Published in final edited form as:
Am J Community Psychol. 2000 February ; 28(1): 83–103.

The Relation of Perceived Neighborhood Danger to Childhood Aggression: A Test of Mediating Mechanisms[1]

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Abstract

In the current study, two mediational mechanisms, parenting practices and children's beliefs about aggression, were hypothesized to account for the relationship between perceived neighborhood danger and childhood aggression. Using structural equation modeling, data were analyzed from an inner-city school-based sample of 732 predominantly African American 5th graders. Results suggested that perceived neighborhood danger was associated with strong positive beliefs about aggression, which in turn was associated with high levels of aggression. The hypothesized mediating role of parenting practices (restrictive discipline, parental monitoring, and parental involvement) on the relation between perceived neighborhood danger and child aggression was not supported. However, the current findings suggest that children's positive beliefs about aggression mediated the relationship between restrictive discipline and aggression. Directions for future research are discussed.

Keywords

neighborhood; aggression; parenting; mediation; perceptions

Family and neighborhood characteristics have been viewed as important influences on children's psychological adjustment (Bronfenbrenner, 1986; Jessor, 1993). Existing research suggests that children growing up in impoverished or violent communities may be at increased risk for both internalizing and externalizing symptomatology (Aneshensel & Succo, 1996; Garbarino & Kostelny, 1996; McLeod & Edwards, 1995; McLeod & Shanahan, 1993; Robins, 1991; Jencks & Meyer, 1990). As a result, researchers have become interested in the processes by which neighborhoods effect child behavioral outcomes (Simons, Johnson, Beaman, Conger, & Whitbeck, 1996; Sampson & Laub, 1994). In this regard, factors such as parenting behaviors, parent–child attachment, and peer relations have been identified as potential mediators of the effects of urban poverty, community disadvantage, and economic hardship on children's behavioral outcomes (Simons *et al.*, 1996; Sampson & Laub, 1994; Dodge, Pettit, & Bates, 1994; Skinner, Elder, & Conger, 1992). However, little or no research has empirically examined the processes by which living in a dangerous community may impact children's aggressive behavior independent of the effects of poverty. The goal of the current study was to examine parenting practices and children's beliefs about aggression as potential mediators of the relationship between reported exposure to neighborhood crime and violence, and

[1]This study was supported by Research Training Grant 1T32DA07293 from the National Institute on Drug Abuse and by Grant 1U01HD30078 from the National Institute of Child Health and Human Development. We thank Richard Campbell for his invaluable advice regrading data analysis. We also acknowledge Shaffdeen Amuwo, Carl C. Bell, Judith Cooksey, Elizabeth Copper, Julia Cowell, Barbara Dancy, Robert Jagers, Roberta Paikoff, Indru Punwani, Roger Weissberg, and Arnaldo Zelli for their assistance in the design and implementation of the ABAN AYA Youth Project.

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childhood aggression, using a predominantly inner-city African American sample of 5th graders. Understanding the mediational mechanisms that link perceived neighborhood danger to childhood aggression has important implications for preventive intervention research and for formulating social policy.

Kupersmidt, Griesler, DeRosier, Patterson, and Davis (1995) found that black children from low-income, single-parent homes living in a low-socioeconomic status (SES) neighborhood were significantly more aggressive than black children from low-income, single-parent homes living in a middle-SES neighborhood. Aneshensel and Succo (1996) found that, compared to adolescents living in middle-class or affluent neighborhoods, those living in an economically disadvantaged neighborhood perceived their neighborhood as more threatening and dangerous (e.g., indicated by graffiti, crime, violence, and drug use). Moreover, such perceptions were associated with symptoms of oppositional defiant and conduct disorder (Aneshensel & Succo, 1996). DuRant, Cadenhead, Pendergrast, Slavens, and Linder (1994) found that perpetration of violence was positively associated with the frequency of witnessing violent crime in an African American elementary school sample. Exposure to neighborhood violence has also been found to prospectively predict high levels of peer-rated aggression for children living in impoverished communities (Attar, Guerra, & Tolan, 1994). Thus, previous research suggests that poverty and exposure to neighborhood violence are associated with aggression in children. However, poverty and community violence often coexist (Greene, 1993; Jencks & Mayer, 1990), and because previous research on aggression has not simultaneously examined the effects of these factors on childhood aggression, the unique effects of neighborhood violence, as well as the mediating mechanisms of this effect are unclear. The current study addresses this limitation by examining the direct and indirect relationship between perceived violence and danger in the neighborhood (as reported by children and their parents) and childhood aggression, above and beyond the effects of family SES.

Social-information processing theory suggests that in a dangerous and threatening environment, hypervigilance to hostile cues and automatic attribution of threat to others may occasionally be adaptive, resulting in high levels of aggression that may be viewed as protective (Coie & Dodge, 1996). In addition, Bandura (1973) and others (Huesmann, Guerra, Miller, & Zelli, 1992) have suggested that repeated exposure to violence may promote internal standards of behavior that support aggression as a legitimate and functional strategy for resolving conflict. Thus, there is some empirical and theoretical support for the notion that growing up in a dangerous and threatening neighborhood leads to aggressive behavior in children.

Hypothesized Mediators of the Relation Between Neighborhood Danger and Aggression

One variable that has previously been linked to aggression is beliefs about the consequences of aggressive behavior. Perry, Perry, and Rasmusen (1986), and Slaby and Guerra (1988) found that aggressive children were more likely than nonaggressive children to endorse the belief that aggression will reduce aversive treatment from others and produce tangible rewards. In addition, Guerra and Slaby (1990) found that weakening children's endorsements of such positive beliefs about aggression was associated with actual decreases in child aggression. In their review of aggression and antisocial behavior, Coie and Dodge (1996) suggested that repeated exposure to neighborhood violence may lead to the belief that aggression is a legitimate and functional strategy for resolving social conflicts, maintaining social status, and obtaining tangible rewards. That is, children living in rough inner city neighborhoods may come to view aggressive behavior as an adaptive and self-protective strategy. This may be due, in part, to the fact that children living in such neighborhoods may not be exposed adequately to competent role models who exhibit effective alternatives to aggression for obtaining desired outcomes (Wilson, 1987; Crane, 1991). Accordingly, in the current study, high levels of

perceived neighborhood danger were expected to be associated with high levels of childhood aggression, and strong positive beliefs about aggression were hypothesized to mediate this relationship.

Another possible mediator of the link between a dangerous neighborhood and childhood aggression is parenting. Patterson, Reid, and Dishion (1992) and others (Dodge, Pettit, & Bates, 1994; Gorman-Smith, Tolan, Zelli, & Huesman, 1996; Boone, 1991; Pettit & Bates, 1989) have found restrictive and harsh discipline, low levels of parental warmth and involvement, and poor parental monitoring of children's behavior to be associated with childhood aggression. A threatening and violent neighborhood may produce high levels of parental emotional distress such as irritability, anxiety, and depression that likely limits a parent's capacity to be involved with their children and to monitor their children's behavior, and may increase their use of punitive and restrictive discipline. It is also possible, as suggested by McLoyd (1990), that parents who perceive their neighborhood as dangerous may be particularly intolerant of disobedience because such an environment threatens their child's safety, resulting in punitive and restrictive parenting. In the current study, restrictive discipline, and low levels of parental monitoring and involvement, were hypothesized to mediate the relationship between perceived neighborhood danger and childhood aggression.

Parenting may also be related to aggression indirectly through children's beliefs about aggression. Parents may transmit hypervigilance of the dangers in the neighborhood to their children through very restrictive discipline. For example, parents may have a rule that prohibits their child from visiting neighborhood friends after dinner because it is too dangerous. After repeatedly hearing such a message, a child may be apt to develop a view that characterizes the world as dangerous and hostile, resulting in strong beliefs that aggression is an appropriate means of self-protection. Moreover, parents who do not monitor their child's behavior and who are uninvolved with their child may be unlikely to shape negative beliefs about aggression. An unmonitored child who aggresses is unlikely to be sanctioned for such behavior, making it difficult for them to learn prosocial alternatives to aggression. An uninvolved parent may be unlikely to transmit prosocial values and attitudes, and this may lead to positive beliefs about aggression. Thus, in the current study, restrictive discipline, poor parental monitoring, and low levels of parental involvement were hypothesized to be indirectly related to childhood aggression through children's positive beliefs about aggression.

In sum, children living in neighborhoods perceived as dangerous and violent were expected to exhibit high levels of aggression. Moreover, perceptions of neighborhood danger were expected to be indirectly related to childhood aggression via parenting practices, and children's positive beliefs about aggression. We addressed several limitations of previous research. First, specific indirect pathways were tested using structural equation modeling. Previous research suggests that neighborhood violence, family socioeconomic status, parenting, and children's beliefs about the functional use of aggression are associated with childhood aggression. However, previous studies have not examined the extent to which these relationships are independent, spurious, or tend to form an etiological chain that links to aggressive outcomes in children. Second, information from multiple reporters was used to create the perceived neighborhood danger and child aggression constructs in our structural equation model. This strategy helped minimize artificially inflated mediational pathways due to common variance associated with a single reporter. For example, one indirect path of interest suggested that a multiple-reporter exogenous factor (perceived neighborhood danger) was associated with a child self-report mediator (children's beliefs about aggression), which in turn was associated with a multiple-reporter outcome (aggression). This multiple-reporter strategy likely reduced, but did not completely eliminate, the problem of inflated path coefficients that commonly occurs when information from only one reporter is used (i.e., if child self-report were used exclusively).

METHOD

Participants

Participants were selected from the baseline (pretest) wave of an intervention study of children's health-compromising behaviors (Aban Aya Youth Project). Baseline data were used so that our findings would not be confounded with intervention effects. The baseline survey was administered to 5th graders in 12 elementary schools (10 inner city schools and 2 suburban schools). Passive parental consent procedures were used. Consent forms for student and parent participation were distributed at the beginning of the school year with emergency card information sent home with each student. If parents objected to participation they were instructed to sign the form indicating that they object and mail it in using the provided prepaid envelope. Non-Response was considered passive informed consent. Of the 758 5th graders who were asked to participate, 7 (1%) did not participate because of nonconsent, and 19 (3%) were excluded from analyses because the child did not respond to a majority of the survey items (>70%) and the parent survey was not returned. Thus, the current sample consisted of 732 5th graders who were recruited from predominantly urban elementary schools.

Demographic information is presented in Table I. The sample was evenly split on gender and almost entirely African American. Parental education ranged from less than 8th grade to postgraduate school training with a majority of parents completing high school. Family income ranged from under $5000 per year to between $40,000 and $50,000 per year with a median income between $10,000 and $15,000.

Procedure

The survey was administered in classrooms by Aban Aya staff health educators who had a minimum of a bachelor's degree. Health educators received 1½hr of training in survey administration so that the procedures were standardized across classrooms. All items were read aloud as the children followed along. The survey took approximately 2 hr to complete, which included a short break. Teachers and parents were also surveyed. The teachers received questionnaires about their students' behavioral characteristics when the child survey was administered. Parent questionnaires were mailed to participants' homes and followed-up with mailed reminders to complete the survey. Parents were compensated with a $20 gift certificate to a local grocery store for completing the survey. The majority of parental respondents were biological mothers of the participating children.

Measures

Aggression—Children self-reported the lifetime occurrence of aggressive behavior using 8 items that assessed verbal aggression (i.e., threatened to beat someone up, threatened to beat your sibling up, and threatened to cut, stab, or shoot someone), physical fighting (i.e., got into a physical fight, got into a physical fight in which someone was badly hurt, and tried to get other kids to fight), and gang involvement (i.e., been involved with a gang, and hung out with kids who were in a gang). These items were taken from the Youth Risk Behavior Survey (U.S. Department of Health and Human Services, 1994). These items were originally developed for high school students. Response choices were simplified (no/yes) to be more appropriate for our younger aged sample. The items were summed within each domain to form three scale scores (verbal aggression, fighting, and gang involvement). Teacher and parent ratings were also used to assess children's aggression. Teachers used a 5-point scale (1 = *not a problem* to 5 = *very serious problem*) to rate the children on 4 items (i.e., overly aggressive, argues a lot, physically attacks people, and threatens people) taken from the aggression subscale of the Teacher's Child Rating Scales (Hightower *et al.,* 1986). Hightower *et al.* (1986) have previously described the validity of this measure. Parents used a 5-point scale (1 = *definitely has not* to 5 = *definitely has*) to rate their child on one item (ever gotten into a physical fight).

Positive Beliefs About Aggression—Positive beliefs about aggression were assessed with 5 items taken from the How I Think Questionnaire (Gibbs, Potter, & Barriga, 1992). The items included "If you don't push people around, you will always get picked on," "There's no point in trying to stay out of a fight," "You should hurt people first before they hurt you," "People need to be roughed up once in a while," and "Beating someone up teaches them a good lesson." Children responded to each item using a 5-point response scale (1 = *disagree a lot* to 5 = *agree a lot*). Gibbs *et al.* (1992) have previously described the validity of this measure.

Parenting—Parents self-reported their parenting behavior. Restrictive discipline was assessed using 6 items and a 5-point response scale (1 = *not at all strict* to 5 = *very strict*). The stem for each item was "How strict are you …" and the items included with your child, about when your child can go to his/her friends' homes, about when your child can have friends over, about making your child do chores, about your child being home at a certain hour, and in punishing your child. These items were written by project staff, and are similar to items found on previously validated instruments—the Extreme Autonomy scale of the Child Report of Parenting Behavior Inventory (Schaefer, 1965) and the strictness/supervision scale from Steinberg, Lambron, Dornbusch, and Darling (1992). Parental monitoring of the child's behavior was assessed using 2 items ("How much of the time do you know what your child is doing when not at home and when not at home or at school") and a 5-point response scale (0 = *never* to 4 = *all of the time*). Parental involvement was assessed with 2 items ("How often do you talk with your child about how well they are doing in school, and about things in his/her life") and a 3-point response scale (1 = *rarely* to 3 = *often*). The parental involvement and monitoring items were written by project staff, and are similar to items found on previously validated measures, such as the Alabama Parenting Questionnaire (Shelton, Frick, & Wootton, 1996) and items used by Patterson and Dishion (1985).

Perceived Danger in the Neighborhood—Children reported the frequency of occurrence of 3 dangerous or threatening events in their neighborhood (i.e., people get into fights and beaten up, people get stabbed or shot, and people get robbed) using a 4-point scale (1 = *not at all* to 4 = *a lot*). Parents reported how often they noticed 4 dangerous or threatening aspects of their neighborhood (i.e., public drinking, drug sellers/users, people taking advantage of each other, and gang fights) using a 5-point response scale (1 = *never* to 5 = *always*). The child and parent report items are similar to items on the Neighborhood Environment Scale (Mason, Cauce, Gonzales, Hiraga, & Grove, 1994). The NES has been shown to be related to behavior problems and sociodemographic factors as predicted, which supports the validity of this measure (e.g., Mason *et al.*, 1994; Richards & Sims, 1997).

Socioeconomic Status—Parents reported on the highest level of their own education using an 11-point scale that ranged from <8th grade to professional degree. Parents also reported the number of people living in their household and the total household income (an 8-point response scale that ranged from <$5000 to >$50,000). Per capita income was calculated by dividing total household income by the number of people living in the household.

RESULTS

Of the 732 cases in the current sample, 411 had incomplete data. Although the number of cases with any missing data was high, the percentage of missing data was small for child-report (4.1%) and teacher-report (8.5%) items, and somewhat higher for parent-report items (23.5%). There was a higher percentage of missing data for parent-report items because more parents (N = 164 or 22.4%) than children (N = 23 or 3.1%) or teachers (N = 64 or 8.7%) did not participate in the survey (due to failure to return the survey in the case of parents and teachers, or absenteeism in the case of children). Analyzing only cases with complete data has the potential to produce biased results (Muthén, Kaplan, & Hollis, 1987). Therefore, we wanted

to reduce the potential bias in our findings by analyzing the total sample ($N = 732$). To do this we estimated our structural equation models using full-information maximum likelihood estimation. This estimation procedure does not impute data, but rather uses all the available raw data to estimate any given parameter (see Arbuckle, 1996). In many applications of this approach, correct maximum likelihood estimation with missing data can be obtained under mildly restrictive assumptions concerning the missing data mechanism (Rubin, 1976).[4] For a more in-depth discussion of these issues, see Arbuckle (1996), Little and Rubin (1987), and Graham, Hofer, and MacKinnon (1996).

Structural Equation Modeling

Our structural equation model was estimated in Amos 3.6 (Arbuckle, 1997). First, a structural equation model was estimated and the measurement model was adjusted. Second, our mediational hypotheses were tested. In the analysis of incomplete data, the full-information maximum likelihood approach does not produce a chi-square statistic for testing goodness of fit. Instead it produces a "function of the log likelihood." The smaller the log likelihood, the better the model fits the data. However, there are no absolute criteria to indicate when the log likelihood is small enough. Duncan, Duncan, Alpert, and Strycker (1998) have developed a strategy for calculating fit indices for models estimated using full-information maximum likelihood estimation. This approach involves comparing the value of the function of the log likelihood from a hypothesized model, a fully saturated model, and a null/independence model. With information from these three models, fit indices can be calculated for the hypothesized model. To assess the fit of our hypothesized model, we present the model χ^2 (calculated by subtracting the function of the log likelihood of the saturated model from the hypothesized model), the Comparative Fit Index (CFI; Bentler, 1990), and the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973).

Seven latent factors were specified in the structural equation model, including SES (indicated by parent report of their education and of the family's per capita income), perceived neighborhood danger (indicated by 3 child-report items and 4 parent-report items), restrictive discipline (indicated by 6 parent-report items), parental monitoring (indicated by 2 parent-report items), parental involvement (indicated by 2 parent-report items), positive beliefs about aggression (indicated by 5 child-report items), and child aggression (indicated by 3 child-report items, 1 parent-report item, and 4 teacher-report items). For factors indicated by variables from multiple reporters (perceived neighborhood danger and aggression), error covariances within reporter were estimated. Kenny and Kashi (1992) have suggested this strategy when indicators of a latent factor are assessed via multiple methods (in this case multiple reporters) because it takes into account the unique variance associated with reporter.

Intercepts were estimated for the endogenous latent factors so that the model was identified. This is necessary when using full-information maximum likelihood estimation (see Arbuckle, 1997). Structural paths were freed as follows. All paths from gender and SES to the perceived neighborhood danger, parenting, positive beliefs about aggression, and aggression latent

[4]There are several approaches to handling missing data, and each approach makes some assumption about the nature of the missing data. As a check, we also imputed missing data and reestimated our structural equation model. Imputation was done in two sequential steps. First, data were imputed within reporters. Some data were missing because a reporter responded to some questions, but not others. In this case, three separate imputations were performed as follows: (1) available child-report data was used to impute missing child-report variables, (2) available parent-report data was used to impute missing parent-report variables, and (3) available teacher-report data were used to impute missing teacher-report variables. Second, data were imputed across reporters. Some reporters did not participate in the survey due to absenteeism or failure to return the survey. In this case, available data from the remaining two respondents were used to impute data for the missing respondent. The data imputation was performed using BMDP (version 5) AM program. This procedure uses the EM method, computing initial estimates through a regression procedure followed by a maximum likelihood reestimation of the regression model until it converges (see Little & Rubin, 1987). The pattern of findings was the same for the structural equation model using imputed data and the model using full-information maximum likelihood estimation. Thus, our findings were robust to two different strategies for handling missing data.

factors were estimated. Freeing these paths allowed us to examine our hypotheses above and beyond the effects of gender and SES. Paths from the latent perceived neighborhood danger factor to the parenting, positive beliefs about aggression, and aggression latent factors were estimated. Paths from the parenting latent factors to the positive beliefs about aggression and aggression latent factors, and from positive beliefs about aggression to aggression, were estimated. In addition, the covariances between gender, SES, and perceived neighborhood danger were estimated, as were the covariances between the parenting latent factors.

Before interpreting the structural paths, the measurement model was examined for cross-loading items (based on Modification Indices) and items that loaded weakly on their factor (nonsignificant parameter estimates, $p > .05$, or very low standardized parameter estimates loadings, <.30). Using these criteria, 2 items were removed from the restrictive discipline factor (strictness about when your child can go over to a friend's house and strictness about when your child can have friends over) and one parent-report item was deleted from the perceived neighborhood danger factor (people take advantage of each other). The model was reestimated. All indicators loaded significantly (ps < .05) and substantially (standardized parameter estimates >.30), and Modification Indices suggested no cross-loading indicators. The final model adequately fit the data [χ^2 (363) = 491.73, $p < .01$, CFI = .99, TLI = .98]. Parameter estimates from the measurement model are presented in Table II. The final structural model is presented in Fig. 1.

Overall, this model accounted for 65% of the variance in aggression. SES was related to parental monitoring, such that high levels of SES were associated with high levels of monitoring. There were two significant paths from gender. Boys were higher in their aggression and in their positive beliefs about aggression. High levels of perceived neighborhood danger were associated with both strong positive beliefs about aggression and with aggression. With regard to parenting, very restrictive discipline was associated with strong positive beliefs about aggression, and children who were poorly monitored exhibited high levels of aggression. Finally, the path from positive beliefs about aggression to aggression was significant, such that children who maintained strong positive beliefs about aggression also exhibited high levels of aggression.

This pattern of findings suggested support for two of our hypothesized mediated paths. First, perceived neighborhood danger was associated with positive beliefs about aggression, which in turn was associated with aggression. Second, restrictive discipline was associated with positive beliefs about aggression, which in turn was associated with aggression. These specific indirect paths were tested for significance using the delta method (Sobel, 1988), and findings showed that they were both statistically significant (indirect effects = .27 and .08, respectively, both ps = .05). The direct relationship between perceived neighborhood danger and child aggression was significant, suggesting that the relationship between perceived neighborhood danger and aggression was partially mediated by positive beliefs about aggression.[5,6]

[5]Previous findings suggest that neighborhood factors moderate the relationship between independent variables (i.e., parenting) and child outcomes (Gonzales, Cauce, Friedman, & Mason, 1996). It is possible that perceived neighborhood danger in the current study moderated the effects of parenting and positive beliefs about aggression on childhood aggression. To examine this possibility, we formed manifest variables and performed a regression analysis. We regressed aggression on gender, SES, perceived neighborhood danger, the 3 parenting variables, positive beliefs about aggression, and 4 multiplicative interaction terms (Perceived Neighborhood Danger × Parenting Variables, and Perceived Neighborhood Danger × Positive Beliefs About Aggression). None of the interaction terms were significant (all ps > .10). Thus, perceived neighborhood danger could not be considered a moderator of the relationship between parenting and aggression or of the relationship between positive beliefs about aggression and aggression.

DISCUSSION

The goal of the current study was to examine potential mediators of the relationship between perceived neighborhood danger and childhood aggression. This relationship was partially mediated by children's positive beliefs about aggression. This finding is noteworthy because no studies have examined potential mediational mechanisms that specifically account for the relationship between reported neighborhood danger and childhood aggression. Moreover, the current study used multiple reporters, which helped minimize inflated mediational effects due to common variance associated with a single reporter. Our findings did not support parenting practices as mediators of the relationship between perceived neighborhood danger and aggression. However, both restrictive discipline and parental monitoring of child behavior were associated with aggression, and the former effect was mediated by children's positive beliefs about aggression. These findings will be considered in turn.

The Association Between Perceived Neighborhood Danger and Childhood Aggression

High levels of perceived neighborhood danger were associated with children's endorsement of strong positive beliefs about aggression, which in turn were associated with high levels of aggression. It is possible that high levels of perceived neighborhood danger leads to an information processing style characterized by hypervigilance to hostile cues and automatic attribution of hostile intent to others (Coie & Dodge, 1996). This process may promote internal standards of behavior that legitimize aggression as an appropriate means of assuring self-protection and instrumental goal attainment, resulting in high levels of aggression. Moreover, children who perceive high levels of danger in their neighborhood may not receive adequate exposure to competent role models who exhibit effective alternatives to aggression for obtaining desired outcomes. These formulations are consistent with social-information processing and social learning theories of aggression (Bandura, 1973; Crick & Dodge, 1994).

The Role of Parenting Practices

Increased perceptions of neighborhood danger were expected to effect parenting practices. A dangerous environment was expected to create parental emotional distress which may interfere with effective parenting, or lead parents to adopt very high levels of control to protect their children, which paradoxically, would lead to high levels of aggression. Thus, parenting practices were hypothesized to mediate the association between perceived neighborhood danger and aggression, but this was not supported.[7] Restrictive discipline and parental monitoring are often viewed as control dimensions, and our data are consistent with the notion that parents do not seem to adapt extreme control in response to perceived neighborhood danger. It is possible that the families in the current sample lived amid urban violence for years, and the vigilance and energy required for parents to maintain chronically high levels of control

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[6]Some data suggest gender differences in etiological pathways to aggression (Coie & Dodge, 1996; Zahn-Waxler, 1993). We examined potential gender differences by splitting our sample on gender, and reestimating our structural equation model. Parameter estimates were sequentially constrained to be equal across the two groups in a series of nested models. Constraining the factor loadings and factor covariances resulted in nonsignificant increases in the model χ^2 [27.96(21) and 4.5(4), respectively, both *p*s > .05]. Constraining the path coefficients to be equal across gender resulted in a significant increase in the model χ^2 [31.65(17), $p = .02$]. Examination of the Modification Indices suggested that only one path differed across gender. Poor parental monitoring was associated with strong positive beliefs about aggression for boys (standardized path coefficient = −.18, $p < .01$), but not for girls (standardized path coefficient = .03, $p > .10$). Boys may receive more reinforcement for aggressive beliefs and less facilitation in the development of higher problem-solving skills outside of the home (Beardslee, Schultz, & Selman, 1987; Condrey & Ross, 1985; Fagot & Leinbach, 1989; Robins, 1991). Thus, parental monitoring (or lack thereof) may more strongly impact boy's aggressive beliefs.

[7]It was possible that our use of a multiple-reporter factor of perceived neighborhood danger resulted in weak effects of this factor on restrictive discipline and parental monitoring. Rather, parents' perceptions of the neighborhood alone may be more strongly linked to these parenting practices. However, when we reestimated the structural equation model using only parent's reports of perceived neighborhood danger, this factor was unrelated to both restrictive discipline, and parental monitoring and involvement. This suggests that our multiple-reporter construct of perceived neighborhood danger did not obscure important relations between this factor and parenting.

over their children may be infeasible. Alternatively, our measures of parenting were not taken from previously established instruments, and in some cases (involvement and monitoring) our parenting constructs were measured with only 2 items. In addition, all of our parenting measures were self-report and some data suggest that self-reported parenting does not always reflect what parents actually do (Patterson *et al.*, 1992). Therefore, weak assessment of parenting may account for the lack of relationship between perceived neighborhood danger and parenting.

However, two of our parenting measures, restrictive discipline and parental monitoring, were associated with aggression as expected, suggesting that poor measurement may be less of a concern. Very restrictive discipline was associated with children's strong positive beliefs about aggression, which in turn was associated with high levels of aggression. Parents in urban areas may adopt particularly strict rules in fear of their children becoming involved with drugs and violence that is endemic to many disadvantaged inner-city communities. This parenting style may unintentionally transmit fear and internal standards of behavior that legitimize aggression as an appropriate means of assuring self-protection, resulting in high levels of aggression. With regard to parental monitoring, like previous research (e.g., Patterson *et al.*, 1992), we found that children who were unmonitored were likely to be high in aggression. Poor monitoring makes it difficult for parents to punish negative behaviors such as aggression, making it difficult for children to learn to inhibit aggressive behavior.

With regard to parental involvement, we found that it was unrelated to both children's positive beliefs about aggression and to aggression. Other research has found parental warmth and involvement to be weakly related to aggression (Shelton *et al.*, 1996; Patterson *et al.*, 1992). Parental involvement may be less important in the etiology of aggression than the control dimensions of parenting. It is also possible that our assessment of lifetime aggression weakened its relation to parenting.

Implications for Theory and Research

In this study, we used cross-sectional data to test a heuristic model of perceived neighborhood danger, parenting, and cognitive influences on aggressive behavior in children. This model was specified based on the examination of literature that speaks to each of the different causal paths we have hypothesized. It remains important for researchers to replicate these findings in longitudinal data, as they have several meaningful implications for future research.

Popular theories of aggression and antisocial behavior include social-information processing and social control theory, which suggest that problem behavior develops from information processing *deficits* (e.g., hypervigilance to hostile cues, or a bias to attribute hostile intent to others; Crick & Dodge, 1994) or *failures* to internalize appropriate standards for behavior (Hirschi, 1969). However, the current findings are consistent with the notion that integrating an ecological perspective with these theories is important. For example, we found that perceived danger in the neighborhood was associated with aggression (directly and indirectly). A child with strong perceptions of neighborhood danger may develop hypervigilance to hostile cues or attribute hostile intent to others, or adopt aggression as a strategy for protecting oneself. These characteristics may indicate effective adaptation to a hostile environment, rather than inaccurate information processing or failure to internalize appropriate standards. If so, then it is important for researchers to incorporate ecological theory into their etiological models of aggression.

In addition to the effects of perceived neighborhood danger, parenting was also found to be associated with child aggression. Taken together these findings are consistent with the notion that researchers should consider multiple levels of influence and the ecological context. Indeed, Seidman (1991) and others (Shinn, 1990; Tolan, Guerra, & Kendall, 1994) have emphasized

the importance of considering multiple levels of influence in designing preventive interventions. Interventions focusing on only individual level variables have failed to produce long-lasting changes in aggressive behavior (Kazdin, 1986). This may be due to failure to take into account the ecological context of the behavior and multiple levels influence.

It should be noted that in the current analyses we used a perceptual measure of neighborhood danger. This makes our results most comparable to other work that has done the same (Bell & Jenkins, 1993; Farrell & Bruce, 1997). One drawback of perceptual neighborhood measures is that they may not be wholly representative of an individual's larger environment. That is, to the extent that unperceived neighborhood characteristics can influence an individual's actions, subjective measures will misrepresent a neighborhood's impact on behavior. In addition, perceptual measures cannot be viewed as truly independent of a respondent's personal frame of reference and/or idiosyncracies. As a result, they may represent an individual's biased perspective of his or her world.

On the other hand, there are theoretical orientations that view perceptual measurement and the phenomenological perspective as an inherent strength (Jessor & Jessor, 1973; Blumer, 1966). In this regard, it has been argued that perceived environmental measures that utilize multiple reporters to capture the meaningful environment of an individual (as this research does) may reduce biases associated with personal idiosyncracies, while most accurately capturing an individual's relevant local social milieu (Jessor and Jessor, 1973). Thus, the results of the current research should be interpreted with an eye toward the inherent strengths and weaknesses of perceptual measures. Moreover, it would be inappropriate to interpret the current findings to explain how neighborhood danger predicts variations in aggression. Rather, our findings should be taken as support for broadening the risk factors of aggression to include ecological variables (e.g., relative perceived neighborhood danger).

Limitations

Although the current study addressed several limitations of previous research, it also has several limitations of its own. First, the data are cross-sectional, and thus preclude definitive statements about directionality of the obtained relations. For example, we hypothesized that parenting influences child aggression and that children's beliefs about aggression influence aggression. However, the reverse of these relationships is also possible. Parents may adopt very restrictive discipline in response to a child's behavior problems, or a child may find that aggression effectively reduces aversive treatment from others, at least in the short term, resulting in positive beliefs about aggression. As a result, it is important for future longitudinal studies to replicate the mediating mechanisms supported in this study. Second, parenting practices were assessed by a limited number of items using self-reports. Self-reports of parenting correlate only modestly with observer and child reports (Patterson *et al.*, 1992). A multimethod measurement strategy using a broad range of items may better assess parenting practices, and this is also an important direction for future research. Third, the mediators that we tested are not the only possible mechanisms underlying perceived neighborhood effects on child aggression. Other possibilities include information processing variables such as hypervigilance to hostile cues and attribution of hostile intent to others, associations with deviant peers, and poor problem-solving skills. Moreover, we considered only one ecological variable (perceived danger in the neighborhood), and other contextual effects are likely to be important. These include family disorganization, marital discord, and sociocultural factors such as racism. It remains important for future research to examine other potential mediators and contextual effects. Finally, the participants were predominantly urban African Americans, and we did some *post hoc* adjustment of our measurement model. Therefore, the current findings need to be generalized cautiously and need to be replicated. Despite these limitations, the current paper examined potential mediating mechanisms that have not been addressed by previous research.

The findings are consistent with the notion that consideration of multiple levels of influence may enhance our understanding of the pathways to childhood aggression, and this implies important directions for future research.

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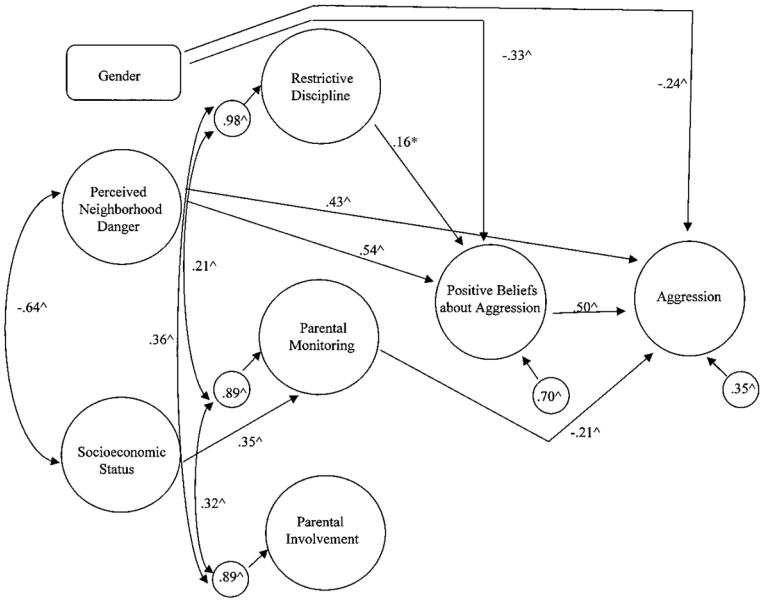

Fig. 1.

Structural paths from the mediational model. Only significant parameter estimates are shown. Standardized coefficients are presented. $\hat{p} < .01$; $^*p < .05$. Parameter estimates from the measurement portion of the model are presented in Table II.

Table I

Descriptive Statistics for Selected Sample Characteristics

Children	
% African American	98.2
% Female	52.7
Mean age in years	10.26 (*SD* = .52 years)
Parental respondents	
Mean Year of Birth	1957 (*SD* = 8.4 years)
% Did not graduate from high school	20.2
% High school graduates (but no additional schooling)	25.6
% Some post high school technical training	6.0
% Some college completed or two-year associates degree	42.2
% Four-year college graduates	6.0
Family characteristics	
Mean annual income (categorical variable)	$10,000–$15,000
% Single-parent families	49.4
% Two-parent families	45.0
% Other family structure	5.6

Table II

Observed Measures and Standardized Parameter Estimates from the Measurement Model

Observed Measure	LatentFactor	Parameter Estimate
Parent report		
Parent education	SES	.70
Family per capita income	SES	.44[a]
Notice drinking in public	Perceptions of neighborhood danger	.35
Notice drug sellers or users	Perceptions of neighborhood danger	.42
Notice gang fights	Perceptions of neighborhood danger	.39
Strict in general	Restrictive discipline	.55[a]
Strict about when child should come home	Restrictive discipline	.42
Strict about child doing chores	Restrictive discipline	.74
Strict about punishing child	Restrictive discipline	.76
Know what child is doing when they are not at home	Parental monitoring	.71[a]
Know what child is doing when they are not at school	Parental monitoring	.81
Talk with child about school	Parental involvement	.64[a]
Talk with child about how things are going in their life	Parental involvement	.56
Child gets into physical fights	Aggression	.42
Child report		
People in my neighborhood get robbed	Perceptions of neighborhood danger	.33[a]
People in my neighborhood get into fights	Perceptions of neighborhood danger	.46
People in my neighborhood get stabbed or shot	Perceptions of neighborhood danger	.49
People should be roughed up once in a while	Positive beliefs about aggression	.51[a]
If you don't push people around, you will regret it	Positive beliefs about aggression	.51
There is no point in trying to stay out of fights	Positive beliefs about aggression	.39
Beating somebody up teaches them a good lesson	Positive beliefs about aggression	.76
You should hurt people first before they hurt you	Positive beliefs about aggression	.64
Verbal aggression	Aggression	.51[a]
Physical aggression	Aggression	.55
Gang involvement	Aggression	.44
Teacher report		
Overly aggressive to peers	Aggression	.39
Argues a lot	Aggression	.41
Physically attacks people	Aggression	.31
Threatens people	Aggression	.35

[a]This indicator was used to set the variance of the latent factor and was not estimated. All estimated factor loadings were statistically significant ($p < .05$). Cronbach's alphas for the indicators for each latent factor were as follows: SES (.53), perceived neighborhood danger (.77), restrictive discipline (.71), parental monitoring (.72), parental involvement (.50), positive beliefs about aggression (.69), and aggression (.79).