

Mediators of the effects of neighborhood danger on child adjustment:
Maternal depression, parenting, and variations across development

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Abstract

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As many as 1 in 5 children are exposed to neighborhood violence, crime, and other safety problems each year. Exposure to neighborhood danger (ND) has been associated with internalizing and externalizing symptoms in youth. The literature presents a complex picture of how ND relates to child adjustment—including parenting and maternal mental health as possible mechanisms of the association. Although many suggest that the impact of ND on child adjustment may differ by age, this has not been empirically tested. The present study is a longitudinal examination of how ND, maternal depression, and parenting practices predict the development of internalizing and externalizing symptoms in two age groups: early childhood (N=306, T1 age M=5.34; T2 age M=8.12) and preadolescence (N=214, T1 age M=9.41; T2 age M=11.44). ND, maternal depression, and child adjustment were assessed using parent-report; observed parent-child interactions provided measures of parenting. Cross-group path analyses tested the effects of T1 ND, maternal depression, and parenting on T2 child adjustment separately by age-group. Results suggest that ND effects on child adjustment did not differ across age groups. However, ND has different effects on parenting practices across early childhood and preadolescence, suggesting that different parenting behaviors might be relevant mediators of the effects of ND at different ages.

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Children living in neighborhoods characterized by disadvantage are at higher risk for poor child adjustment outcomes such as internalizing and externalizing symptoms (Leventhal & Brooks-Gunn, 2000). Parents in disadvantaged neighborhoods may also exhibit more depressive symptoms and less effective parenting practices (such as harsh and inconsistent discipline or low warmth) which themselves predict child adjustment problems (Galambos et al., 2003; National Research Council and Institute of Medicine [NRC/IOM], 2009), and some studies suggest that parent factors mediate the relation between neighborhood problems and child adjustment (e.g., Pachter et al., 2006). Moreover, the influence of both neighborhood and parents on adjustment may vary depending on the child's age. While this assumption underlies much of the research in this area, few studies have empirically examined potential age differences. The goal of the current study is to compare the relations among ND, maternal depression, parenting behaviors, and child adjustment in early childhood and preadolescence.

Neighborhood Characteristics

Many characteristics of the neighborhood environment, such as safety/danger, economic resources, social cohesion, racial/ethnic diversity, and residential stability/mobility (Leventhal & Brooks-Gunn, 2000) may impact child and adolescent adjustment. Extant research suggests that neighborhoods characterized by conditions such as low safety, high disorder, poor economic resources may be associated with youth adjustment (e.g., Pachter et al., 2006; DeCarlo-Santiago et al., 2011). However, much of this research focused on broad, blended measures of "neighborhood disadvantage", which may obscure or conflate the unique impact of personal experiences of neighborhood danger with factors such as neighborhood economic disadvantage or lack of social cohesion. Studying more specific aspects of the environment may improve our understanding of neighborhood relations to family and child level factors. Moreover, research on neighborhoods has largely focused on samples drawn from low-income or otherwise socioeconomically disadvantaged samples. Although neighborhood danger concerns are disproportionately associated with socioeconomic disadvantage (Leventhal & Brooks-Gunn, 2000), the emphasis on disadvantaged samples precludes drawing conclusions about neighborhood characteristics separate from socioeconomic characteristics.

Further, compared to more proximal factors, distal influences on child internalizing and externalizing symptoms, such as neighborhood contexts, have been studied to a lesser extent. In the

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existing research, neighborhood danger has been consistently linked with child adjustment, though the nature of this relation has been mixed (e.g., Plybon & Kliewer, 2001; Milam et al., 2012). Danger reflects the presence of or exposure to crime and/or violent activity in a neighborhood. The link between neighborhood danger and externalizing symptoms across childhood is well supported (e.g., Plybon & Kliewer, 2001; Pardini et al., 2012). Bush, Lengua, and Colder (2010) found that neighborhood danger was positively related to child internalizing and externalizing symptoms. However, studies have not always reported a positive association between neighborhood danger and internalizing symptoms in child populations. For example, both Milam (2012) and McCoy et al. (2016) found that children with high neighborhood violence exposure or from high crime neighborhoods had lower levels of internalizing symptoms. This suggests that there may be additional factors influencing the development of internalizing symptoms in youth from neighborhoods with high perceived danger.

Bronfenbrenner's (2005, 2006) bioecological systems model provides a framework for examining both distal and proximal factors that contribute to children's adjustment. The bioecological model posits that an individual's development is shaped by their ecology—concentric layers of environmental factors from most proximal (such as individual temperament and family attributes) to more distal (such as neighborhood characteristics). Within the neighborhood literature, there are many theoretical approaches connecting individual outcomes to neighborhood characteristics. Contagion models suggest that negative behaviors from the neighborhood and its members influence the thoughts and actions of others (Jencks & Mayer, 1990). The Adolescent Exposure model follows from this suggesting that as children age into adolescence, they are increasingly likely to be exposed to neighborhood disadvantage and thus increasingly likely to be negatively impacted by the neighborhood (McLoyd et al., 2009). The Relationships and Family Ties model, on the other hand, underscores the role of relationships within the broader community and family processes (e.g., parental monitoring or warmth) in child adjustment (Leventhal & Brooks-Gunn, 2000; 2003). Much of the existing literature examines the impact of neighborhood characteristics in childhood from this perspective, ostensibly from the perspective that exposure to neighborhood characteristics is limited earlier in childhood (Leventhal & Brooks-Gunn; 2003) and from the family stress theoretical lens, which suggests that environmental disadvantage adds various

sources of stress at the parent level that impact parent emotional health and caregiving (Conger & Elder, 1994).

Further, research on the direct impact of neighborhood characteristics and adjustment has varied by age. Much of the research examining the associations between neighborhood contexts and adolescents have provided support for contagion theory, while research in younger children has been from the relationship and family ties theoretical approach (Leventhal & Brooks-Gunn, 2003). The inherent assumption that the extent and mechanisms of impact of neighborhood characteristics depends on the age of the child has left a dearth of research examining broader theoretical possibilities in younger populations. In other words, it is not clear whether the theorized pathways of impact of neighborhood characteristics generalizes across childhood. Further, the shortage of longitudinal research makes it difficult to determine if the influence of neighborhood characteristics varies as a function of development. Consequently, while there is a notion that direct impact of neighborhood characteristics might differ by age, this has not often been empirically tested.

These distinct approaches highlight a need to empirically test the differences in both direct and indirect impact of neighborhood in early childhood and adolescence. While these approaches are not necessarily incongruous, they can be encompassed by the comprehensive bioecological framework, because it highlights that as families are embedded in neighborhoods, neighborhood characteristics may have differential impact on child development though their impact on families (Bronfenbrenner, 2005, 2006). Indeed, neighborhood danger has been associated with differences in parenting including lower warmth, greater negativity, and less consistent control (e.g., Earls, McGuire, & Shay, 1994; Furstenberg et al., 1993; Jarrett, 1997, Pinderhughes et al., 2001).

Neighborhood and Maternal Depression

Neighborhood disadvantage has been broadly associated with decreased maternal psychological wellbeing (e.g., Jocson & McCloyd, 2015). Specifically, neighborhood danger concerns are associated with increased depressive symptoms in adults (see review Kim, 2008) and particularly mothers (Hill & Herman-Stahl, 2002). In turn, parental depression is a major risk factor for poor child adjustment (NRC/IOM, 2009; Weissman et al., 1997). Maternal depression has been associated with increased family stress and child psychopathology (e.g., Beardslee et al., 1998; Goodman, 2011), specifically

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internalizing and externalizing symptoms in youth (Hammen et al., 2004; Connell & Goodman, 2002). Compared to those who experience either neighborhood danger or maternal depression singularly, children who experienced both neighborhood danger and maternal depression have been found to be at greater risk for poor adjustment—that is, lower school functioning, lower interpersonal skills, and increased internalizing and externalizing symptoms (Silverstein et al., 2006). Within families, parental history of depression has been associated with increased family discord, family stress, and maladaptive parenting behaviors (Brennan et al., 2003; Jaser et al., 2008). Parenting behaviors such as inconsistency, harsh discipline, and lack of warmth have been related to both internalizing and externalizing symptoms in children of depressed parents (Dougherty et al., 2013; Gruhn et al., 2016).

Parenting

Many aspects of parenting have been identified as important factors in child adjustment (Maccoby & Martin, 1983; Galambos et al., 2003). Although it is a multifaceted construct, child rearing techniques and relational approaches commonly comprise what is referred to as parenting. Aspects of parenting may be considered along two general dimensions parental control and parent-child relationship affective quality (McLeod et al., 2007; Klein et al., 2016). Parental control exists as both psychological (e.g., intrusiveness) and behavioral (e.g., discipline, limit setting) control (Barber, 1996). Affect in the parent-child relationship may be assessed by engagement along with positive and negative behavior and emotional expression. Consistent evidence links both parental control and relationship affective quality with internalizing and externalizing symptoms in children and adolescents (see reviews by Berg-Nielsen et al., 2002; McLeod et al., 2007; McKee et al., 2008). Low positive affect or warmth, high harsh or negative affect, and intrusive/controlling behaviors are associated with externalizing and internalizing symptoms in childhood and early adolescence (Foster et al., 2008; Callahan et al., 2011).

Neighborhood danger has been associated with differences in parenting including lower warmth, greater negativity, and less consistent control (e.g., Earls et al., 1994; Furstenberg et al., 1993; Jarrett, 1997; Pinderhughes et al., 2001). A few cross-sectional studies have suggested that parenting may mediate the relation between neighborhood characteristics and child adjustment (e.g., Pachter et al., 2006; Deng et al., 2006). In a longitudinal study, Jocson and McLoyd (2015) found that warmth, negativity, and parental control mediated the relation between neighborhood danger and youth aged 6-16

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internalizing and externalizing symptoms. A growing body of literature has developed examining neighborhood and parenting factors as moderating the other's relation with child adjustment (e.g., Pinderhughes et al., 2001; Silk et al., 2004; Barajas-Gonzales & Brooks-Gunn, 2014). In general, these studies suggest that greater warmth and more parental control result in lower externalizing and internalizing symptoms. Far fewer studies have explored parenting as a mediator of the effects of neighborhood characteristics on child adjustment. However, as parenting can be considered a malleable construct that may be influenced by neighborhood effects, it is important to explore parenting practices as a mediator in the aim of identifying mechanisms for *how* neighborhood danger predicts child adjustment. Moreover, given that the focus of parenting practices shifts as children age, it is important to consider this mechanism at different stages of youth development.

Environmental adversity as a risk factor for poor outcomes makes children experiencing maternal depression or impaired parenting a vulnerable group. Taken together, these considerations highlight a need to empirically test the differences in both direct and indirect impact of neighborhood in early childhood and adolescence. The current study will examine the joint impact of neighborhood danger, parental depression, and parenting on youth's internalizing and externalizing symptoms.

PRESENT STUDY

The goal of this study was to examine the relations between neighborhood danger (ND), maternal depression, multiple dimensions of parenting behaviors, and child adjustment (internalizing and externalizing symptoms) in both early childhood and preadolescence. This study expanded upon previous research by exploring specific parenting behaviors as mediators of the relation between the specific characteristic of neighborhood danger and internalizing and externalizing symptoms in early childhood and preadolescence. The following hypotheses were posited on the bases of theory and extant empirical evidence. First, ND was hypothesized to directly predict increased maternal depression, less effective parenting, and poorer child adjustment, and that only the association between ND and adjustment would differ by age. Second, maternal depression was expected to mediate the associations between ND and parenting, and its associations with parenting were not hypothesized to differ between age groups. Finally, both maternal depression and parenting were hypothesized to mediate the relations between ND and child adjustment, but only the relations between parenting and adjustment were expected to differ by

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age. Considering previous research, ND was hypothesized to predict lower warmth and greater negativity, which in turn would predict increased internalizing and externalizing symptoms. We had no explicit hypotheses for limit setting and scaffolding, as there is little empirical evidence linking these specific constructs to neighborhood danger.

Method

Sample

To explore age group differences two separate samples were used for this study: an early childhood sample and a preadolescent sample. Both samples were recruited as part of larger, longitudinal studies on adversity and the development of effortful control. Participants were recruited through local organizations serving families in an urban Pacific Northwest location. Families were excluded for child developmental disabilities and speaking only a non-English language. The demographic characteristics of the sample are presented in Table 1. Approximately 2/3 of the participating children identified as European American. The early childhood sample included 306 mothers and their 5-year-old children. The sample over-represented families in poverty and low income, with 29% of the sample at or near poverty (at or below 150% of the federal poverty threshold), 28% low income (below the local median income of \$58K), 25% middle income (above the median income to \$100K), and 18% upper income (above \$100K). The preadolescent sample included 214 mothers and their 9-12-year-old children. Annual family income was distributed roughly evenly across sextiles of income: 11% less than \$20,000; 11.4% \$21,000 to \$40,000; 17.1% \$41,000 to \$60,000; 16.7% \$61,000 to \$80,000; 19% \$81,000 to \$100,000, and 15.7% over \$100,000. Data used in this study were taken from two time points, roughly 3 years apart in each sample. Attrition was low, with 95.7% of the early childhood participants returning at the second timepoint, and 91.6% of the preadolescent sample present at time 2.

Procedure

At each time point, mothers and children completed tasks and questionnaires in a university lab setting for the early childhood sample and in the families' homes for the preadolescent sample. Parents and children granted consent and assent in advance of data collection. Mothers completed questionnaires on family demographics, neighborhood characteristics, maternal depression, and child

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adjustment. Parent-child dyads completed videotaped interactions. Families received compensation at each visit. The university Institutional Review Board approved all procedures for this study.

Measures

T1 Neighborhood danger. Mothers reported on the 3-item safety subscale of the Neighborhood Questionnaire (NQ; Conduct Problems Prevention Research Group, 1991). Defining the neighborhood in their own terms, participants reported on ND (e.g., “How much of a problem are break-ins, burglaries, muggings, assaults, or anything else like that?”) using a 4-point scale ranging from not serious at all/not often to very serious/often. The internal consistency for the safety subscale of the NQ was $\alpha = .70$ and $.75$ for the early childhood and the preadolescent sample, respectively.

T1 Maternal Depression. Mothers completed the Center for Epidemiological Studies – Depressive Scale (CES-D; Radloff, 1977) to assess current depressive symptoms. The CES-D is a widely accepted self-report measure of depression symptoms during the past week. Responses range from 0 “Rarely or none of the time (less than 1 day)” to 3 “Most or all of the time (5-7 days).” Scores range from 0 to 60 with higher scores indicating increased symptomology. Previous studies have demonstrated acceptable internal consistency and validity. Internal consistency for the early childhood and preadolescent samples, respectively: $\alpha = 0.84$ and 0.88 .

T1 Parenting. Parenting behaviors were recorded during an 18-minute parent-child interaction task. In the first 7-minute segment, parents and children played with toys freely. The next segment (7 minutes) was dedicated to the parent helping the child construct a unique LEGO figure. The final 3-minute segment was a cleanup task. Independent coders coded interactions using adaptations of System for Coding Interactions and Family Functioning (Lindahl & Malik, 2000), Parenting Style Ratings Manual (Cowan & Cowan, 1992), and Parental Warmth and Control Scale (Rubin & Cheah, 2000). Parenting variables of interest include *negative affect* (negative tone/expressions), *positive affect* (positive tone/expressions), *responsiveness* (attention and response to child need and negative affect), *limit setting* (clarity/consistency of directives), and *guidance and structuring* (accommodation to meet child’s capabilities and facilitate successful interaction), and *respect for autonomy* (encouragement and support of child independent exploration). At T1, the ICCs ranged from $.67$ -. 85 and α ’s = 0.54 -. 82 .

T2 Child Psychosocial Adjustment. Mother report of child internalizing and externalizing behavior was obtained using the Child Behavior Checklist (CBCL; Achenbach, 1991), comprised of 24 and 21 items respectively. Internalizing symptoms were assessed with the broadband Internalizing problems scale, including items targeting depressive, anxiety, and somatic symptoms. Rule breaking and aggressive behavior items form the broadband Externalizing problems scale. Responses range from 0-2 (not true to very/often true). Internal consistency for internalizing $\alpha = .83$ and $.86$, and for externalizing $\alpha = .82$ and $.88$, for the child and adolescent samples, respectively.

Data Analytic Plan

All analyses were conducted in R 3.5.1 (R Core Team, 2018). Descriptive statistics and correlations between variables were estimated for each sample. A three-path mediation, cross group path analysis examined individual parenting behaviors and maternal depression as mediators in the relation between ND and child adjustment for both samples using R's *lavaan* package, version 0.6-3 (Rosseel, 2018). This method permitted the simultaneous estimation of all path coefficients and indirect paths while controlling for covariates in each sample (Taylor et al., 2008).

To test cross-group invariance, individual paths were then constrained to be equal across samples and nested models were compared. Separate models were created for each constrained path. Each model with a constrained path is said to be nested within the original model wherein the paths were freely estimated without constraints because the model with the constrained paths can be considered a simplified version of the original, more complex model. Chi square difference tests were then used to compare the two nested models, indicating whether there is a significant difference between how well each model fits the data (Kline, 2016). Sample specific income, age, and sex were included as covariates in all models.

Results

Descriptive Statistics and Correlations

Descriptive statistics are presented in Tables 1 and 2. Average neighborhood danger was relatively low for both samples, ranging from 0 to 12, with an average score of about 5. Maternal depression scores differed between the two samples in both mean and range. While the average score

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($M = 10.83$) for the preadolescent sample was well below the suggested clinical cutoff of 16, the mean score for maternal depression in the early childhood sample ($M = 17.38$) was just above the cutoff, suggesting that many of the mothers of younger children demonstrated clinically significant depressive symptoms. Mean maternal report of youth adjustment indicated relatively low internalizing and externalizing symptoms in both samples. Parenting practices appeared to occur at similar levels at both developmental periods.

Correlations within each sample are presented in Table 3. In early childhood, Neighborhood Danger was positively associated with an affective parenting practice, and negatively related to maternal depression and concurrent child adjustment. Neighborhood danger was negatively associated with parental control factors and positively associated with both concurrent and prospective externalizing symptoms in the preadolescent sample. Maternal depression was significantly correlated with multiple aspects of parenting and child adjustment in both samples.

Covariates of family income, and child sex and age were also examined. Family income was significantly related with multiple variables in both samples. Child sex and age were not significantly associated with any variables in the early childhood sample. However, they were both sporadically associated with variables of interest in the preadolescent sample

Model Fit

The model with all parameters freely estimated across age groups demonstrated good overall fit, $\chi^2(38) = 44.840, p = .207$; RMSEA = .026 (90% CI = [.00, .053]); CFI = .997; SRMR = .029. Results from the path analyses are presented in Table 4. Autoregressive effects of adjustment were significant, indicating that child adjustment was relatively stable between T1 and T2. R^2 values range from .04%-45% in the early childhood sample and .02%-63% in the preadolescent sample. The R^2 values for child adjustment suggest that the path models explain a substantial proportion of variance in both internalizing and externalizing symptoms in youth. Lower R^2 for the parenting variables suggest that the predictors in the model explain very little of the variance in those factors.

In order to compare the associations in early childhood to those in preadolescence, the fully freed model was constrained to have equal paths across samples. Constraining all estimates to be equal across both samples resulted in a modest overall decrement in fit, $\chi^2(96) = 129.813, p = .012$; RMSEA

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= .037 (90% CI = [.018, .052]); CFI = .985; SRMR = .043, suggesting that there are meaningful differences between the early childhood and preadolescent sample. Chi-square difference test results confirmed that the freely estimated and fully constrained models differed significantly, $\Delta\chi^2 = 85$, $\Delta df = 58$, $p = .012$. Individual statistically significant paths were constrained to be equal between the two samples and change in overall model fit was assessed to determine difference between early childhood and preadolescence. To test for differences by age group, paths that were significant in either the early childhood or preadolescent sample were individually restricted to equality across samples and compared to the original model in which they were permitted to vary freely using a likelihood ratio test. The likelihood ratio test comparing two models indicates whether or not there is a significant decrement in model fit in nested models. In this case, the restrained path model is nested within the original full model, so the likelihood ratio test (producing a χ^2 statistic) conveys whether the model is better suited to the data with the paths estimated separately for the two age groups or whether they should be equal.

Relation of Neighborhood Danger with Maternal Depression and Parenting

Maternal Depression

ND significantly predicted elevated maternal depressive symptoms in early childhood but not in preadolescence. When this path was constrained to equality in both paths and compared to the original model, the test revealed that there was not a significant difference ($\chi^2(1) = 1.34$, $p = .25$.) between the effect of ND on maternal depression between the two groups.

Parenting

Of the examined parenting variables, ND predicted only lower parental positive affect in early childhood. Conversely, ND significantly predicted higher negative affect and increased responsiveness in the preadolescent sample. Individual equality constraints for each of these paths suggested that the effect of ND on both positive affect ($\chi^2(1) = 4.92$, $p = .027$) and negative affect ($\chi^2(1) = 5.24$, $p = .02$), but not responsiveness ($\chi^2(1) = 1.23$, $p = .27$) significantly differed between the two samples.

Relation of Neighborhood with Child Adjustment

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For the early childhood sample, there was no evidence of direct relations of ND to child adjustment. ND modestly predicted externalizing symptoms in preadolescence. Constraining the path between ND and externalizing symptoms to be equal between the two samples revealed no change in model fit ($\chi^2(1) = 2.7, p = .10.$), indicating that there was no significant difference in the magnitude of effect of ND on internalizing or externalizing symptoms in early childhood compared to preadolescence.

Tests of Maternal Depression Predicting Child Adjustment and Parenting

Maternal Depression and Child Adjustment

Maternal depression did not predict internalizing symptoms in early childhood or preadolescence. Maternal depression significantly predicted a modest decrease in externalizing symptoms in preadolescence; however, equality constraints revealed that the estimates in early childhood and preadolescence were not significantly different ($\chi^2(1) = 2.72, p = .099$).

Maternal Depression and Parenting

In the full model, maternal depression predicted both affective (negative affect) and control (limit setting, guidance and structuring) parenting practices in early childhood; however, in the preadolescent sample, maternal depression predicted only affective parenting practices (negative and positive affect). Testing equality constraints for each of these paths revealed that maternal depression did not differentially predict negative affect ($\chi^2(1) = .436, p = .51$), positive affect ($\chi^2(1) = 3.18, p = .074$), or limit setting ($\chi^2(1) = 1.22, p = .27$), but it did differentially predict guidance and structuring ($\chi^2(1) = 3.91, p = .048$) between early childhood and preadolescence.

Parenting and Child Adjustment

No parenting variables significantly predicted early childhood adjustment with all predictors included in the models. Responsiveness and Negative Affect significantly predicted externalizing symptoms in preadolescence. Individual equality constraints for each of these paths suggested that neither responsiveness ($\chi^2(1) = 3.56, p = .059$) nor negative affect ($\chi^2(1) = .0002, p = .99$) differentially predict externalizing symptoms in preadolescence compared to early childhood.

Indirect relations

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We tested indirect effects of ND on adjustment through maternal depression and parenting. None of the indirect effects were significant, and estimates were small. Thus, there was no support for maternal depression and/or parenting mediating the relation between ND and adjustment in either age group.

DISCUSSION

Neighborhood danger impacts families and child development. Children have no say in where they are raised, and lack of safety at the community level impacts families. This study sought to explicate the mechanisms of the effects of perceived neighborhood danger on children's adjustment through maternal depression and parenting, and to test whether these effects differed in early childhood and preadolescent samples. Overall, the results demonstrated effects of neighborhood danger on maternal depression and parenting. There were few differences across age groups, and most effects of ND, maternal depression and parenting were modest in magnitude. However, the complex models including ND, maternal depression, and multiple parenting variables predicting substantial portions of variance in children's internalizing and externalizing problems, suggesting the small effects were additive.

When controlling for prior levels of internalizing and externalizing symptoms, ND had minimal effect on youth adjustment. ND showed no effect on relative changes in internalizing or externalizing symptoms in early childhood and only a modest effect on externalizing symptoms in preadolescence. However, as the magnitude of the effect of ND on externalizing symptoms did not differ significantly between the two age groups, this suggests that ND has little to no direct effect in either age group on the development of externalizing symptoms. Prior reviews of neighborhoods' direct impact on children and adolescents' emotional and behavioral problems have highlighted inconsistent results and modest associations. (Leventhal & Brooks-Gunn, 2000). Firstly, a large proportion of the extant literature relies on neighborhood SES as the predictive factor of child adjustment. Leventhal and colleagues (2014), for example, found that neighborhood poverty was neither associated with internalizing or externalizing symptoms in early childhood nor adolescence, but rather neighborhood affluence was associated with decreased internalizing symptomology in early childhood. Yet, while ND is associated with neighborhood SES (Kohen et al., 2008), the two factors are not mutually exclusive. Some research has found that neighborhood impacts on emotional and behavioral outcome become nonsignificant once adjusting for

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family SES (e.g., Flouri et al., 2010a, Flouri et al., 2010b). Next, youth race and gender appear in the literature as potential moderators of neighborhood impact on adjustment (Leventhal & Brooks-Gunn, 2000). For example, Kupersmidt and colleagues (1995) similarly found no main effect for low neighborhood SES on child aggression, but they did find that black male children from low-SES families living in low-SES neighborhoods were more aggressive compared to black females with similar family and neighborhood SES and peers living in middle-SES neighborhoods. Further, findings for neighborhood SES and specifically ND are more consistent for impact on child cognitive and achievement outcomes (Leventhal & Brooks-Gunn 2000; Sharkey & Faber, 2014). These factors were not considered in the present study; however, they may be important considerations for indirect or interactional effects of ND on child adjustment. Similarly, individual child characteristics have been shown to impact the relation of environmental disadvantage and child adjustment (Dich et al., 2017), and may moderate the observed associations. Including factors such as child temperament in the model may provide a better understanding of this relation.

Similarly, neighborhood danger predicted maternal depression in early childhood but not in adolescence. That these estimates were found not to be significantly different from one another again suggests that neighborhood danger has a modest effect on the level of maternal depression in both age groups. This finding is a departure from prior literature (Kohen et al., 2008) that may be partially explained in the inclusion of income as a separate factor. Prior research suggests that overall disadvantage may have a greater impact than specific danger concerns (Leventhal & Brooks-Gunn, 2000; Sharkey & Faber, 2014). In addition, compared to maternal depression, broader family functioning factors—e.g., family stress and family cohesion, have generally demonstrated larger associations with neighborhood disadvantage and crime (Deng, et al., 2006; Kohen et al., 2008).

We found that ND predicted negative affect, positive affect, and responsiveness. ND predicted responsiveness in preadolescence, but this was not a significant difference from early childhood. As the estimates are of the same direction, we can conclude that ND may similarly affect mothers use of responsiveness across childhood. Neighborhood danger did differentially predict negative and positive affect: ND predicted increased negative affect in preadolescence and decreased positive affect in early childhood. These estimates were of similar magnitude, though the impact on negative affect appeared to

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be larger. It may be that perceived danger is associated with increased fear and vigilance, which translate into increased parental negative affect and control in parent-child relationships particularly as children enter preadolescence (e.g., Pinderhughes et al., 2004). Given the conservative nature of the model by including all parenting strategies, these findings provide strong support that ND is impacting unique parenting strategies.

This interesting pattern of findings does not support the first hypothesis that ND, maternal depression and parenting would each independently predict child adjustment, but it does lend an important perspective to the field. Though there are modest effects, it seems that neighborhood danger does play a role in children's adjustment, but there are different relevant variables depending on the developmental period, which may provide guidance in supporting families.

Given the well demonstrated impact of maternal depression (e.g., Hammen, 2008), we did not expect differential prediction of parenting practices between the two groups. Indeed, maternal depression predicted negative affect in both age groups with similar magnitude. Also, although maternal depression was significantly related to positive affect in preadolescence and to limit setting in early childhood, equality constraints suggested that those estimates were not significantly different between the age groups. Given that the estimates were of similar magnitude and direction, maternal depression appears to have a similar, modest impact on these strategies across childhood. Unlike these other strategies, however, guidance and structuring was differentially predicted by maternal depression. Maternal depression predicted decreased guidance and structuring in early childhood but not in preadolescence. It should be noted that there are additional variables that may account for differences in the effect of maternal depression on parenting practices. Previous research has found that race may moderate the relation between maternal depression and parenting practices (Pachter et al., 2006), which may inform these findings and suggest directions for future research. Taken together, these findings underscore the relation between maternal mental health and parenting practices (e.g., Hill & Herman-Stahl, 2002; Kohen et al., 2008) and suggest that early childhood may be an important point to intervene on parenting control practices in particular.

The impact of various parenting factors is thought to vary across age and environment. The third hypothesis expected that parenting, but not maternal depression, would be differentially associated with

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child adjustment. The results of this study suggest that neither parenting nor maternal depression differentially predicted adjustment which ran counter to our expectations. While there was no significant association between maternal depression and internalizing symptoms in either age group, we found a surprising estimate in which maternal depression predicted decreased externalizing symptoms in preadolescence. However, given that the equality tests found that the age groups were not significantly different on this path and the estimates are of opposite signs, this model suggests no relation between maternal depression and externalizing symptoms in this sample. While this stands in contrast to a body of literature associating maternal depression to both internalizing and externalizing symptoms in youth (Hammen, Brennan, & Shih, 2004; Connell & Goodman, 2002), some research suggests that the interactive effects of maternal depression and negative parenting behaviors may better account for the relation between maternal depression and externalizing symptoms (McCullough & Schaffer, 2014). Similarly, no parenting behaviors were associated with internalizing symptoms in either age group. Responsiveness predicted externalizing in preadolescence, but the estimate was found not significantly different from that in early childhood. The same was found for negative affect—a significant estimate in preadolescence but not in early childhood. However, given the similar sign and magnitude for negative affect predicting externalizing estimates in both age groups, it suggests that there may be modest association across childhood.

These findings highlight that neighborhood danger may directly impact family functioning while its direct effect on adjustment may be limited in early childhood. Given that maternal depression is significantly correlated with multiple aspects of parenting and child adjustment in both samples, it may be a robust predictor of parenting practices and child adjustment. As estimates were modest, these results also suggest that programs targeting parenting and maternal mental health should continue beyond early childhood and be made available across the community and income spectrum.

These findings also underscore the importance of thinking beyond the deficit model. Modest and non-significant paths here suggest that even in the face of maternal depressive symptoms or neighborhood danger, families across the spectrum of income are performing similarly in terms of child adjustment. Research suggests that across the SES strata, parents strategize to compensate for environmental disadvantage through means of buffering economic or social resource allocation, modified

behavioral strategies such as curfews, or increasing family connectivity (Furstenberg et al., 1999; Choby et al., 2012, Sharkey & Faber, 2014).

Methodological Strengths & Weaknesses

This study has a number of strengths. It is one of very few studies that have examined the effects of neighborhood, maternal depression, and parenting on child adjustment in a comprehensive model and across two age groups. The study included measures from multiple sources and examines both internalizing and externalizing symptoms. Also, the large sample, developmental framework, and longitudinal design provide the power and temporal relation recommended for complex inferences and mediational analyses. In addition, the sample was economically diverse allowing for greater generalizability across economic strata.

However, the study is not without its weaknesses. First, there is low representation of families from very high crime neighborhoods, so the range of ND in the sample is limited. Outcome measures are single-informant and do not include self-report of symptoms. It is possible that maternal knowledge of these outcome measures was limited or influenced by exogenous factors. Due to limitations of the sample, parenting practices only reflect maternal behaviors; paternal parenting practices should be considered in future research. Though it has good reliability, the small number of questions on the safety subscale of the Neighborhood Questionnaire may not capture the full scope of perceived neighborhood danger. Finally, although the sample is economically diverse, it lacks racial and ethnic diversity. This is an important limitation as some research has suggested that ethnicity may play a critical role in the relations between neighborhood characteristics, parenting, and adjustment (e.g., Pachter et al., 2006; Cassells & Evans, 2017).

Conclusion

The results of this study suggest that there are few differences of the effects of neighborhood danger on children's adjustment problems at different developmental periods, although some differences in the effects of maternal depression and parenting might exist. This study suggests several directions for future research. Objective neighborhood measures such as police report and census data may serve to paint a broader picture of neighborhood danger beyond parent report. Moreover, though how long a child has experienced ND was not a target of this study, it may be an important consideration in future

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research. Finally, increased racial and ethnic diversity will improve the generalizability of research in this area and provide a greater understanding of these factors across racial and ethnic groups.

The confluence of environmental factors can be difficult to tease apart in its impact on child adjustment. That relations between neighborhood danger and child adjustment appear to be similar in early childhood and preadolescence. In addition, the effects of neighborhood danger on maternal depression and parenting appear to be similar across age groups, with a few differences in parenting effects. Although effects were modest, the test of a comprehensive model indicates that the effects of neighborhood danger, depression and parenting on children's adjustment are additive, and such complex models are needed to understand and address children's adjustment.

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Table 1. *Sample Demographics*

	Early Childhood N = 306	Preadolescence N = 214
Child Age T1	5.34 (.27)	9.48 (1.01)
Child Age T2	8.12	11.44
Child Gender	50% Male	44% Male
Median Income Range	\$48,201 – 58,400	\$61,000 – 70,000
Child Race/Ethnicity		
White	64%	66%
Black	9%	12%
Asian	3%	1%
Latinx	10%	2%
Native American	2%	2%
Mixed/Other Race	12%	17%

Table 2. *Descriptive statistics for study variables*

	Early Childhood N = 293	Preadolescence N = 214	$\Delta\chi^2$ p value
Neighborhood danger	4.90 (1.66)	5.07 (1.63)	0.244
Maternal Depression	10.8 (8.67)	17.4 (9.86)	<0.001
T1 Parenting			
Negative Affect	0.29 (0.35)	1.21 (0.43)	<0.001
Positive Affect	3.20 (0.43)	3.50 (0.87)	<0.001
Responsiveness	4.41 (0.58)	4.48 (0.74)	0.269
Limit Setting	4.60 (0.55)	4.71 (0.59)	0.068
Respect for Autonomy	3.20 (0.40)	4.07 (0.89)	<0.001
Guidance & Structuring	3.27 (0.46)	3.91 (0.83)	<0.001
Child Adjustment			
Internalizing T1	6.23 (5.15)	6.45 (4.79)	0.631
Internalizing T2	5.15 (4.49)	7.11 (4.94)	<0.001
Externalizing T1	4.41 (3.69)	3.49 (3.30)	0.004
Externalizing T2	5.23 (4.11)	4.11 (3.53)	0.001

Table 3. Correlations among study variables for early childhood (above diagonal) and preadolescent (below diagonal) samples.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. NSP	—	-.07	-.02	-.15**	.16**	.03	-.14*	-.12*	.03	.06	-.05	-.08	.14*	.15*
2. Child Age	.11	—	-.06	.09	-.01	.05	-.11	-.13	-.06	-.08	.00	-.15*	.01	-.01
3. Child Sex	.12	.06	—	-.05	-.02	-.05	.03	.02	-.01	-.09	.00	.06	-.00	.11
4. Income	-.27**	-.04	-.08	—	-.35***	-.26**	.27**	.14**	.25**	-.02	.31**	.26**	-.12**	-.19**
5. Maternal Dep.	.22**	-.10	.14*	-.32**	—	.18**	-.15*	-.14*	-.11	-.07	-.13*	-.20**	.40**	.32**
6. Neg. Affect	.00	.07	.07	-.17*	.11	—	-.35**	-.16**	-.51**	.00	-.47**	-.25**	.02	.08
7. Pos Affect	-.11	-.02	-.04	.10	-.09	-.44**	—	.51**	.38**	.25**	.46**	.54**	-.02	-.01
8. Interactiveness	-.20**	-.16*	-.09	.19**	-.11	-.21**	.57**	—	.27**	.15*	.24**	.42**	-.05	-.02
9. Responsiveness	-.16*	-.04	-.08	.17*	-.09	-.44**	.45**	.43**	—	.17**	.46**	.25**	.06	-.05
10. Limit Setting	.10	.04	-.06	-.06	.01	.06	.03	-.00	.04	—	.10	.18**	-.03	-.05
11. Resp. for Autonomy	-.11	-.11	-.06	.21**	-.07	-.62**	.58**	.37**	.53**	-.10	—	.52**	.03	.02
12. Guidance & Structure	-.24**	-.15*	-.01	.25**	-.02	-.33**	.44**	.60**	.51**	.04	.54**	—	-.05	.03
13. Internalizing	.02	-.01	.00	-.18*	.33**	.06	-.09	-.04	-.10	-.08	-.03	-.05	—	.58**
14. Externalizing	.25**	-.02	.21**	-.21**	.28**	.06	-.15*	-.02	-.04	-.10	-.11	-.06	.41**	—

Note. Early childhood sample ($n = 306$) is above the diagonal, and preadolescent sample ($n = 214$) is below the diagonal. Child sex coded as girls = 1 & boys = 2.

* $p < .05$. ** $p < .01$. *** $p < .001$. All tests are two tailed.

Table 4. Path estimates for the Early Childhood and Preadolescent samples from path models testing direct and indirect effects of neighborhood danger, maternal depression and parenting effects on child internalizing and externalizing problems.

	Early Childhood Sample		$R^2 =$	Preadolescent Sample		$R^2 =$	Estimates Significantly Different?	
	B	β		B	β			
Internalizing								
Negative Affect	.581	.038	$R^2 = .418$.082	.007	$R^2 = .630$		
Positive Affect	1.227	.097		-.020	-.003			
Responsiveness	-.506	-.055		-.349	-.050			
Limit Setting	.330	.034		-.664	-.080			
Respect for Autonomy	.266	.020		.231	.041			
Guidance & Structuring	-.865	-.075		.220	.034			
ND	.120	.036		.276	.083			
Income	-.032	-.024		-.118	-.075			
Child Age	-.028	-.008		.228	.045			
Maternal Depression	.052	.084		.023	.045			
Child Sex	-.194	-.018		.456	.045			
T1 Internalizing	.723	.583***		.748	.738***			
Externalizing								
Negative Affect	1.093	.103		$R^2 = .453$	1.082		.130*	$R^2 = .618$
Positive Affect	.176	.020	.438		.105			
Responsiveness	-.180	-.028	.645		.137*			
Limit Setting	-.177	-.026	-.390		-.069			
Respect for Autonomy	.798	.088	-.037		-.010			
Guidance & Structuring	-.464	-.058	-.475		-.108			
ND	-.033	-.014	.205		.091*			
Income	-.074	-.077	-.035		-.032			
Child Age	.088	.035	.277		.081			
Maternal Depression	.009	.021	-.036		-.102*			
Child Sex	.125	.017	.280		.041			
T1 Externalizing	.572	.625***	.689		.751***			

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Table 4 continued

	Early Childhood Sample		Preadolescent Sample		Estimates Significantly Different?
	B	β	B	β	
Negative Affect			$R^2 = .091$	$R^2 = .094$	
Maternal Depression	.005	.124*	.008	.179*	
Income	-.023	-.221***	-.014	-.108	
Child Age	.007	.028	-.007	-.017	
ND	.006	.030	-.043	-.161*	✓
Child Sex	-.033	-.048	.112	.136*	
Positive Affect			$R^2 = .090$	$R^2 = .064$	
Maternal Depression	-.004	-.075	-.016	-.186**	
Income	.023	.211***	.028	.107	
Child Age	-.022	-.076	-.000	-.001	
ND	-.026	-.110*	.059	.109	✓
Child Sex	.025	.029	-.004	-.002	
Responsiveness			$R^2 = .085$	$R^2 = .089$	
Maternal Depression	-.004	-.062	-.006	-.083	
Income	.037	.249***	.057	.250**	
Child Age	-.040	-.102	-.002	-.003	
ND	.023	.064	.065	.136*	
Child Sex	.030	.026	.099	.067	
Limit Setting			$R^2 = .036$	$R^2 = .017$	
Maternal Depression	-.008	-.125*	-.001	-.022	
Income	-.014	-.101	-.010	-.052	
Child Age	-.018	-.048	.09	.048	
ND	.012	.034	.036	.091	
Child Sex	-.143	-.130*	-.055	-.045	

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Table 4 continued

	Early Childhood Sample		Preadolescent Sample		Estimates Significantly Different?
	B	β	B	β	
Respect for Autonomy					
			$R^2 = .105$		$R^2 = .060$
Maternal Depression	-.003	-.055	-.006	-.069	
Income	.031	.298***	.059	.210**	
Child Age	.009	.033	-.046	-.052	
ND	.000	.001	.024	.041	
Child Sex	.010	.012	.056	.031	
Guidance & Structuring					
			$R^2 = .084$		$R^2 = .090$
Maternal Depression	-.008	-.140*	.005	.066	✓
Income	.024	.199**	.063	.260***	
Child Age	-.018	-.056	-.076	-.098	
ND	.003	.009	-.041	-.081	
Child Sex	.051	.056	.110	.070	
Maternal Depression					
			$R^2 = .140$		$R^2 = .154$
ND	.683	.127*	.097	.015	
Income	-.732	-.331***	-1.141	-.374***	
Child Age	-.160	-.027	-.549	-.056	
Child Sex	-.129	-.008	1.796	.091	

* $p < .05$, ** $p < .01$, *** $p < .001$