Relations Between Neighborhood Factors, Parenting Behaviors, Peer Deviance, and Delinquency Among Serious Juvenile Offenders

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Abstract

The present study examined relations among neighborhood structural and social characteristics, parenting practices, peer group affiliations, and delinquency among a group of serious adolescent offenders. The sample of 14–18-year-old boys ($N = 488$) was composed primarily of economically disadvantaged, ethnic-minority youth living in urban communities. The results indicate that weak neighborhood social organization is indirectly related to delinquency through its associations with parenting behavior and peer deviance and that a focus on just 1 of these microsystems can lead to oversimplified models of risk for juvenile offending. The authors also find that community social ties may confer both pro- and antisocial influences to youth, and they advocate for a broad conceptualization of neighborhood social processes as these relate to developmental risk for youth living in disadvantaged communities.

Keywords

antisocial behavior; neighborhood effects; parenting practices; peer deviance; juvenile delinquency

With growing interest in the effects of neighborhood functioning on adolescent development, the study of community influences on delinquency has increased rapidly across disciplines (see Leventhal & Brooks-Gunn, 2004; Sampson, Morenoff, & Gannon- Rowley, 2002). Researchers have confirmed that neighborhoods characterized by structural disadvantage evidence high rates of juvenile crime and youth violence (Bursik & Grasmick, 1993; Loeber & Wikstroem, 1993; Ludwig, Duncan, & Hirschfield, 2001; Simcha-Fagan & Schwartz, 1986) and that these associations are largely explained by social processes that take place within communities (Elliott et al., 1996; Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997). Although important for predicting juvenile offending, neighborhood structural and social characteristics have also been linked to processes in the family and peer group, two microsystems hypothesized to transmit the effects of neighborhood risk to youth (Beyers, Bates, Petit, & Dodge, 2003; Brody et al., 2001; Rankin & Quane, 2002; Tolan, Gorman-Smith, & Henry, 2003). To date, more theoretical than empirical work has looked at the mediated effects of neighborhood functioning on adolescent offending, and in particular, few studies have examined how parenting behavior and deviant peer influences operate together to transmit community influences to individual outcomes. This empirical gap exists despite a large body

of research documenting important links between ineffective parenting practices, youths' involvement with deviant peers, and delinquent behavior during adolescence, including violence (Dishion, Duncan, Eddy, & Fagot, 1994; Henry, Tolan, & Gorman-Smith, 2001; Patterson, Dishion, & Yoerger, 2000; Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994).

The present study used cross-sectional data from the Research on Pathways to Desistance (RPD) project—a large-scale study of serious adolescent offenders—to investigate relations between neighborhood functioning, parenting behavior, peer deviance, and juvenile delinquency. Our goal was to understand potential pathways through which community characteristics are related to antisocial outcomes, focusing on two systems that have been separately linked to neighborhood risk but rarely studied together in the same design: the family and the peer group. Because of its focus on very serious offenders, the RPD study provides the unique opportunity to examine community, family, and peer influences on delinquency in a sample of adolescents who are at risk to participate in future, potentially more serious, criminal activity and who in recent years have received increased public and policy attention (see Loeber & Farrington, 1998).

How Neighborhood Effects and Community Risk Are Transmitted to Youth

To study the effects of community functioning on adolescent outcomes, researchers make important distinctions between neighborhood structure and neighborhood social processes. *Neighborhood structure* refers to sociodemographic or compositional features of communities (e.g., employment rate) and is typically measured using data collected from the U.S. Decennial Census; *neighborhood social processes* refers to the community's social organization (e.g., social connections among neighbors) and is usually evaluated on the basis of residents' perceptions of how their communities function. Shaw and McKay (1942/1969) were the first to propose that weak neighborhood structural factors— concentrated poverty, residential mobility, and racial–ethnic heterogeneity —are linked to higher rates of juvenile delinquency because they lead to social disorganization, "the inability of a community structure to realize the common values of its residents and maintain effective social controls" (Sampson & Groves, 1989, p. 777). Indeed, a number of social organizational factors have been linked to adolescent deviance, including neighborhood disorder (e.g., Sampson & Raudenbush, 1999), weak social connections within the neighborhood (e.g., Rountree & Warner, 1999), low levels of informal social control (the extent to which residents help each other to regulate the behavior of youths in the neighborhood; e.g., Elliott et al., 1996), and low levels of collective efficacy (a combination of informal social control and social connections; e.g., Sampson et al., 1997).

In recent years, more studies have started to examine potential mechanisms through which community effects are transmitted to youth. These efforts have emerged largely in response to findings that neighborhood effects account for a small portion of the overall variance in individual-level adolescent outcomes (Elliott et al., 1996; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999) and with the ascendance of ecological models stressing the influence of an "outer" system (e.g., the neighborhood) on an "inner" system (e.g., the family) on youth development (Bronfenbrenner, 1979; Gorman-Smith, Tolan, & Henry, 2000). To explain variations in juvenile offending, two frameworks for understanding neighborhood effects have received significant attention during the last few years: the *relationships and ties* model and the *norms and collective efficacy* model (see Leventhal & Brooks-Gunn, 2004). The first draws heavily from family stress theories (Conger, Ge, Elder, Lorenz, & Simons, 1994; McLoyd, 1990) and suggests that the link between neighborhood disadvantage and delinquent outcomes is mediated by parenting behaviors (e.g., supervision) and characteristics of the home environment (e.g., level of economic hardship); the second draws heavily from the previously mentioned social organization perspectives and suggests that the link between neighborhood

disadvantage and delinquency is largely mediated by peer group norms and behavior (e.g., level of deviant attitudes and activity).

Over the years, evidence has emerged to support both of these models. In line with the relationships and ties perspective, a number of studies have indicated that adolescents who live in poor, crime-ridden neighborhoods (compared with safe, resource-rich communities) report having less parental support and supervision (Furstenberg, 1993; Klebanov, Brooks-Gunn, & Duncan, 1994), both of which are related to higher levels of antisocial behavior and other deviant outcomes during adolescence (Beyers et al., 2003). Consistent with norms and collective efficacy theories, studies have also found that youths' involvement with deviant peers is an important mediator of neighborhood effects on offending. Specifically, community disadvantage and social disorganization are positively related to youths' association with deviant friends (Brody et al., 2001; Ge, Brody, Conger, Simons, & Murry, 2002), and the effects of neighborhood social functioning on antisocial behavior are transmitted through these relationships (Rankin & Quane, 2002). Although more recent work has started to examine parents and peers as mediators of community effects, few empirical studies have actually tested the mediating role of these two microsystems; instead, evidence has been provided only of indirect links between these contextual factors and adolescent offending (e.g., the association between neighborhood poverty and low parental supervision, the association between low parental supervision and delinquency). Moreover, although these two perspectives— relationship and ties and norms and collective efficacy—are meant to be complementary, only one study has questioned how parenting and peer group factors operate together to transmit community risk to youth. This research gap exists despite considerable knowledge that both parents and peers are influential systems in the maintenance of antisocial behavior during adolescence (see Loeber & Farrington, 2000).

Parenting Practices, Peer Deviance, and Adolescent Offending

It has long been established that parents who show a combination of strong supervision and positive involvement help to protect adolescents against delinquent outcomes, including violent offending (Furstenberg et al., 1999; Gorman-Smith et al., 2000). It is important to note that these associations have been demonstrated across demographic groups—including race and socioeconomic status—and across study designs—including both cross-sectional and longitudinal research (e.g., Dishion & McMahon, 1998). To explain relations between parenting behaviors and juvenile delinquency, researchers have documented important links between low parental support and youths' involvement with deviant friends (Dishion et al., 1994; Patterson & Stouthamer-Loeber, 1984; Stoolmiller, 1994) and between peer deviance and adolescent offending, including violent outcomes (Elliott, Huizinga, & Ageton, 1985; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995; Patterson et al., 2000). Specifically, studies have shown that the majority of crimes committed by teenagers occur in groups and that youths' association with deviant peers may be the best predictor of participation in future, potentially more serious forms of antisocial activity (Dishion, Andrews, & Crosby, 1995; Hawkins, Catalano, & Miller, 1992; Henry et al., 2001; Patterson et al., 2000).

Many researchers have argued that associating with delinquent friends, particularly those who engage in violent behavior, is the strongest proximal risk for individual antisocial outcomes. To test this theory, Henry et al. (2001) examined relations between family interactions, peer relationships, and antisocial behavior among 246 boys living in inner-city Chicago neighborhoods. The authors found that adolescents who experienced low emotional support and inconsistent discipline from their parents, compared with youths from families characterized by warm interpersonal relationships and consistent discipline, reported having more deviant friends (2 years later) and being involved with more violent and nonviolent delinquent behavior (5 years later). Specifically, a partially mediated model in which parenting

behaviors had both direct and indirect effects on violent and nonviolent offending (via peer violence) best explained the data.

Parenting Behavior and Peer Deviance as Mediators of Neighborhood Effects on Adolescent Offending

Although researchers have suggested that the influence of parents and peers converge during adolescence (Petit, Bates, & Dodge, 1997), only two studies have examined how factors in these two domains jointly mediate community influences on youth behavior. In the first, Rankin and Quane (2002) showed that higher rates of community collective efficacy were related to better parental supervision, fewer deviant peer affiliations, and lower levels of adolescent problem behavior. As expected, the authors found that parenting and peer group influences mediated the link between collective efficacy and deviance. They did not, however, find any direct relations between weak community structure (poverty and residential instability) and any of their study variables, indicating that only neighborhood social organizational (but not structural) characteristics were indirectly related to deviant outcomes. Recently, Tolan et al. (2003) advanced this area of study by testing the mediating role of parenting practices and peer deviance in the same model of youth violence. Using longitudinal data, Tolan and colleagues showed that both parenting practices and youths' affiliation with deviant peers served as important mediators of neighborhood effects on violent offending. Specifically, the authors found that weak neighborhood structural and social characteristics were indirectly related to gang membership through their effects on parenting practices (low monitoring, harsh discipline, and low parental involvement) and that gang affiliation mediated the influence of ineffective parenting behavior on individual violence. In this way, Tolan and colleagues demonstrated how community characteristics acted as ecological determinants to "frame" the developmental influence of parents and peers on youth violence, and they argued that a focus on only one of these microsystems can lead to overly simplistic or even inaccurate models of risk.

Given the limited research on the combined effects of neighborhood characteristics, parenting practices, and peer deviance on antisocial outcomes and, in particular, recent findings questioning the importance of neighborhood structural factors on adolescent deviance, the present study sought to address two questions: (a) Are neighborhood structural characteristics, in addition to social organizational factors, important predictors of delinquent outcomes? (b) How do parental and peer group factors operate together to transmit the influence of neighborhood functioning on adolescent offending? We examined these questions using cross-sectional data on a sample of serious juvenile offenders, adolescents who, despite receiving significant recent public and policy attention, have not been the focus of studies investigating the mechanisms of neighborhood influences on delinquency. On the basis of previous empirical findings, we hypothesized that weak neighborhood structural characteristics would be related to ineffective parenting practices and that this association would be mediated, in part, by the link between structural disadvantage and poor neighborhood social processes. We also anticipated that neighborhood social disorganization would predict the quality of parenting practices, levels of peer deviance, and rates of adolescent offending. We hypothesized that parenting would partially mediate the link between neighborhood social organization and peer deviance and that youths' involvement with deviant peers would, in part, mediate the link between parenting practices and offending. Our hypothesized model is shown in Figure 1.

Method

Research Participants

The subjects of this study were 488 male participants (from Philadelphia, Pennsylvania) in the RPD project, a longitudinal study of serious adolescent offenders in Philadelphia and Phoenix, Arizona. The RPD project was designed to follow a group of adolescent offenders whose histories and criminal charges were serious enough to be relevant for policy discussions and heterogeneous enough to allow examination of relations between social contexts, court involvement, and behavioral outcomes (Mulvey et al., 2004). Individuals were considered for the study if they were between 14 and 17 years of age at the time of their committing an offense and they were adjudicated or found guilty of a serious crime (because some time had elapsed between the offenders' arrest and adjudication, a small number of participants were 18 at the time of their interview for the study). Eligible charges included all felony offenses—with the exception of less serious property crimes—and misdemeanor weapons and sexual assault charges.

During the enrollment period (November 2000 to January 2003), 10,461 youths meeting our criteria were processed in the Philadelphia and Phoenix court systems; because many charges were reduced at adjudication to ones not eligible for this study, only 3,807 of these youths were considered for enrollment. Slightly more than half the eligible youths were approached about the study; 1,799 were excluded because of operational or design constraints. Adolescents were not approached when the enrollment of these cases would have overloaded the available interviewers or when the study was close to enrolling the predetermined 15% cap we imposed on the proportion of drug offenders in the study (so as to maintain adequate diversity of charges). Of the youths whom we were able to locate and contact, 80% agreed to take part in the study ($N = 1,355$); we managed to enroll 1 of every 3 (36%) of the identifiable adjudicated serious adolescent offenders who came before the courts in these locales during the enrollment period. In general, the enrolled youths, compared with 2,443 youths who were eligible for the study but not enrolled, were younger at the time of their adjudication hearing, had more prior court petitions, and appeared in court for the first time at an earlier age. Additional study and participant details can be found in Schubert et al. (2004).

The current study used baseline data for 488 of the 606 male offenders enrolled in Philadelphia. Participants were excluded from these analyses largely because they did not report having or living with a parent or guardian or because of missing data; 5 participants were excluded because their scores were more than 3 standard deviations away from the mean on one or more of the study variables. Compared with the excluded cases, study participants were younger at the time of their adjudication hearing ($M = 15.99$ years [$SD = 1.17$] vs. 16.82 years [$SD = 1.16$]), $t(604) = 6.88$, $p < .001$, and had fewer prior petitions ($M = 2.01$ [$SD = 2.16$] vs. 2.58 [$SD = 1.98$]), $t(604) = 2.62$, $p < .01$. No differences were found between the two groups in terms of ethnicity, age at first petition, proportion of households headed by a single parent, or median household income. The 488 boys included in the present study were largely economically disadvantaged, urban youths from ethnic minority backgrounds. Participants averaged 16 years of age at the time of their baseline interview. Seventy-three percent were African American, 11% were Caucasian, 13% were Hispanic, and 3% were from other ethnic groups (biracial, Asian American, or Native American). Participants came primarily from lower to working-class families, with 61% of households headed by a parent with a high school education or less and only 4% of households headed by a parent who had graduated from a 4-year college. Sixty-one percent of parents were never married, and most primary caregivers (67%) were adolescents' mothers; 10% were grandmothers, and 10% were fathers.

Procedure

In compliance with federal regulations, the Institutional Review Boards of the participating universities approved all recruitment and assessment procedures concerning the involvement of special populations in research (in this case, minors and individuals involved in the justice system). Once the appropriate consents were obtained from the juvenile and his parent, the interviewer met with the juvenile at his home or a mutually agreed-upon location in the community (if the juvenile was on probation) or at a facility (if the juvenile was confined). The interview was conducted on a laptop computer and administered over 2 days during two, 2-hr sessions. Questions were read aloud to avoid any problems caused by reading difficulties, and respondents typically answered the interview questions out loud. However, in the case of questions concerning sensitive material (e.g., criminal behavior), respondents were encouraged to use a portable keypad to input their answers. All interviews in facilities were conducted in private rooms with no facility personnel present, and when interviews were conducted in participants' homes or in community settings, attempts were made to conduct them out of the earshot of other individuals. Participants were assured of the confidentiality of their responses and told that we had obtained a certificate of confidentiality from the U.S. Department of Justice that prohibited us from disclosing any information to anyone outside the research staff, except in cases of suspected child abuse or cases in which there was the potential for imminent harm to an individual. Adolescents were paid $50 for their participation.

Measures

Neighborhood location—We determined neighborhood membership by geocoding the addresses of all participants and matching each address to a census tract. Census tracts generally have between 3,000 and 8,000 residents and are designed to be as homogenous as possible regarding population characteristics, living conditions, and economic status (U.S. Bureau of the Census, 2000). Tract boundaries reflect significant physical (e.g., major streets, rivers) or social (e.g., ethnic divisions) features of neighborhoods, which are delineated with the advice of local communities. Geocoding revealed that participants in this study lived in 213 different census tracts, 75 of which included only 1 participant. Fifty percent of the participants lived in neighborhoods with a median household income of less than $23,000 per year, and 75% lived in areas with a median household income of less than $30,000 per year. On the basis of recommendations from the Philadelphia police department, we grouped census tracts to form 72 neighborhood units; each unit was composed of 3–5 census tracts and contained 4–16 participants.

Neighborhood structural characteristics—Eight indexes that have been shown to affect a youth's risk for delinquent outcomes were obtained from 2000 census data: percentage of households below the poverty line, percentage of households receiving public assistance, percentage of unemployed 16 and older male residents, percentage of female-headed households, percentage of residents who have moved within the last 5 years, percentage of renter-occupied households, number of different races in the neighborhood, and percentage of foreign-born residents in the community. Using principal-components analysis, we derived three orthogonal factors that characterized neighborhood units on these variables. These three factors were labeled *Concentrated Poverty*, *Residential Instability*, and *Ethnic Diversity*, and together they accounted for 85% of the variance. Results from the (varimax) rotated factor solution are presented in Table 1. The internal reliability for the four items that made up the Concentrated Poverty factor was .91, and the correlations between the two items that composed the Residential Instability and Ethnic Diversity factors, respectively, were both .49. Factor-score coefficients for the three factors were used in the present analyses; higher scores reflected greater levels of neighborhood poverty, residential instability, and ethnic diversity.

Neighborhood social organization—Participants reported on two dimensions of neighborhood social organization: neighborhood disorder and social cohesion. We assessed *neighborhood disorder* using items adapted from a measure used in large-scale studies of neighborhood functioning (Sampson & Raudenbush, 1999). Adolescents were asked 21 items about physical and social disorder in the blocks surrounding their homes (e.g., abandoned buildings, gang activity). Participants responded using a 4-point scale ranging from 1 (*never*) to 4 (*often*), and scores were averaged across all items to determine levels of neighborhood disorder ($\alpha = .92$).[1] We evaluated *social cohesion* using two existing scales to assess how connected adolescents felt to their community (Nagin & Paternoster, 1994): (a) social integration—the extent to which individuals were socially integrated into their neighborhoods (5 items; sample item: "If they needed help, how many families in your neighborhood would rely on your family for help?" [$\alpha = .66$]); and (b) intergenerational closure—the extent to which members of the parental and adolescent generations were acquainted with each other (3 items; sample item: "How many of the parents of your friends know your parents?" [$\alpha = .74$]). Participants rated each item on a 4-point scale as *none* (1), *a few* (2), *many* (3), or *most* (4).

To determine how to combine our dimensions of neighborhood social organization, we first examined whether the three neighborhood scales represented a single, latent construct of community social organization. We fit a second-order confirmatory factor analysis (CFA) model with neighborhood disorder, social integration, and intergenerational closure, indicating the three first-order factors, and found a poor fit to the data, $\chi^2(374, N = 488) = 1,224.08$, $p < .001$ (root-mean-square error of approximation [RMSEA] $=.07$, comparative fit index [CFI] $= .83$). We did, however, find good fit for a second-order CFA model of the social cohesion construct, with social integration and intergenerational closure indicating the two first-order factors, $\chi^2(19, N = 488) = 57.45$, $p < .001$ (RMSEA = .06, CFI = .95). Because chi-square tests are sensitive to sample size (and likely to show significance with large samples), we relied on the RMSEA and CFI statistics to assess model fit. As expected, the social cohesion construct consisted of positive and significant loadings of social integration and intergenerational closure (standardized estimates: .51 and .51, respectively; $ps < .001$). Given these results, we decided to include neighborhood disorder and social cohesion as separate measures of neighborhood social organization in our models of adolescent offending; factor scores computed from the second-order CFA analysis were used to represent social cohesion. Higher scores on both of these measures indicated higher levels of neighborhood social disorganization.[2]

Parental education—Participants and collaterals reported on the highest level of schooling completed by the adolescent's mother or female guardian and father or male guardian. The score used in analyses was computed by averaging the highest level of education achieved by a mother–guardian and father–guardian (reported by either participant or collateral). The highest level of education achieved by one parent–guardian was used in the case of single-parent families. Although representing only one dimension of socioeconomic status, parental education has been empirically linked to both parenting behaviors and antisocial outcomes during childhood and adolescence (see McLoyd, 1998).

Parenting behavior—With measures that have been widely used in other studies of parenting practices and adolescent adjustment, youths provided information on three

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[1]According to the "broken windows" theory (Wilson & Kelling, 1982), signs of physical and social disorder in communities represent residents' unwillingness to intervene in crime or to contact the police, general indications of weak neighborhood social organization. However, others have suggested that disorder is predicted by the same factors as crime itself, resulting in a spurious relation (Sampson & Raudenbush, 1999). Although additional research is needed to determine the association between community disorder and delinquent outcomes, measures of neighborhood disorder are typically used as predictors of deviant outcomes.

[2]For each of the measures that were tested using second-order CFA models, we fixed the variance of the second-order factor to 1.0 to identify the models. In cases in which only two first-order factors were represented (e.g., the social cohesion construct), the second-order factor loadings were also constrained to be equal for identification purposes.

dimensions of their parents' behavior during the previous 6 months: warmth, knowledge, and monitoring. *Parental warmth* was measured, separately in reference to mother and father, using scales developed by Conger et al. (1994). Parental warmth was assessed using 9 items (sample item: "When you and your mother have spent time talking or doing things together how often did your mother act supportive and understanding toward you?" [α = .85, for maternal warmth; α = .88, for paternal warmth]). Both scales were scored on a 4-point Likert-type response scale; in the case of two-parent families, maternal and paternal scores were averaged. *Parental knowledge* and *parental monitoring* were measured with an adaptation of a scale used in several previous large studies of parenting and adolescent development (Steinberg, Lamborn, Dornbusch, & Darling, 1992). We decided to examine parental knowledge and parental monitoring separately, because recent evidence suggests that parents may learn or know about their children's activities through mechanisms other than parental monitoring (e.g., child disclosure; see Crouter & Head, 2002; Stattin & Kerr, 2000). Parental knowledge assessed the extent to which parents know about their adolescent's whereabouts and activities (5 items, scored on a 4-point Likert-type response scale; sample item: "How much do your parents know about where you go right after school or work is over for the day?" [α = .81]), and parental monitoring assessed the extent to which parents supervise and have rules for their adolescent (4 items, scored on a 4-point Likert-type response scale; sample item: "How often do you have a set time to be home on weekend nights?" [α = .71]). The parental knowledge and parental monitoring items were completed about the primary caregiver or caregivers in general, not separately for mothers and fathers.

Because previous research suggests that multiple-indicator constructs of the parent–adolescent relationship explain more of the variance in delinquent outcomes than do single indicators (Henry et al., 2001), we first examined whether our three parenting scales represented a single, latent construct of parenting behavior. We fit a second-order CFA model with parental knowledge, parental monitoring, and parental warmth representing the three first-order factors, and with the addition of one error covariance term, the CFA model provided an adequate fit to the data, χ^2(115, N = 478) = 304.73, p < .001 (RMSEA = .06, CFI = .95). As expected, the parenting behavior construct consisted of positive and significant loadings of parental knowledge, monitoring, and warmth (standardized estimates: .63, .97, and .29, respectively; ps < .001). Given these results, along with our interest in assessing youths' general experience of the parent–adolescent relationship, we represented parenting as a latent construct in our models; we used factor scores for parental knowledge, monitoring, and warmth (generated from the second-order CFA) as indicators of parenting behavior.

Peer deviance—We used an adaptation of a scale developed for the Rochester Youth Study (Thornberry et al., 1994) to measure the antisocial behavior of peers (10 items; sample item: "How many of your friends have sold drugs?"). Participants answered each question about the previous 6 months on a 5-point scale as *none* (1), *very few* (2), *some* (3), *most* (4), or *all* (5), and scores were averaged to indicate levels of *peer deviance* (α = .90); higher scores reflected higher levels of peer antisocial behavior.

Individual offending—We measured adolescent offending using items from the Self-Report of Offending (SRO) inventory developed by Huizinga, Esbensen, and Weiher (1991). Research has demonstrated adequate reliability and validity for the SRO in the general population (see Thornberry & Krohn, 2000) as well as in the population of offenders from which the current sample was drawn (Knight, Little, Losoya, & Mulvey, 2004; but see Huizinga & Elliott, 1986). Offending behavior was assessed as the total frequency with which 22 different offenses had been committed in the previous year (e.g., car–motorcycle theft, prostitution, aggravated assault, arson, murder, armed robbery). Because the distribution of offending was positively skewed (0 –3,023), we applied a natural log transformation ($x' = \log_e([x])$ to the scores before analysis; 1 point was added to each score prior to the transformation because the log of zero

scores cannot be calculated. Because variety scores—based on the count of different antisocial acts endorsed by subjects— have also been shown to have good predictive and construct validity in the study of delinquent behavior (Thornberry & Krohn, 2000), we computed a total variety score for each participant, and we also present results of our primary analyses using this alternate scoring method; the bivariate correlation between the SRO scores represented as log-transformed frequency and variety scores is .77.

Results

We used structural equation modeling (SEM) to test hypotheses for relations among neighborhood characteristics, parenting behaviors, peer deviance, and adolescent offending. Given the cross-sectional nature of our data, we could not test causal relations among constructs; however, we proposed directional links in our structural model on the basis of current theories and empirical findings about juvenile delinquency. Means, standards deviations, and intercorrelations among the observed variables used in the main analyses are presented in Table 2. Our primary analyses were conducted with AMOS (Version 5) using maximum-likelihood estimation procedures (Arbuckle, 1999), but we undertook two additional statistical procedures (described below) because of the hierarchical nature of the data. After evaluating the fit of our structural model, we also tested our proposed mediated relations using the four-step strategy outlined by Baron and Kenny (1986).

Management of Hierarchical Data

As noted earlier, our 488 participants were nested within 72 neighborhoods and represented data at two hierarchical levels— individual participants within neighborhoods (Level 1) and neighborhoods themselves (Level 2). Most noteworthy about this type of data structure is the potential for dependence among observations (i.e., the error in predicting Y from X for one case is related to that of another case), because participants living in the same neighborhood are more likely to share common experiences than are participants from different neighborhoods that do not share the same characteristics. The danger in violating the independence assumption with analysis techniques like SEM and others based on ordinary least squares estimates is that doing so can compromise the accuracy of significance tests, making them too liberal and inflating the probability of making a Type I error (Barcikowski, 1981). With this caution in mind, we used two additional statistical procedures to help improve the reliability of our study estimates.

The first procedure involved using an effective sample size to help correct for the bias that can result from violations of the independence assumption. On the basis of the original sample size and an estimate of the amount of dependence that exists among observations, an effective sample size corresponds to an estimated number of independent observations represented in the data. The value is calculated using the formula N/Design Effect, where N is the total sample size ($N = 488$) and Design Effect is the factor by which the total sample needs to be increased to achieve the same estimation variance as a random sample of the same size; Design Effect = $1 + (n − 1) *$ ICC, where n is the average number of individuals within a neighborhood unit (488/72) and ICC is the assumed *intraclass correlation coefficient* (.10) between neighborhood-level measures and individual outcomes (i.e., degree of resemblance between individuals belonging to the same neighborhoods; Snijders & Bosker, 1999).[3] This procedure does not draw a random sample of observations from the total sample but, instead, allows the researcher to test structural models with an adjusted sample size—in the current study, $N =$

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[3]We chose .10 as the assumed ICC by considering results from our own data in the context of previous studies reporting ICC values ranging from .02 to .29 for individual-level outcomes including neighborliness, perceptions of neighborhood problems, violence, and other externalizing behaviors (Beyers et al., 2003; Tolan et al., 2003). Data for the present study indicated an ICC of .03 for adolescent offending, but we decided to use a value of .10 to obtain a more conservative estimate of the effective sample size.

310—so that standard errors and test statistics can be corrected for any distortions that result from the dependence of observations in the data. For the present analysis, we instructed AMOS to use the adjusted sample size and the correlation matrix shown in Table 2 to test the hypothesized model in Figure 1. In addition, we decided to retest any significant relations found between neighborhood structural characteristics and individual-level factors with hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992). Because HLM can describe variation at different levels of analysis—among individuals within neighborhoods (Level 1) and between neighborhoods themselves (Level 2)—it can provide greater assurance that the relations between neighborhood characteristics and other variables are not simply the result of the aggregation of individual-level factors such as parental education level (e.g., Kreft & de Leeuw, 1998).

Prior to testing our hypothesized model, we made the decision to treat our three measures of structural characteristics as neighborhood-level variables and our two measures of neighborhood social organization as individual-level variables. We chose not to aggregate the social organizational measures after finding that only one of them clustered by neighborhood (i.e., there was more variability between neighborhoods than among individuals within the same neighborhood). We determined this by calculating ICCs (Bryk & Raudenbush, 1992) using two-level hierarchical linear models with the neighborhood disorder and social cohesion scales at Level 1 and community intercepts at Level 2. Using the formula

$$\rho = \frac{\tau}{(\tau + \sigma^2)},$$

where ρ is the ICC, τ is the population between-groups variance, and σ^2 is the population within-group variance, we found that only the neighborhood disorder variable clustered by neighborhood: neighborhood disorder ICC = .130, $\chi^2(71, N = 488) = 144.55$, $p < .001$; social cohesion ICC = .004, $\chi^2(71, N = 488) = 77.45$, ns. Consistent with Tolan et al. (2003), we chose to treat our social organization measures as individual-level variables and interpret them as individual perceptions of neighborhood social functioning.

Testing the Saturated and Hypothesized Models

Although our hypothesized model may provide a good fit to the data, it is possible that other more complex or parsimonious models may fit the data equally well (or better). As such, we first tested a saturated model in which all paths suggested by the ordering of constructs in Figure 1 were estimated (i.e., paths were added from each variable to every construct to its right). To evaluate model fit, we relied on three fit indices: the chi-square, the CFI (which indicates proportion of the improvement of the overall fit of the model relative to a null model), and the RMSEA (which estimates residual covariance between the estimated population covariance and the sample covariance matrices); along with the RMSEA, we also examined p (close) values, which test for the closeness of fit or the hypothesis that the RMSEA is "good" in the population. Nonsignificant chi-square tests, CFI values near .95 (or greater), and RMSEA values of .06 or less (with p[close] values greater than .50) indicate good model fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; Jöreskog & Sörbom, 1996; MacCallum, Browne, & Sugawara, 1996). Using these fit statistics, the saturated model showed a good fit to the data (except according to the chi-square value), $\chi^2(17, N = 310) = 28.05$, $p < .05$ (RMSEA = .046, p[close] = .55, CFI = .997). Standardized path estimates from the saturated model are presented in Table 3.

To find a more parsimonious model, we followed the suggestion of Jöreskog and Sörbom (1996) and removed nonsignificant paths (e.g., direct links between neighborhood structural

factors and offending) from the saturated model; although parental education was not significantly related to parenting behavior, we kept this path in the model to control for levels of parental education. Because this reduced model was a subset of the saturated model (i.e., requiring only the removal of nonsignificant paths), we could examine the change in model chi-square values to determine which of the two models provided a better fit; a significant increase in the chi-square value relative to the change in degrees of freedom was indicative of worse fit. According to this criterion, the reduced model showed as good a fit to the data as the saturated model, $\Delta\chi^2(20) = 17.08$, *ns*. According to other fit statistics, however, the reduced model provided an excellent (and better) fit to the data, with a nonsignificant chi-square value, $\chi^2(37, N = 310) = 45.13$, *ns* (RMSEA = .027, *p*[close] = .95, CFI = .996). Standardized path estimates for the model are presented in Figure 2.[4]

As shown in Figure 2, the reduced model indicated that neighborhood-level structural factors were related to individual reports of neighborhood social organization, with neighborhood poverty predicting higher rates of neighborhood disorder and residential instability predicting lower levels of social cohesion. In follow-up HLM analyses, we fit two 2-level linear models, with neighborhood disorder and social cohesion at Level 1 and the three structural factors at Level 2. Tests of the two hierarchical linear models indicated similar results to those obtained from the test of the structural model—higher rates of neighborhood poverty were related to more neighborhood disorder, $G = 0.16$, $t(68) = 4.46$, $p < .001$, but not social cohesion, $G = 0.02$, $t(68) = 0.60$, *ns*, and higher rates of residential instability were related to less social cohesion, $G = -0.09$, $t(68) = -2.15$, $p < .05$, but not neighborhood disorder, $G = 0.05$, $t(68) = .05$, *ns*; ethnic diversity was not related to either of the social organizational factors, $G = -0.02$, $t(68) = .03$, *ns* (for neighborhood disorder), and $G = 0.06$, $t(68) = 1.69$, *ns* (for social cohesion). Similar to the findings of Tolan et al. (2003), the HLM results corresponded to the estimates found in the structural model, suggesting that the relations found between our neighborhood-level structural characteristics and individual-level social organizational factors were not simply the result of the aggregation of similar individuals within the same neighborhoods. As illustrated in Figure 2, neither of the neighborhood structural factors— but both measures of neighborhood social organization— showed significant associations with parenting behavior. Consistent with our hypotheses, parenting and both neighborhood social factors were related to peer deviance, and peer deviance was associated with individual offending. Contrary to our hypotheses, however, parenting behaviors were not directly related to offending, and there was a positive marginal link between social cohesion and peer deviance, suggesting that neighborhood connectedness may be linked to youths spending time with more-deviant friends. Although unexpected, this latter finding is not inconsistent with reports that in disadvantaged communities, strong neighborhood social ties can actually interfere with local efforts to establish informal social control and increase the risk for youth to become involved with deviant peers (Anderson, 1999), and it is consistent with the notion that social cohesion in impoverished neighborhoods may be a risk, rather than a protective, factor (Darling & Steinberg, 1997).

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[4]We retested this structural model using the offending variety score described in the Method section. This outcome produced almost identical results for the test of the structural model in Figure 2, $\chi^2(37, N = 310) = 44.34$, *ns*, (RMSEA = .025, *p*[close] = .95, CFI = .997), and resulted in standardized path estimates that were similar in magnitude to those produced with the log-transformed frequency score. We also conducted multiple group analyses in AMOS to test whether the structural model in Figure 2 differed according to age and ethnic groups. To have adequate samples sizes to conduct these analyses, we used the full sample of offenders to compare the fit of the structural model for two group comparisons: ethnicity (African American [$n = 358$] vs. Hispanic and Caucasian [$n = 130$]) and age (14–16 years old [$n = 304$] vs. 17–18 years old [$n = 184$]). Analyses compared changes in chi-square values and degrees of freedom between unconstrained models and models that constrained all of the paths in the structural model to be equal across groups. Both group comparisons indicated nonsignificant changes in chi-square values, suggesting that the structural model did not differ across age or ethnicity, $\Delta\chi^2(10) = 11.22$, *ns*, and $\Delta\chi^2(10) = 8.67$, *ns*, respectively. Results are available from the authors on request.

Evaluating Mediated Relations

To evaluate mediated relations suggested by our model, we relied on four criteria outlined by Baron and Kenny (1986). First, the initial variable (*A*) must be correlated with the outcome variable (*C*). Second, *A* must be correlated with the proposed mediator (*B*). Third, *B* must be correlated with *C*. And fourth, the relation of *A* and *C* must not be significantly different from zero when *B* is in the equation. For the relations in our model, we examined whether all four of these criteria were met (i.e., full mediation) and also whether the fourth criterion was only partially satisfied—whether the relation between the initial variable and outcome was reduced but still significantly different from zero when the mediator was in the equation (i.e., partial mediation). More recently, Kenny, Kashy, and Bolger (1998) argued that if the second and third criteria are met (i.e., the initial variable is correlated with the proposed mediator, and the proposed mediator is correlated with the outcome variable), one can infer mediation and conclude that there is an indirect effect between the initial and outcomes variables. Thus, for the mediated relations suggested by our model, we considered three cases of mediation (full, partial, inferred) and tested the significance of effects using the Goodman (I) equation:

$$z - \text{value} = \frac{a^* b}{\sqrt{(b^2 S E_a^2 + a^2 S E_b^2 + S E_a^2 S E_b^2)}},$$

where *a* is the initial variable–mediator relation, and *b* is the mediator–outcome-variable relation. Given the cross-sectional nature of our data, our goal was not to test for mediation in the causal sense but, rather, to explore potentially significant relations between contextual factors and adolescent offending.

We first asked whether neighborhood factors were related to delinquent outcomes and if these relations were mediated by the influences of parenting behaviors and peer deviance. We used AMOS to estimate a reduced model that excluded the proposed mediators and included only direct effects between our three neighborhood structural factors and offending. Tests revealed that none of the structural factors significantly predicted offending. However, when the two neighborhood social factors were added to the model, neighborhood disorder showed significant relations with individual offending, $b = .17$, $t(309) = 3.25$, $p < .01$; surprisingly, social cohesion was not related to offending. When the parenting and peer variables thought to mediate neighborhood influences were put back in the model, the direct relation between neighborhood disorder and offending became nonsignificant for both outcomes, $b = .03$, $t(309) = 0.67$, *ns*, and $b = .01$, $t(309) = 0.02$, *ns*, respectively, suggesting that the effects of neighborhood disorder on antisocial behavior were explained by a combination of parenting and peer influences.

We then examined whether neighborhood social organization mediated the link between neighborhood structure and parenting behavior. To answer this question, we looked at outputs from multiple sources, including the structural test of our final model and the hierarchical linear models conducted earlier to retest relations between neighborhood structural and social characteristics. We also tested a reduced AMOS model in which our neighborhood structural factors were used to predict parenting behavior. Although this analysis showed no significant relations between neighborhood structural characteristics and parenting (i.e., the first criterion for mediation), Kenny et al.'s (1998) revised criteria suggest inferred mediation when only the second and third conditions are met. HLM analyses conducted earlier showed that concentrated poverty is related to neighborhood disorder and that residential instability is related to social cohesion, thus satisfying the second criterion for mediation. In addition, the test of the structural model showed that higher levels of neighborhood disorder and lower levels of social cohesion are related to less effective parenting behavior, thus satisfying the third criterion. As expected,

Goodman tests indicated that both neighborhood poverty and residential instability have negative indirect associations with parenting via their links to neighborhood social organization ($z = -2.07$, $p < .05$, and $z = -2.05$, $p < .05$, respectively).

We next looked at the role of parenting behavior in mediating the link between neighborhood social organization and peer deviance. To address the first criterion, we fit a reduced AMOS model that excluded parenting variables from the analysis. In this model, only neighborhood disorder was related to peer deviance, $b = .26$, $t(309) = 5.33$, $p < .001$. Regarding the second and third criteria, previous tests of the structural model already showed that neighborhood disorder and social cohesion were related to parenting behavior and that parenting was related to levels of peer deviance. When parenting behavior was returned to the model, the relation between neighborhood disorder and peer deviance was diminished but remained significant, $b = .23$, $t(309) = 4.82$, $p < .001$, and the relation between social cohesion and peer deviance actually became significant, $b = .10$, $t(309) = 2.12$, $p < .05$. Thus, although parenting behavior partially mediated the relation between neighborhood disorder and peer deviance ($z = 2.24$, $p < .05$), it played a suppressor role in the link between social cohesion and peer deviance ($z = -3.16$, $p < .001$). MacKinnon, Krull, and Lockwood (2000) referred to suppression in mediated relations when the link between the initial variable and outcome is strengthened or changes in direction with the inclusion of a mediator. In our case, the relation between social cohesion and peer deviance only became significant after the link between parenting and peer affiliations was controlled, suggesting that the initial null finding between these two variables was actually masking an association between higher levels of social cohesion and youths' involvement with deviant peers.

Our last series of tests asked whether peer deviance mediated the association between parenting and adolescent offending. In a reduced model without peer deviance, parenting behavior was significantly related to offending, $b = -.23$, $t(309) = -4.18$, $p < .001$, thus satisfying the first criterion. As shown in Figure 1, parenting was related to peer deviance, and peer deviance was related to offending, thus satisfying the second and third criteria for mediation. With peer deviance in the model, the link between parenting behavior and offending disappeared, $b = -.08$, $t(309) = -1.54$, ns, indicating that peer deviance fully mediated the link between parenting behavior and offending ($z = -4.68$, $p < .001$).

Discussion

The primary purpose of this study was to examine concurrent relations among neighborhood-level structural characteristics, individuals' perceptions of neighborhood social processes, parenting behaviors, peer deviance, and offending in a sample of serious juvenile offenders. We focused on parents and peers as contemporaneous mediators of community risk, because their joint influence has received little empirical attention to date.

Our findings are consistent with at least three conclusions derived from prior community-based studies of neighborhood influences on adolescent offending. First, neighborhood structural disadvantage is related to youths' perceptions of social disorganization in the community—specifically, concentrated poverty is associated with more neighborhood disorder, and residential instability is associated with less neighborhood social cohesion. Second, neighborhood disorder, ineffective parenting, and youths' involvement with deviant peers are all associated with youths reporting higher rates of offending. And third, although community factors account for only a small portion of the overall variance in juvenile offending, lower levels of neighborhood social organization are indirectly related to higher levels of adolescent offending via their links to parenting practices and peer affiliations. However, given that community social cohesion was not directly related to delinquent outcomes in this study, its indirect influence on offending needs to be interpreted with caution (MacKinnon et al.,

2000). Moreover, given the cross-sectional nature of our data, the direction of effects and the mediated relations cannot be interpreted in the causal sense.

Although research has suggested that youths become more dependent on their peers and individuals outside of the family for support during adolescence (see Brown, 2004), our results confirm the conclusion of Tolan et al. (2003) that a focus on only one microsystem—parents or peers—can lead to overly simplistic models of risk for juvenile offending. Specifically, we found that the link between neighborhood disorder and deviant peers was partially explained by ineffective parenting, whereas the link between social cohesion and peer deviance became important only after parenting was taken into consideration. Although this latter association showed marginal significance, the direction of the effect is interesting to note in that it was contradictory both to what we hypothesized and to reports showing that strong neighborhood social organizations deter youths from associating with deviant friends (Beyers et al., 2003; Brody et al., 2001). As noted earlier, the positive link found between social cohesion and peer deviance is actually consistent with arguments that in poorly functioning communities, strong neighborhood social ties can interfere with local efforts to establish informal social control and increase the risk for youths to become involved with deviant friends (Anderson, 1999; Patillo-McCoy, 1999).

In trying to explain these divergent reports, we first turn to our measurement of social organization. The current study assessed social connectedness, a specific dimension of neighborhood social functioning rarely examined in conjunction with parenting practices and peer deviance. Most studies, particularly those that have reported lower peer deviance in neighborhoods with higher levels of social organization, have measured collective efficacy, a combination of neighborhood social connections *and* informal social control (the extent to which residents help each other to regulate youths' behavior). These studies suggest that an important component of healthy neighborhood functioning is the common community goal of deterring antisocial behavior, or what Sampson et al. (2002) have described as the *activation of social ties* to achieve shared expectations for action. Indeed, the low ICC for social cohesion in the present study indicates that measures of neighborhood ties alone, without assessments of informal social control mechanisms, may not be good indicators of neighborhood-level social processes in disadvantaged communities. The findings of Tolan et al. (2003) point to a similar conclusion, because the ICC for neighborliness (the extent to which persons are involved with and able to depend on others in the community) was only .0165 among the study's urban neighborhoods; in contrast, Sampson et al. (1997) found a much higher ICC of .21 for collective efficacy. Given that such discrepant findings have received little empirical attention, it would be important for future research to examine different dimensions of neighborhood social functioning and the mechanisms by which they impact individual development. This area of inquiry would help to support a conceptualization of neighborhood functioning that considers both pro- and antisocial influences, and it would advance the understanding community effects on youth outcomes (see Kubrin & Weitzer, 2003).

Among the hypotheses not confirmed in this study, we were least surprised to find that peer deviance fully, rather than partially, mediated the link between parenting behaviors and adolescent offending, and we were most surprised that reports of neighborhood social cohesion were not directly related to delinquency. Regarding the first finding, there is some speculation that involvement with delinquent friends serves the role of full mediation for the most serious forms of antisocial behavior (Thornberry et al., 1994). Indeed, Tolan et al. (2003) found that gang membership fully mediated the link between parenting practices and levels of individual violence, and given the nature of the present sample, it is likely that we captured more serious forms of delinquency than have other studies using community adolescents. Regarding the second finding—that neighborhood social cohesion is not directly related to offending—it is important to note that recent work has questioned the significance of social ties to the

development of community informal control mechanisms (Sampson et al., 2002; Silver & Miller, 2004); in fact, some have argued that less frequent interactions among residents serves to increase informal social control and reduce deviant behavior among youths by bringing together otherwise disconnected subgroups of individuals (Bellair, 1997). On the one hand, the null association between social cohesion and offending in this study suggests that a family's connection to the neighborhood, in and of itself, may not be as important for predicting adolescent deviance as some have thought; on the other hand, our findings suggest that neighborhood social ties may influence important microsystems that are directly related to offending outcomes.

Regarding other unconfirmed hypotheses, it was not surprising that ethnic diversity was unrelated to our study variables in light of other reports noting inconsistent links between ethnic diversity and individual-level outcomes (see Leventhal & Brooks-Gunn, 2004). We were, however, expecting the other neighborhood structural characteristics to show direct links to offending, particularly given speculation that the effects of neighborhood structure on delinquency are stronger among older than among younger adolescents. One explanation for our null finding is that the current sample was drawn from a specific region, which, compared with a national sample of youth, is likely to show less variation in neighborhood structural characteristics and less consistent community effects on outcomes (Duncan & Raudenbush, 1999). Another explanation may be found in our reliance on census-based indicators to measure neighborhood structure. Recently, Tolan et al. (2003) used a combination of census data and other administrative sources (e.g., assessment of institutional resources) to show that weak neighborhood structure contributes to individual-level violence among inner-city Chicago boys. Other researchers have also documented links between youths' access to institutional resources (e.g., schools, social and recreational programs, employment) and fewer deviant outcomes, especially among adolescents who live in disadvantaged communities (see Furstenberg et al., 1999; Leventhal & Brooks-Gunn, 2000). According to these findings, studies that rely entirely on census-based measures of neighborhood structure are likely to underestimate the influence of neighborhood characteristics on adolescent development.

A number of caveats are important to note in interpreting the results of the present study. Perhaps the most important limitation is that most of the variables were based on youth self-report, increasing the potential for inflated shared-method and -source variance. It would be important to replicate the findings using alternative sources of information (e.g., observational ratings of parent–adolescent relationships; Tolan et al., 2003) and alternative measures of peer influence (e.g., average deviance scores across a group of nominated friends; Fergusson, Wanner, Vitaro, Horwood, & Swain-Campbell, 2003). In recent years, researchers have also developed better methods for measuring community characteristics, such as neighborhood surveys (e.g., interviewing nonparticipants in the study) and systematic social observations (e.g., using trained observers to characterize neighborhoods). These data-collection methods can provide information about neighborhood social processes that is based on independent sources and reduce the threats to measurement independence that are inherent in the use of participant ratings (Sampson et al., 2002). In addition, because the current study treated the neighborhood social factors as individual-level variables, we can only speak about individual perceptions of the social processes that take place. And although it may be valuable to assess such perceptions among neighborhoods that show little variation in structural characteristics, it is important not to assume that individual observations reflect processes that operate at the neighborhood level.

A second caveat is that because our data were cross-sectional, we could not address causal relations among variables. Although studies have shown that changes in parenting practices can lead to changes in peer affiliations and adolescent offending (e.g., Patterson et al., 2000), that increases in peer deviance can cause growth in offending behavior (e.g., Henry et al.,

2001), and that increases in youth violence can contribute to community social disorganization (Sampson et al., 1997), the present study cannot address causal or bidirectional influences among neighborhoods, parents, peers, and delinquency. Indeed, the fact that we measured neighborhood social processes as family-specific (not neighborhood-level) variables increased the likelihood of reverse causality in this study. Even though we tested directional paths that are most consistent with current theories of juvenile offending, future longitudinal analyses would be required to assess the temporal ordering of neighborhood, parental, and peer group influences on delinquent outcomes.

A third limitation is that our neighborhood, parenting, and peer group factors accounted for only 26% of the overall variance in adolescent offending. Although this figure is consistent with prior studies using community samples (Leventhal & Brooks-Gunn, 2004), the low estimate likely reflects this study's omission of individual-level risk factors (e.g., impulsivity) that have been linked to the development and maintenance of antisocial behavior (e.g., Moffitt & Caspi, 2001). Future neighborhood studies that consider additional individual risk factors are likely to find models that can explain more of the variance in juvenile offending outcomes; such models are also likely to help reduce the overestimation of contextual effects that can occur when individual-level variables are excluded from analyses. And finally, our sample was composed primarily of African American boys from lower to working-class families and neighborhoods. Although this group represents the largest portion of the national juvenile offender population, the findings of this study may not generalize to female offenders and adolescents from more affluent backgrounds. Indeed, some research suggests that neighborhood social ties may influence adolescent outcomes differently in disadvantaged versus resource-rich communities (Darling & Steinberg, 1997; Gonzales, Cauce, Friedman, & Mason, 1996). In addition, given study-selection effects, our results may not generalize to the older, more habitual offenders from our sample, because the participants who were excluded from our analyses had more prior court petitions prior to study enrollment.

Conclusion

The limitations of this study notwithstanding, our results confirm the value of integrating individual and community-level factors to explain risk for serious juvenile offending. These research efforts are important not only because antisocial behavior continues to be a major social and public health problem in the United States but also because treatment programs that are grounded in ecological frameworks show promising outcomes for reducing serious and violent antisocial behavior (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Despite speculation that norms and collective efficacy models of neighborhood effects —that community risk is transmitted to youth through peer affiliations—are most important for explaining delinquent outcomes (Leventhal & Brooks-Gunn, 2004), our findings support continued research with peers and parents as mediators of community characteristics on juvenile offending. Excluding one of these microsystems may result in simplified models of risk and intervention strategies, because it is through the integrated study of multiple systems that researchers are likely to understand how neighborhood factors transmit both pro- and antisocial influences to youth living in disadvantaged communities. Although it is important to identify protective factors for improving community, family, and peer group functioning, it is equally important to identify and ameliorate characteristics that may serve to exacerbate problems for high-risk youth.

Acknowledgments

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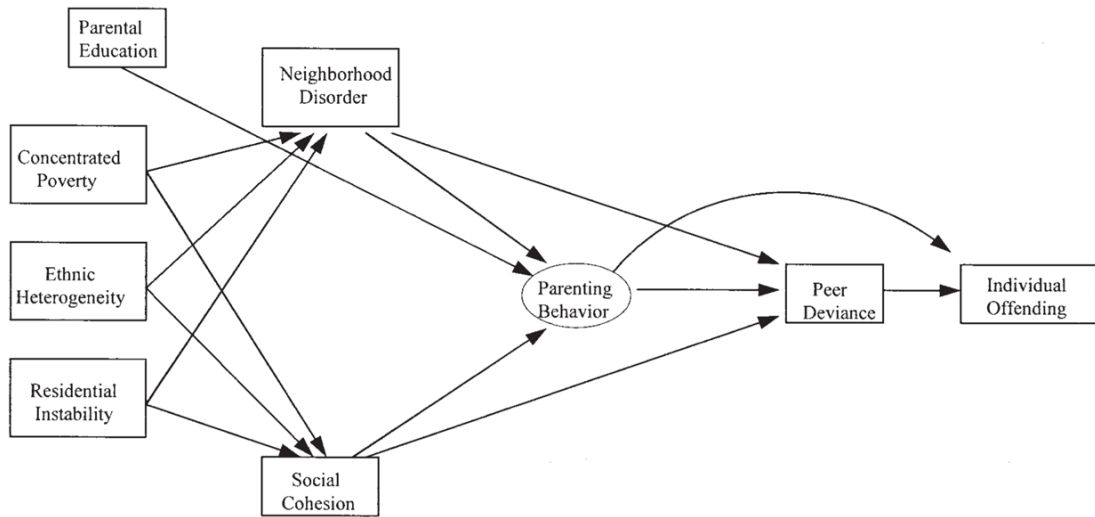Wilson JQ, Kelling G. The police and neighborhood safety: Broken windows. Atlantic Monthly 1982 March;127:29–38.

Figure 1.
Hypothesized model of adolescent offending.

Figure 2.
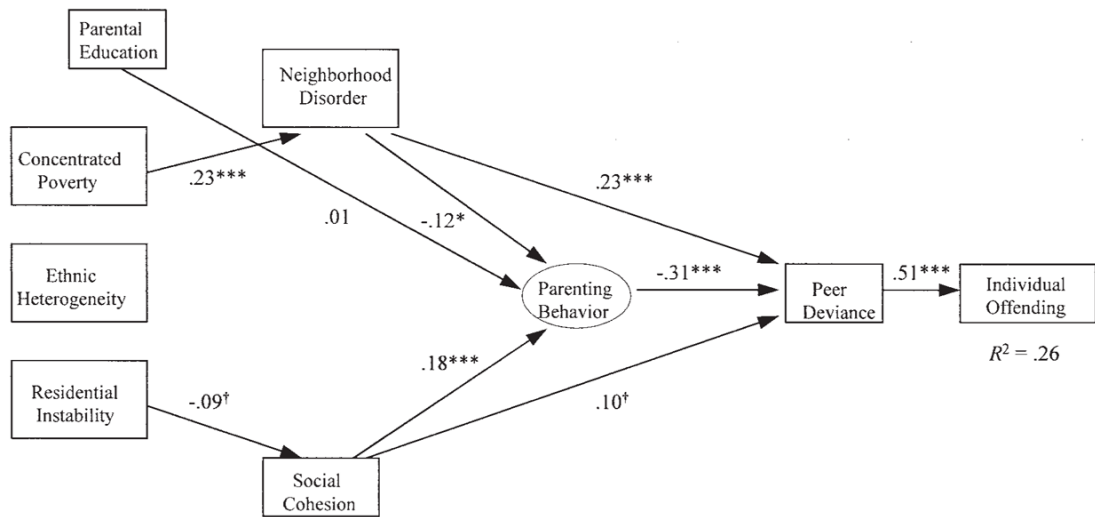Standardized estimates for the final model predicting individual offending. An effective sample size ($N = 310$) used to test the structural model, $\chi^2(37, N = 310) = 45.13$, *ns* (RMSEA = .027, p[close] = .95, CFI = .996); all three neighborhood structural factors were allowed to correlate with each other and with parental education. $^\dagger p < .10$. $^*p < .05$. $^{***}p < .001$.

Table 1

Factor Loadings of Census-Based Community Structural Characteristics

Variable	Concentrated Poverty	Ethnic Diversity	Residential Instability
Percentage of households below the poverty line	.94	−.01	.25
Percentage of households receiving public assistance	.93	.09	.18
Percentage of 16 and older unemployed male residents	.90	−.22	−.01
Percentage of female-headed households	.83	−.35	.05
Number of different races in the neighborhood	.04	.89	−.03
Percentage of foreign-born residents in the community	−.32	.77	.17
Percentage of renter-occupied households	.39	−.27	.80
Percentage of residents who have moved within the last 5 years	−.01	.35	.87

Note. Results are from a (varimax) rotated factor solution using principal-component analysis. Three factors accounted for 85% of the total variance: Concentrated Poverty (44%), Ethnic Diversity (22%), and Residential Instability (19%).

Table 2

Means, Standard Deviations, and Intercorrelations Among Observed Variables Used in Analyses (N = 488)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1.Parental education	1.72	.73	—										
2.Concentrated poverty	0.00	1.00	-.18***	—									
3.Residential instability	0.00	1.00	-.09*	.00	—								
4.Ethnic diversity	0.00	1.00	-.11**	.00	.00	—							
5.Neighborhood disorder	2.58	0.66	-.06	.23***	.07	-.05	—						
6.Social cohesion	4.71	0.85	-.02	.03	-.09*	.08	.03	—					
7.Parental knowledge	2.73	0.61	.00	.02	-.02	.12*	-.14**	.20***	—				
8.Parental monitoring	2.56	0.57	-.00	.02	-.02	.12*	-.12**	.20***	.99***	—			
9.Parental warmth	1.85	0.33	-.02	.04	-.04	-.01	-.09	.24***	.84***	.86***	—		
10.Peer deviance	2.27	0.89	.02	-.03	-.07	-.03	.27***	.05	-.34***	-.33**	-.23***	—	
11.Individual offending	2.74	2.09	-.01	-.02	-.06	-.03	.17***	.01	-.28***	-.27***	-.17***	.51***	—

*
  p < .05.

**
  p < .01.

***
  p < .001.

Table 3

Standardized Path Estimates From the Saturated Model

Predictor	Outcome variable				
	Neighborhood disorder	Social cohesion	Parenting behavior	Peer deviance	Individual offending
Concentrated poverty	.23***	.03	.04	−.08	−.02
Residential instability	.07	−.10†	.01	−.08	−.04
Ethnic diversity	−.05	.08	.10	.04	−.02
Parental education	−.01	−.01	.01*	.01*	−.02
Neighborhood disorder			−.12*	.26***	.04
Social cohesion			.17**	.09†	−.00
Parenting behavior				−.31***	−.08
Peer deviance					.47***

†
$p < .10$.

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.