps even increased vulnerability to stress (Spear, 2000). These changing behaviors and capabilities influence both adolescents' risk for exposure and the way they deal with that exposure.

Processes describing the association between exposure to violence and outcome

Even in pervasively violent communities, both exposure and outcome vary among individuals. Recent research on the effects of community violence exposure has shifted from a primary focus on main effects to the mediating and moderating roles of developmentally appropriate risk/protective factors (Margolin & Gordis, 2002) in order to understand resilience and vulnerability in the face of exposure (Luthar & Goldstein, 2004; Lynch, 2003).

Mediating processes

Mediating processes have been identified primarily in investigations of the effect of exposure on externalizing problem behavior. However, despite some findings supporting mediation, e.g., by parental support (Kliewer et al., 2004), the literature often shows weak or inconsistent results. Fitzpatrick (1997) found that children's talking with their parents about problems, hypothesized to reduce the effect of community violence exposure on fighting, did not mediate between being threatened with a weapon and fighting. Two other studies showed only partial mediation. Guerra, Huesmann, and Spindler (2003) found that social cognition (e.g., justification for the use of aggression) for 9–12-year-old children only partially mediated the effects of exposure on later aggression. O'Donnell, Schwab-Stone, and Ruchkin (2006) found that normlessness (a cognitive indicator of alienation) only partially mediated the relationship between violence exposure and both later delinquency and internalizing problems.

Moderating processes

Some of the same factors have been heuristically examined as possible moderators of the relationship between exposure and later outcome (Fitzpatrick, 1997; Proctor, 2006). For example, Gorman-Smith et al. (2004) found that well-functioning families (i.e., family types based on multi-dimensional indices of family functioning) were protective in lessening risk for perpetration of violence only for inner-city youth exposed to high levels of community violence. Unlike the work on mediation, most of the work on moderation has focused on the effects of exposure on internalizing problems. Proctor (2006) reviewed numerous studies of both the mediating and moderating role of family factors in the association of exposure and poor child outcomes and found that moderating effects on internalizing problem outcomes predominated. Hammack, Richards, Luo, Edlynn, and Roy (2004) described the moderating role of social and family support on the association between exposure and internalizing problems for inner-city adolescents and found that although support was generally protective, it was sometimes inadequate under conditions of high risk. Rosario, Salzinger, Feldman, and Ng-Mak (2008) described the increasingly complex moderating effects over time of social support and coping on internalizing problems in the face of community violence exposure.

Luthar, Cicchetti, and Becker (2000) have posited two types of moderation that would appear relevant to the issue of resilience in the face of exposure. One is a protective stabilizing effect, consistent with many earlier studies on the buffering effects on mental health of protective factors, given increasing stress (Cohen & Wills, 1985). The other is a protective reactive effect, in which presumed protective factors are unable to protect under conditions of high stress. There is evidence for both processes (e.g., Hammack et al., 2004; Rosario et al., 2008). Given that inner-city children are exposed to high levels of community violence, the current study, based on an inner-city sample, is particularly well-suited to identifying protective reactive effects in which the functions served by developmentally appropriate protective factors are eroded in the presence of very high levels of exposure, resulting in increased internalizing and externalizing problems.

Models predicting internalizing and externalizing outcomes

In the current study, internalizing and externalizing behavior problems are modeled separately because the paths leading from exposure to the two outcomes are based on different theoretical conceptualizations and have different implications for intervention. The hypothesized risk and protective variables representing each of the three domains in our models were chosen from among those that already have some theoretical and empirical support in the literature.

Models predicting internalizing problem outcomes included social and emotional support, indexed by attachment to parents and friends, as variables likely to buffer or protect against poor outcome (Armsden, McCauley, Greenberg, Burke, et al., 1990; Lynch & Cicchetti, 2002). At this developmental period, relationships to parents and peers undergo a shift in relative strength of attachment which is expected to influence the type of support children depend upon in response to stress. Models also included overall competence, including social competence, within the domain of individual characteristics, as likely to promote adaptation in the face of stress (Burt, Obradovic, Long, & Masten, 2008; Masten, Best, & Garmezy, 1990).

Models predicting externalizing problem outcomes included parental attachment within the domain of parent relationships as protective, based on the long-documented association between negative caretaker-child relationships and delinquent behavior (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991). Social learning theory (Bandura, 1986) provided the theoretical rationale for inclusion of friends' delinquent behavior (Thornberry, 1998) as a risk factor within the domain of peer relations. Overall competence within the domain of individual characteristics (Cairns, Leung, Gest, & Cairns, 1995) was included as protective against aggressive outcome. Cognitive processing of violence (Guerra et al., 2003; Schwartz & Proctor, 2000), represented in our study as moral disengagement (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Ng-Mak, Salzinger, Feldman, & Stueve, 2002), was included as a risk factor within the domain of individual characteristics.

Effects of early household dysfunction on vulnerability to poor outcome

To fully appreciate the effect of exposure to community violence on outcomes and the potential mediating and moderating roles of risk and protective factors on this relationship, the household context in which children find themselves must be considered, as dysfunctional households may elevate the likelihood of exposure and subsequent poor outcomes. Consistent with a stress-diathesis model, the present study therefore addressed the issue of whether, given the primacy of family influence on children's development, dysfunction in children's households (represented by family violence, guardian symptomatology, and stressful life events) at the beginning of middle school confers an

additional vulnerability for subsequent exposure and for eventual poor outcome. Based on findings showing a transactional relationship between family and community violence and children's functioning over time (Lynch & Cicchetti, 1998), our models included tests of the hypothesis that initial household and family dysfunction would increase risk for exposure and moderate the effects of year two community violence exposure on later outcome in year three.

Because family violence often co-occurs with community violence, it is important to determine the extent to which it adds to community violence exposure and its effect in predicting poor outcome and, if necessary, control for its effects. McCabe and colleagues (2005) found that community violence predicted conduct problems in adolescents even after controlling for exposure to family violence.

Effects of gender

Many of the variables included in models of the effects on psychopathology of stressors such as community violence exposure have been found to be correlated with gender (Carlson & Grant, 2008). Although this does not necessarily mean that the processes linking community violence exposure with outcome differ by gender, we examined the interaction of gender with both exposure and our hypothesized risk/protective factors to test its effects on these processes.

Summary and hypotheses

We tested models predicting internalizing and externalizing behavior problems in the third year of middle school. Each model consisted of household and family dysfunction in the first year, exposure to violence (both family and community) in the second year, and hypothesized risk and protective factors in the domains of parent relationships, peer relations and individual characteristics occurring concurrently with exposure in the second year. Our interest is in how the three ecological domains function in the relationship between exposure and outcome. Because children experience the three domains concurrently, a model combining the three domains has clear ecological validity and was tested. We hypothesized that early family dysfunction would increase vulnerability for poor outcome over the course of the following two years; that risk and protective factors in the three domains would contribute independently to poor outcome but would, at best, only partially mediate between exposure to community violence and subsequent internalizing and externalizing problems; and that risk and protective factors in all three domains would moderate the effects of community violence exposure on outcome, particularly internalizing problems. Moderation was expected to be either protective stabilizing, in which protective factors play a buffering role in the response to exposure, or protective reactive, in which they are less effective under conditions of high than low levels of exposure. Given that we are studying children in inner-city neighborhoods where risk for exposure is very high, a major question is whether, during the transition from pre- or early adolescence to adolescence, the usual protective and risk factors for problem behavior differ in their effect under conditions of low and high exposure. Finally, we examined the role of gender in our models.

Method

Participants

From among New York City's (NYC) 32 school districts, we chose a district meeting three criteria: First, its official community violence statistics were among the city's highest (NYC Police Department, personal communication, 1999), thus maximizing the chances that our sample would experience significant exposure. Second, the middle schools included grades

six through eight, facilitating following students over three annual assessments. Third, the district provided a large subject pool with more than 3000 sixth graders.

Of the nine middle schools in the selected district, six agreed to participate. There were no differences between participating and non-participating schools in academic performance based on Board of Education standardized test scores. In the participating schools, letters (in English and Spanish) were sent home with all sixth graders informing parents that we were studying the effects of community violence on sixth graders and that in an initial classroom exercise, students would rate all same-gender classmates on how they behaved with each other. Parents could indicate that they did not want their children to participate in the classroom exercise. The letter stated that we would contact families by mail and telephone to request their participation in the subsequent individual interview phase of the study.

All families except those opting out of the classroom exercise were mailed follow-up letters indicating our interest in interviewing the parent or guardian about child, family, home and neighborhood, and interviewing the child about his or her experiences at school and in the community. All procedures and communications were approved by the NYC Board of Education and the Institutional Review Board of Columbia University's Department of Psychiatry, and we obtained a Federal Certificate of Confidentiality.

Of the guardians of the 2,466 sixth-graders participating in the classroom exercise, 948 (38%) could not be reached subsequently during the recruitment period. Children whose guardians were reached did not differ significantly from those whose guardians could not be reached in terms of their peer-rated social behavior.

Of the guardians reached (n = 1518), 54% (n = 814) agreed to participate, 36% (n = 546) remained undecided during the recruitment period, and 10% (n = 158) refused. Children whose guardians agreed to be interviewed were rated by their classmates, on a 5-point scale, as slightly more aggressive than children whose guardians remained undecided or refused; specifically, they were rated as meaner (t = 2.89, df = 1516, p < .005) and as fighting more than other kids (t = 2.67, df = 1516, p < .01).

Eighty-two percent of the guardians initially agreeing to participate provided informed consent for themselves and their children. The final sample consisted of 667 sixth graders, 335 boys and 332 girls, ages 11–14 years. Sixty-five percent were Hispanic, 32% Black, and 4% other ethnic classifications. Fifty-three percent of the guardians had received public assistance during the past year. Fifty-two percent had a high school education. Family structures included households with two biological parents (26%), one biological parent and a partner (12%), a single biological parent (45%), a biological parent and grandparent(s) (6%), grandparents (6%), and other arrangements (5%, e.g., child living with an older sister).

First-round data were collected in face-to-face interviews separately with the guardians and children from January through July 1999 for part of the sample (n = 472) and 2000 (n = 195) for the rest, resulting in a first-round sample of 667. In 2000 and 2001, second-round data were collected (n = 617); in 2001 and 2002, third round data were collected (n = 590). No differences were found between the two subsamples for any of the study variables. The reduction in total sample size over three years was mostly due to inability to locate some families who had moved.

Procedure

Guardians were almost all seen at home; children were seen privately in school or at home. Guardians received $50 and children $10 for participating in each round of the study.

Children's sessions ranged from about 45 to 90 minutes, with most lasting approximately one class period. Interviewers used their judgment about whether to split the protocol into two sessions or let the children take a break. For the paper-and-pencil instruments, interviewers read the material to children who seemed not to be responding appropriately. No children or guardians refused to complete the protocol. Interviewers were instructed to be sensitive to guardians or children who might want or need referral services, especially related to discussing their experiences with community and family violence. The study coordinator and the principal investigator maintained a current list of mental health and social services in the study's geographic area and handled referrals on a case-by-case basis.

Measures

Outcome

Internalizing Problems (Year 3): Internalizing problem behavior was measured by the T-score on the internalizing scale of the Youth Self Report (YSR) (Achenbach, 1991). The YSR is a 112-item checklist with a 3-point response scale for each item: 0 = Not true, 1 = Somewhat or sometimes true, and 2 = Very true or often true.

Externalizing Problems (Year 3): Externalizing problem behavior was measured by the T-score on the externalizing scale of the YSR (Achenbach, 1991).

Exposure to Violence

Exposure to Community Violence (Year 1 and Year 2): Exposure to community violence was assessed with Richters and Saltzman's Survey of Exposure to Community Violence (1990). Exposure was conceptualized as direct victimization and indirect experience (i.e., witnessing). Children were asked whether they had been exposed to each of a number of violent events (such as chasing, knifing, gun violence, threatening, drug dealing, physical assaults, serious accidents, homicide, suicide) during the past year as either victim or witness and, if so, where the event took place (school or neighborhood or other public place) and who was involved. Victimization was assessed by a count of how many of 11 types of victimization events in the three contexts were experienced by the child ($M_{year\ 1}$ = 0.76, *SD* = 1.29) ($M_{year\ 2}$ = 0.51, *SD* = 0.99). Witnessing was the count of how many of 19 types of violent events the child saw in the three contexts and, for the five most violent events, heard about happening to a person known to him or her ($M_{year\ 1}$ = 6.05, *SD* = 4.35) ($M_{year\ 2}$ = 5.09, *SD* = 4.18). Exposure was the count of violent events both experienced and witnessed. As might be expected in a high-crime area, actual rates of exposure in years 1 and 2 showed that 38% and 31% of the children reported being victimized within the past year and 93% and 90% reported witnessing community violence.

Exposure to Family Violence (Year 1 and Year 2): Physical victimization of the child by a parent or other household adult, and physical violence among other members of the family, were assessed with the Conflict Tactics Scale (CTS) (Straus, 1979) administered to each child's primary parent or guardian. The scale is widely used in national surveys of child maltreatment and family violence. The 9 items that assess actual physical violence were used to measure physical victimization of the child. The guardian was asked whether she or he had physically victimized the child in the past year, and then, using the same 9 items, whether any other adult in the household had done so. Consent forms advised subjects that instances of child abuse would be reported to the appropriate authority. The number of affirmative responses to the 18 items was the index of victimization of the child by a parent/surrogate. Witnessing family violence was assessed by the number of affirmative responses to the CTS items assessing violence between household adults and between adults and other children. The scores for victimization and witnessing were dichotomized to represent

presence (1) or absence (0) to minimize skewness and kurtosis and then summed to create an index of family violence that ranged from (0 – 2).

Hypothesized Risk and Protective Factors

Attachment to Parents (Year 2): Attachment to parents was assessed using Armsden and Greenberg's (1987) Inventory of Parent and Peer Attachment. The child was asked which parent (or surrogate) he or she felt closest to and then to indicate the extent to which he or she obtained support from or was attached to this person. A five-point Likert response scale, from (1) “Almost never or never true” through (5) “Almost always or always true,” was used in responding to each of 25 items (e.g., “I like to get my parent's opinion on things I'm concerned about”). The child's score for attachment to parents was the mean rating for the 25 items (Cronbach's ∀ = .91).

Attachment to Friends (Year 2): Attachment to friends was also assessed using Armsden and Greenberg's (1987) Inventory of Parent and Peer Attachment. Children rated a comparable set of 25 items with respect to their close friends. The child's score for attachment was the mean rating for the 25 items (Cronbach's ∀ = .90).

Delinquency of Friends (Year 2): The extent to which the child's friends engaged in delinquent behavior, represented the child's association with deviant peers, was assessed by administering to the child a modified version of the Elliot and Ageton (1980) self-report of delinquency instrument used in the 1977 National Youth Survey and subsequently (e.g., Huizinga, Loeber & Thornberry, 1993) to measure delinquent activity. We included 36 items appropriate for NYC youth and deleted inappropriate items (e.g., hitchhiking). The instructions were rephrased to make them appropriate for report of friends' behavior: “Now I want to know whether any of the kids you usually hang out with have done any of these things in the past year.” The number of “Yes” responses was the measure of delinquent acts among friends (Cronbach's ∀ = .89).

Competence (Year 2): Cairns' measure of self-reported competence (Cairns, Leung, Gest, & Cairns, 1995), in which children rated themselves on a 7-point scale, was subjected to a principal components factor analysis and yielded a single factor. The score consisted of the sum of the 14 of 18 items that loaded at least .30 on that factor (Cronbach's ∀ = .73). Items assessed skill in school and sports, interpersonal relations, physical attractiveness, and positive affect.

Moral Disengagement (Year 2): The children's cognitive processing of violence and aggressive behavior (Moral Disengagement) was measured by the extent to which the use of aggression or the attribution of blame under various circumstances is justified. We used a 32-item instrument (Bandura, et al., 1996) in which children responded to each statement on a 4-point scale ranging from (1) “Agree very much” to (4) “Disagree very much.” Examples of items are, “It is okay to beat someone up if they disrespect your family,” “Kids cannot be blamed for using bad words when all their friends do it,” “It is okay to fight to protect your friends,” and “Slapping and pushing someone is just a way of joking.” The score was the mean rating over the 32 items, with a higher score indicating greater moral disengagement (Cronbach's α = .91). More recently the scale was adapted for use with young African-American adolescents, and its factor structure, internal consistency and demographic correlates were similar to those reported originally (Pelton, Gound, Forehand, & Brody, 2004).

Household Dysfunction in Year1—*Negative family and household life events* occurring within the past year to all close family and household members were reported by the

children's primary guardians and summed to create an index of stressful household events. Events included divorce, homelessness, serious illness, substance use, assault, accidents, police involvement, job problems, and deaths. The events were compiled from schedules originally developed by Holms and Rahe (1967) and by Dohrenwend, Krasnoff, Askenasy, and Dohrenwend (1978).

Guardian's mental heath was assessed by the Brief Symptom Inventory (Derogatis & Melisaratos, 1983), a 53-item instrument covering mainly anxious, depressive, and irritability symptomatology. Guardians rated on a 5-point scale, from (0) “Not at all” to (5) “Extremely,” how much they were bothered during the preceding month by the symptom described in each item. To correct for skewness, the mean score was dichotomized to represent scores above (1) and below (0) the mean for the sample.

Exposure to Family Violence (Year 1) (described above)

Data Analysis

Statistical analysis was carried out by testing five-step hierarchical linear regression models predicting internalizing and externalizing problems in year 3. Predictors in step 1 were gender and year 1 community violence exposure (both controlled in all analyses) and three variables representing year 1 household dysfunction (family violence, guardian symptomatology, and family stressful life events). Step 2 added year 2 family violence exposure and year 2 community violence exposure. Step 3 added the interaction of year 2 community violence exposure with each year 1 household dysfunction variable in order to test the hypothesis that initial high levels of household dysfunction raised children's vulnerability for eventual poor outcome in the presence of increased community violence exposure. Step 4 added the risk and protective factors hypothesized to mediate the association between year 2 community violence exposure and outcome. Step 5 added the interaction of year 2 community violence exposure with each of these hypothesized risk/protective factors in order to test for moderation. Regressions were run separately for internalizing and externalizing outcomes and included all three domains of risk or protection (i.e., relationship with parents, peer relationships, and individual characteristics).

Mediation was established if an initially significant association of year 2 community violence exposure with outcome in year 3 (step 2) became non-significant after year 2 risk/protective factors were included in the equation (step 4), provided all three factors were initially significantly related to each other (Baron & Kenny, 1986). Moderation was confirmed if the interaction between community violence exposure and each risk/protective factor made a significant contribution to the prediction of outcome (step 5). For the interaction terms, variables were centered about the mean before the product term was computed. Determination of independent contributions to prediction of outcome by the various risk/protective factors and exposure was based on surviving significant associations in the appropriate step of the regression after controlling for all other hypothesized predictors.

Results

Table 1 presents the bivariate correlations among all study variables. Exposure to community violence in year 2 was positively related to internalizing and externalizing outcomes in year 3. Exposure to family violence in year 2 was also related positively to both outcomes. All but one (competence) of the risk and protective factors in each ecological domain in year 2 were significantly associated with exposure to community violence and all were significantly associated with outcome in the hypothesized direction in year 3; therefore, the conditions for potential mediation were met.

Mediation by year 2 risk/protective factors of the relation between year 2 community violence exposure and year 3 outcome

None of the risk or protective factors, present in year 2 at the same time as exposure to community violence, mediated the effects of community violence exposure on either internalizing or externalizing problem behavior in year 3. Community violence exposure remained a significant predictor of both externalizing ($\beta = .21$, $p < .001$) and internalizing ($\beta = .25$, $p < .001$) outcome after the hypothesized risk and protective factors in the three ecological domains were entered as predictors into the model.

Independent and moderating effects on the prediction of year 3 externalizing outcome by year 2 community violence exposure and hypothesized risk/protective factors

Exposure to community violence in year 2 and concurrent attachment to parents, friends' delinquency, and moral disengagement made significant independent contributions, in the expected direction, to the prediction of externalizing problem behavior. Attachment to parents decreased risk for externalizing problems, while friends' delinquency and moral disengagement raised risk for externalizing problems. Competence was not predictive of externalizing outcome (see step 4 in Table 2). No moderation of the relationship between year 2 community violence exposure and year 3 externalizing behavior was found for any of the hypothesized risk/protective factors (see step 5 in Table 2).

Independent and moderating effects on the prediction of year 3 internalizing outcome by year 2 community violence exposure and hypothesized risk/protective factors

Moderating effects of attachment to parents and attachment to friends were found on the relation between community violence in year 2 and internalizing problems in year 3. Significant interactions between community violence exposure and attachment to parents and between exposure and attachment to friends differentially altered the relationship between exposure and internalizing outcome (see step 5 in Table 3). Whereas attachment to parents was *less* protective against internalizing problem outcome under conditions of high than under conditions of low community violence exposure (Figure 1a), attachment to friends was *more* protective under conditions of high exposure (Figure 1b). In the domain of individual characteristics, competence, a hypothesized protective factor, was independently and negatively associated with internalizing problems in year 3 (see step 4 in Table 3).

The influence of initial year 1 family and household dysfunction on risk for year 2 exposure and year 3 outcome

All three variables indexing household dysfunction (family violence, guardian symptoms, and stressful household life events) during children's first year of middle school were associated with increased exposure to both family violence and community violence in the following year (Table 1). However, after controlling for gender and year 1 community violence, none of the three variables made a significant independent contribution to eventual poor outcome two years later (see step 1 in Tables 2 and 3). No moderating effects were found for any of the three measures of early household dysfunction on the relationship between year 2 exposure to community violence and eventual outcome (see step 3 in Tables 2 and 3).

The role of family violence exposure

Family violence exposure in year 2 made an independent positive contribution to prediction of both internalizing and externalizing outcome, although its effect was not as strong as that of community violence exposure in the same year (see step 2 in Tables 2 and 3).

The role of gender

Girls showed greater risk for increased problems (see Table 1). We ran a series of regression analyses to test whether interactions of gender with community violence and with each of the hypothesized risk and protective factors added to predictability of outcome in the appropriate regression models. No significant increase in predictability of the models and no significant interactions were found. The lack of significant interactions indicates that the processes we examined linking community violence exposure and outcome are similar for boys and girls.

Discussion

In the context of widespread community violence, there was a significant association between children's exposure to community violence in their second year of middle school and behavior problems in their third. This association held despite consideration of developmentally important risk and protective factors within the ecological domains of parent and peer relationships and the individual characteristics of the children which, when present at the same time as exposure, might have been expected to mediate the relationship. Our failure to find mediation in the relation between exposure to community violence and outcome is generally in keeping with literature that shows, at best, weak or inconsistent mediation by risk/protective factors analogous to those we studied in accounting for the effects of violence exposure on children's problem behavior. Our results suggest that more appropriate mediators to account for the effects of community violence exposure on children's problems, especially externalizing problems, may be found rather in the ecological domain of community factors, as for example collective efficacy (Sampson, 1997; Sampson, Raudenbush, & Earls, 1997) and social and physical disorder (Sampson & Raudenbush, 1999).

More common in our findings was the fact that the presence of developmentally relevant salient risk/protective factors added independently to community violence exposure in predicting subsequent behavior problems. Having delinquent friends and endorsing a cognitive strategy for legitimatizing aggressive responses to violence (moral disengagement) raised the risk for future externalizing problem behavior over the course of a year, whereas attachment to parents lowered the risk. Individual competence was protective against poor internalizing outcome as indicated by a significant negative association with internalizing problems in a subsequent year.

Our results and others' suggest that moderating processes are important in understanding the role of these ecologically selected risk and protective factors in producing poor outcomes in the face of exposure to high levels of community violence (Luthar & Goldstein, 2004). Moderating effects on internalizing problem behavioral outcome were found for presumed risk and protective factors within two domains: parent and peer relations. Importantly, factors such as attachment to parents that might have been expected to be protective against ill effects made less of a difference under conditions of high exposure than low exposure. These findings concur with others' work that indicates that under conditions of high levels of community violence exposure, normally protective factors are not as efficacious as might otherwise be expected (Luthar & Goldstein, 2004; Rosario, et al., 2008). Similar to our finding with respect to the protective effect of parent attachment for internalizing outcome, Kliewer et al. (2004) found that felt acceptance from caregivers was less effective under conditions of high exposure. These protective reactive effects run counter to other results on the effects of children's violence exposure which showed protective stabilizing (i.e., buffering) effects for presumed protective family factors. As an example, Hammack et al. (2004) found such an effect for witnessing community violence.

We found moderating effects that allowed us to contrast the efficacy of protective factors in two domains, attachment to parents and attachment to peers, with respect to their influence on internalizing problem outcome under conditions of high vs. low levels of exposure. It is assumed that children who are more strongly attached to parents and friends derive more social and emotional support from their relationships. Our results showed that in the face of high levels of exposure, attachment to friends was better able to protect against poor internalizing problem outcome than attachment to parents, whereas at low levels of exposure, parent attachment was more protective. During this developmental stage of early adolescence, peers take on increased importance (Deater-Deckard, 2001); friendship, especially having close relationships with friends, has been shown to be protective against the effects of peer victimization (Hodges & Perry, 1999). Where family support is less readily available, as, for example, in families with a high level of stressful family life events, which is characteristic of our sample, or where there is a scarcity of economic resources which might support parenting, friends who are seen daily and are more available than parents may be better able to provide the support necessary for discussing and dealing with disturbing encounters with neighborhood violence. Friends may also serve a role that parents cannot, because the support and information friends provide is based on shared experiences in neighborhoods and schools.

Role of household dysfunction

Given the primacy of family influence for young children, we had expected that initial household dysfunction at the time when children enter middle school in the sixth grade would contribute to children's vulnerability for poor outcome in the face of exposure. We found no evidence of moderation. Our results showed only a limited effect, primarily of stressful family events, on increased risk for exposure in the following year but not on eventual outcomes over the course of two years. Community violence exposure had a negative effect on later outcomes that was not altered by earlier household dysfunction. Given the work of Gorman-Smith and colleagues (2004) on the protective effect of family functioning on outcome in the context of violence exposure, further research is needed to clarify this issue.

Role of family violence

Exposure to community violence had a relatively greater effect than exposure to family violence on children's outcome, in terms of both internalizing and externalizing problems (see also McCabe et al., 2005). We believe that this is likely due to the fact that our sample was drawn from a high-risk violent neighborhood where the prevalence of children's exposure to community violence is quite high. Even though the incidence of family violence may be somewhat elevated in samples such as ours in which community violence rates are high, the rates of exposure to family violence in our sample were well below the rates for community violence exposure. If we combine these observations with the developmental consideration that children at this age are beginning to become more independent from family, then exposure to community violence can become an increasingly serious problem that results in poor consequences.

Limitations

It is a limitation of the study that we drew our sample from only a single community. Although we believe the community to be representative in many ways of poor inner-city communities with high levels of violence -- and we chose it to maximize the chances that some children would experience significant exposure -- it precludes an ecological analysis of differences among communities. Given our findings of moderating effects of levels of community violence exposure, comparisons across communities differing in level of violence would be informative. Furthermore, because the children in this community were

primarily of minority status, generalizability of the study's conclusions to children of different demographic characteristics cannot be assumed. Although we examined developmentally important risk/protective factors generally presumed relevant to all children, we did not design the study to identify specific risk and protective factors that might have been particularly informative regarding minority status children.

Implications for intervention

Implications for intervention in high risk neighborhoods are expected to differ depending upon the processes that are uncovered. Interventions to prevent poor outcomes in the face of community violence need to be informed by an understanding of the role that theoretically based risk and protective factors play in the association between exposure and outcome. Variables that contribute independently to risk for poor outcome or that mediate between community violence exposure and outcome should be targets of intervention. Variables that moderate these relations should be considered in order to tailor interventions to best fit the conditions where they will be most efficacious.

Perhaps the most important implication of our results is that for children in early adolescence under conditions of high levels of community violence exposure, the normally protective effect of strong relationships with parents is less able to avert negative outcomes, especially internalizing problems, than relationships with friends. Although we can identify protective and risk processes in the children's relationships with others and in their own behavior, and we can inform interventions with this knowledge, the fact that important developmental factors did not account for the effects of exposure suggests that individual and interpersonal resources are not sufficiently protective beyond a certain point. It is necessary to attack the core problem itself -- violence in our cities (Luthar, 2004). The problem needs to be addressed by enlisting sustained efforts of societal institutions at all levels.

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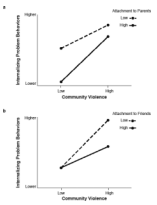

Figure 1.
Two-way interactions describing the moderating effects of attachment to parents (a) and attachment to friends (b) on the relation between year 2 exposure to community violence and year 3 internalizing problems.

Table 1

Bivariate Correlations between Year 1 Household Dysfunction Variables and Year1 Exposure to Community Violence, Year 2 Exposure to Community and Family Violence, Year 2 Hypothesized Risk/Protective Variables in Three Ecological Domains (Parent, Peer, and Individual), and Year 3 Internalizing and Externalizing Problem Behavior Outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	M	SD
1 Gender[a]															
2 Family violence y1	-.09*													0.7	0.83
3 Guardian symptoms y1	-.01	.25**												0.3	0.48
4 Stressful events y1	-.04	.26**	.30**											3.6	3.12
5 Community violence y1	-.15**	.14**	.08*	.19**										6.8	5.04
6 Community violence y2	-.13**	.09*	.10*	.14**	.51**									5.6	4.75
7 Family violence y2	-.05	.43**	.14**	.21**	.13**	.08*								0.6	0.81
8 Parent attachment y2	.09*	-.06	-.07	-.07	-.18**	-.29**	-.12**							4.2	0.61
9 Friend attachment y2	.30**	-.10*	-.03	-.09*	-.11**	-.11*	-.08*	.39**						4.0	0.59
10 Friend delinquency y2	-.07	.14**	.12**	.08	.35**	.57**	.14**	-.37**	-.20**					5.1	5.63
11 Competence y2	-.17**	-.01	.01	-.07	-.03	-.04	.01	.26**	.28**	-.13**				68.8	10.65
12 Moral disengage y2	-.20**	.08*	.08*	.08*	.18**	.26**	.10*	-.35**	-.23**	.30**	-.12**			2.0	0.37
13 Internalizing y3	.12**	-.01	.01	.07	.08	.25**	.09*	-.29**	-.21**	.26**	-.29**	.21**		45.5	10.86
14 Externalizing y3	.17**	.04	.07	.11**	.16**	.34**	.14**	-.28**	-.10*	.38**	-.17**	-.21**	.67**	47.5	11.81

[a] boys= 1; girls = 2.

* $p \leq .05$,

** $p \leq .01$.

Table 2

Hierarchical Regression Model Predicting Year 3 Externalizing Problems

	β	ΔR^2
Step1		.07***
Gender	.19***	
Y1 Family violence	.01	
Y1 Guardian symptoms	.04	
Y1 Stressful events	.07	
Y1 Community violence	.17***	
Step 2		.12***
Y2 Community violence	.37***	
Y2 Family violence	.14***	
Step 3		.00
Y2 Community violence × Y1 Family violence	.05	
Y2 Community violence × Y1 Guardian symptoms	.02	
Y2 Community violence × Y1 Stressful events	-.06	
Step 4		.08***
Y2 Parent attachment	-.12**	
Y2 Friend delinquency	.21***	
Y2 Competence	-.06	
Y2 Moral disengagement	.08*	
Step 5		.01
Y2 Community violence × Parent attachment	.07	
Y2 Community violence × Friend delinquency	-.05	
Y2 Community violence × Competence	.01	
Y2 Community violence × Moral disengagement	-.02	
Sum R^2 (Adjusted R^2)		.28*** (.26)

* $p \leq .05$,

** $p \leq .01$,

*** $p \leq .001$

Table 3

Hierarchical Regression Model Predicting Year 3 Internalizing Problems

	β	ΔR^2
Step1		.02*
Gender	.13**	
Y1 Family violence	-.03	
Y1 Guardian symptoms	-.02	
Y1 Stressful events	.07	
Y1 Community violence	.07***	
Step 2		.08***
Y2 Community violence	.30***	
Y2 Family violence	.12**	
Step 3		.00
Y2 Community violence × Y1 Family violence	.05	
Y2 Community violence × Y1 Guardian symptoms	.01	
Y2 Community violence × Y1 Stressful events	-.05	
Step 4		.10***
Y2 Parent attachment	-.13**	
Y2 Friend attachment	-.13**	
Y2 Competence	-.18***	
Step 5		.02*
Y2 Community violence × Parent attachment	.11**	
Y2 Community violence × Friend attachment	-.11**	
Y2 Community violence × Competence	.01	
Sum R^2 (Adjusted R^2)		.22*** (.20)

* $p \leq .05$,

** $p \leq .01$,

*** $p \leq .001$