Journal of Child and Family Studies (2020) 29:3184–3197
https://doi.org/10.1007/s10826-020-01829-8

ORIGINAL PAPER

Does Parental Monitoring During Adolescence Moderate Neighborhood Effects on African American Youth Outcomes?

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Published online: 18 September 2020

Abstract

The present study investigated the effects of parental monitoring, neighborhood risk, and racism experiences during early adolescence on adolescents' emotional and behavioral outcomes in high school. Five hundred twenty-two African American youth and their parents and teachers completed surveys about youth development over time. Consistent with our hypotheses, we found that neighborhood risk and racism had small and significant relations with anxiety, oppositional behavior, and conduct problems. Additionally, parental monitoring moderated the effects of neighborhood risk on behavior problems in both 9th and 12th grade, controlling for baseline problems. Finally, parental monitoring did not moderate effects of risk contexts on the development of anxiety problems. Findings are discussed with regard to implications for supporting effective parenting practices in high-risk contexts.

Keywords Parental monitoring · Neighborhood risk · Racism · African American · Youth

Highlights

- African American youth reports of low parental monitoring in high risk neighborhoods during early adolescence predicted an escalation of youth problem behaviors two years later, and these effects were sustained at five years.
- Examining supports and other interventions to help parents—in these high-risk settings during this development period especially—increase their attention and awareness of their child's whereabouts may yield significant benefits and alter life course trajectories of youth in a favorable way.
- Finding other ways to support parents and youth in high risk contexts and how they interact with one another can lead to improved outcomes for youth most at risk.

Parents living in high risk contexts are challenged to provide safe and effective environments for their children. Toxic environments characterized by high risk of exposure to abuse, violence, crime, and traumatic events can undermine youth social, emotional, and behavioral health (Biglan et al., 2012). Providing parents with strategies and guidance on how to minimize the deleterious consequence of toxic environments may help promote adaptive youth outcomes even in difficult circumstances.

Several studies have supported the contention that some adaptive parenting qualities may vary across contextual aspects of the cultural environment (Dearing, 2004; Furstenberg et al., 1999; Herman et al., 2007). In particular, some research has suggested that harsh and punitive practices may be adaptive in high risk settings for some youth (Dearing, 2004; Furstenberg et al., 1999). However, many of these studies on cultural variations in the benefits of punitive parenting have focused on broad and entrenched parenting attitudes and values rather than on concrete behaviors (Dearing, 2004; Furstenberg et al., 1999). Focusing on discrete parenting behaviors may help guide efforts to inform parents in high-risk settings on how best to promote their child's safety and development. The purpose of the present study was to examine parental monitoring

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during early adolescence as a specific and malleable parenting behavior in African American families that may moderate the effects of high-risk contexts on future youth emotional and behavior problems.

Early Adolescence as a Critical Transition Period and Target for Intervention

Social field theory suggests the importance of identifying risk and protective factors during critical transition periods that require significant developmental adaptations (Kellam and Rebok, 1992). Early adolescence represents such a key developmental period. Youth during this time are challenged by multiple new life demands that occur at school and at home (Simmons, 2017). For instance, middle schools typically require new behaviors and organizational skills to navigate altering class schedules and the expectations of multiple teachers. With the onset of puberty, youth in early adolescence experience significant physical, cognitive, and emotional transformations that can add to the complexity of adapting to these new social fields (Simmons, 2017). Additionally, at home and in the community, young adolescents and their parents must negotiate new roles and boundaries regarding autonomy and independence (Glatz and Buchanan, 2015). To the extent a youth successfully navigates these challenges, development proceeds and youth acquire the requisite skills that will be needed for subsequent transitions. However, unsuccessful adaptation to new social fields leads to fewer skills and can undermine future success (Kellam and Rebok, 1992). For these reasons, early adolescence is an important period to identify malleable leverage points that can yield huge societal benefit by altering the life course trajectories of vulnerable youth in line with a prevention science orientation (Kellam et al., 1999).

Social Context of Youth Adjustment: Neighborhood Risk and Racism

The neighborhood context can have profound effects on young adolescent's self-perceptions, social and emotional wellness, and academic and behavior outcomes (Boardman and Saint Onge, 2005). Nurturing neighborhood environments can mitigate many risk factors that influence youth development, whereas toxic environments can undermine youth health and well-being (Biglan et al., 2012). Neighborhood risk, defined as the presence of hazardous living conditions such as high rates of crime, violence, delinquency, vandalism, and drug use, is associated with youth internalizing and externalizing behavior problems (Aneshensel and Sucoff, 1996; see Copeland-Linder et al., 2011). Additionally, adolescents living in neighborhoods with risk conditions have higher rates of aggressive and violent behaviors and substance use (Haynie et al., 2006; Leventhal and Brooks-Gunn, 2000). Youth of color and those living in low income settings are more likely to experience neighborhood risk conditions (Lambert et al., 2009; Wallace and Muroff, 2002).

African American youth also are exposed to racialized experiences including racial discrimination. Research has shown that 91% of African American adolescents have stated that they have experienced racial discrimination at least one time in their life (Lambert et al., 2009). Additionally, racial discrimination has detrimental effects on adolescent emotional, behavioral, and physical health (Lambert et al., 2009; Paradies et al., 2015). For instance, racism experiences increase youth risk for mental health concerns, particularly anxiety and depression (Gaylord-Harden and Cunningham, 2009; Lambert et al., 2009).

Parental Monitoring

During early adolescence, parental monitoring and parent-child relationships remain important in shaping children's development. Parental monitoring is defined as a process in which parents are aware of their child's activities and pay close attention to their behaviors (Fosco et al., 2012). Although some authors have argued that monitoring refers to a broad constellation of effective parenting behaviors (see Dishion and McMahan, 1998), here we focus specifically on monitoring as "parental knowledge of the child's activities, whereabouts, and relationships" (Lac and Crano, 2009, p. 579).

Decades of research supports the importance of parental monitoring in promoting positive youth social, emotional, and academic outcomes (for reviews see Biglan et al., 2012; Lac and Crano, 2009). In their synthesis of theory and literature on effective environments for fostering youth development, Biglan et al. (2012) identified monitoring for problem behavior as one of four critical elements of nurturing environments along with minimizing toxic events, teaching prosocial skills, and foster psychological flexibility. In particular, Biglan's nurturing environment theory emphasizes the importance of limiting children's opportunities to engage in problem behaviors.

Parental monitoring takes on special importance during middle school years as children spend increasing time away from home and have opportunities to engage in risky behavior such as substance abuse and antisocial behavior (Fosco et al., 2012). Many early adolescents experience an increase in substance use and delinquency, poorer school performance, and worse psychological adjustment when their parents are not involved or do not show consistent

disciplinary skills (Roche et al., 2007). On the other hand, when parents actively monitor youth during this developmental period, youth tend to have fewer behavior problems and better academic performance (McCreary and Dancy, 2004; McNeal, 1999). Additionally, parental monitoring is associated with stronger parent-child bonds, which supports the development of resilience to neighborhood risk factors (Tiet et al., 2010). In fact, the most likely explanation for why exposure to neighborhood risk leads to negative youth outcomes is because parents are less able to monitor children's behavior and minimize their exposure to these risk conditions (see Leventhal and Brooks-Gunn, 2000). That is, parents in high stress and high risk circumstances may be less able to buffer their children from the contextual risk experiences that are directly linked to escalating youth delinquency and poor academic outcomes.

Parenting and Neighborhood and Cultural Context

Scholars have distinguished between parenting styles and parenting practices (Spera, 2005). Parenting style refers to the overall emotional parenting climate provided by caregivers and has been conceptualized as typologies varying along two dimensions, parental demandingness or control versus responsiveness (Baumrind, 1966). In contrast, parenting practices refer to specific and concrete parenting behaviors (e.g., monitoring, involvement in education, and frequency of encouragement). Parenting styles may be construed as constellations of parenting practices. Both approaches, parenting styles and parenting practices, have proven useful for understanding youth outcomes (Anderson, 2011; Hoskins, 2014; Spera, 2005).

Some research suggests that the most adaptive parenting style, authoritative, is associated with the most positive youth social, emotional, and academic outcomes regardless of cultural context (Baumrind, 1966). Authoritative parenting is characterized by high demandingness (for child maturity and self-regulation) while providing high levels of responsiveness including warmth and involvement. One study with nearly 7836 high schools students and parents found that authoritative parenting predicted positive academic outcomes for all youth regardless of racial or ethnic background; in this study, authoritarian, or parenting marked by high levels of demandingness and low levels of responsiveness, was not associated with better youth academic outcomes for any racial or ethnic group (Dornbusch et al., 1987).

However, other studies suggest that the benefits of some parenting styles and practices may be contingent on the contextual risks and cultural context that surround a family (see Hoskins, 2014). In particular, some research suggests that harsh or punitive parenting practices, typically associated with an authoritarian style, may provide a protective buffer for youth living in high-risk contexts, and the benefits may vary based on the cultural or racial background of youth. Neighborhood effects may be most pronounced for African American families (Baldwin et al., 1990; Dearing, 2004; Roche et al., 2007). In one study with 668 students and parents, Dearing (2004) found that restrictive parenting values (e.g., endorsing strict beliefs about parenting and children such as children should always obey and be seen and not heard) had a negative correlation with children's academic abilities and was positively associated with depression for the sample as a whole. However, for African American children living in high-risk neighborhoods, restrictive parenting served as a protective factor. This finding did not hold for White youth living in high-risk neighborhoods. Similarly, Roche et al. (2007) found that punitive parenting was associated with negative outcomes only for African American youth who lived in safe and organized neighborhoods. For those living in unsafe and disorganized neighborhoods, punitive parenting was associated with lower levels of school problem behavior and delinquency (Roche et al., 2007).

These findings challenge existing theories and common findings of the deleterious effects of authoritarian or punitive parenting on youth development. For instance, one of the most influential and evidence-supported theories of the development of antisocial behavior, the social interaction learning theory (Patterson, et al. 1992), suggests that life-course persistent conduct problems are rooted in early and repeated coercive interactions between parent and child. According to this theory, harsh, punitive, and inconsistent parenting practices and parent rejection contribute to the escalation of antisocial behaviors across development regardless of cultural context; removal of these practices lead to enduring improvements in parent and child outcomes including positive interactions and reductions of conduct problems (Patterson et al., 2010).

Additionally, not considered in the prior studies that found support of the context-specific benefits of harsh parenting, was the role of parental monitoring in moderating contextual risk-youth outcome relations. In a parenting styles framework, parental monitoring is a specific parenting practice component of demandingness or control, and thus may be subsumed under both authoritative and authoritarian styles. Recent theories and studies of adolescent development have emphasized the importance of involved and vigilant parenting for African American youth (Hurd et al., 2013; Murry et al., 2014). Hurd et al. (2013) reviewed several studies that highlighted the role of vigilant and involved parenting in promoting prosocial outcomes and reducing antisocial outcomes for African American youth. The key components of this parenting approach

including parent support and involvement as well as vigilance, or monitoring.

One other study, however, did not find parental monitoring to be a moderator of the relations between high-risk contexts and youth outcomes in a sample of African American adolescents (Copeland-Linder et al., 2011). Although Copeland-Linder et al. (2011) found that contextual stress, a latent variable extracted from neighborhood risk, racism, and exposure to violence, in middle school was linked to aggressive behavior and substance abuse in high school, only internal student attributes (self-worth and academic competence) moderated these relations for boys. However, the lack of moderating effects found for parental monitoring may have been an artifact of how the context stress latent variable was defined in this study. By combining neighborhood risk with two other variables (racism and exposure to violence) the study may have inadvertently reduced the likelihood of finding a moderator role for parental monitoring. In other words, the stress aspect of neighborhood risk that was extracted as part of the contextual stress construct may not be the critical feature that parental monitoring moderates; instead, opportunities to access risky situations may be the more important element of neighborhood risk that monitoring may affect. It is also noteworthy that the factor loading of the racism variable on contextual stress latent variable was below 0.40, suggesting poor overlap among the variables (Comrey and Lee, 1992).

Examining parental monitoring as a moderator of the links between neighborhood risk and youth outcomes is consistent with Biglan et al. (2012) nurturing environment theory as well as recent empirical work on involved and vigilant parenting (see Murry et al., 2014). According to this theory, parental monitoring provides a protective context to minimize the consequences of high-risk experiences. Monitoring may be especially important for understanding the neighborhood-behavior link. For instance, awareness of child whereabouts reduces the likelihood of deviant peer involvement and opportunities for engaging in deviant behaviors. Additionally, parental monitoring may serve to reassure youth that they are safe and protected even in high risk settings thus lowering their risk for internalizing symptoms such anxiety and worry. Prior research has suggested that parenting practices, particularly those related to effective control (predictability, consistency, and monitoring), are related to youth adaptation including lower youth internalizing symptoms (Ballash et al., 2006). Although the literature linking the monitoring benefits for youth outcomes is less robust for internalizing versus externalizing problems (Ballash et al., 2006), the benefits of monitoring in high risk contexts for lessening youth anxiety is a tenable hypothesis based on existing theory and research.

Hypotheses

In the current study, we examined the influence of parental monitoring, neighborhood risk, and perceived racism on the emotional and behavior outcomes of middle school African American youth living in an urban context. In particular, we hypothesized that parental monitoring, racism, and neighborhood contexts in 7th grade would be related to the youth anxiety and behavior symptoms in 7th, 9th, and 12th grade. We chose 9th and 12th grade as outcome time points given that they represented key life stages, entry into and exit from high school. Additionally, the two time-points allowed us to examine short- and long-term consequences of contextual conditions in middle school. We used the same dataset as the Copeland-Linder et al. (2011) study, but disaggregated racism and neighborhood contexts as individual variables to examine their unique links to outcomes. We also hypothesized that parental monitoring and neighborhood context would interact to influence youth outcomes. Specifically, we expected that higher levels of parental monitoring would be associated with lower risk for negative emotional and behavior outcomes for youth living in high-risk neighborhoods. We controlled for deleterious parenting practices and attitudes specified by the social interaction learning theory including inconsistent discipline, low positive reinforcement, and parent-child conflict to determine the unique contributions of parental monitoring on child outcomes distinct for these indicators of harsh parenting practices.

Method

Participants

The original sample included 678 children and families that were entering the first grade in nine different elementary schools around the city of Baltimore, primarily in the western region of the city. Of those 678 first graders 53.2% were male, 86.8% were African American, and 13.2% were white, and 63.4% were receiving free or reduced lunch when they entered the study. The subsample used in the present study focused on the 552 African American youth (54% males; 46% females) who completed one or more follow-up assessments in 7th, 9th, and 12th grade. The mean age of these children at study entry was 6.22 years (SD = 0.34); thus, their mean age 6 years later (7th grade) was 12.22 years. As an indicator of low socioeconomic status, 71.7% of the sample for the present study received free lunch or reduced price lunch according to parent report in the fall of first grade.

Measures

Parenting practices

Structured Interview of Parent Management Skills and Practices–Parent and Youth Versions (SIPMSP, Capaldi and Patterson, 1994). The SIPMSP was designed to assess the major constructs included in Patterson et al.'s (1992) model of the development of antisocial behavior in children. Given limited variability and low alpha coefficients on some subscales, we selected subscales with the strongest psychometric properties by each informant. Specifically, we used youth-report in 7th grade on the parental monitoring (8 items; e.g., "How often before you go out, do you tell your parents when you will be back?") and low reinforcement (2 items; e.g., "How often do your parents notice you are doing a good job and let you know about it?") subscales. In addition, we used parent-report in 7th grade on the inconsistent discipline (4 items; e.g., "How often can child talk you out of punishing him/her?") and parent rejection (4 items; e.g., "How difficult is it to be patient with child?") subscales".

Prior studies found that scores on the youth-reported monitoring scale in early adolescence predicted future risk for drug use (Chilcoat and Anthony, 1996) and gambling addiction (Lee et al., 2014). Given the importance of the parent monitoring construct in the present study and limited psychometric details from prior studies, we conducted exploratory and confirmatory factor analyses (EFA and CFA) of the 8-item subscale using two randomly split subsamples of the total sample. All items loaded on a single factor, but we dropped one item with a relatively weak loading ("When you get home from school, how often is someone there within an hour"). A subsequent CFA revealed a model with adequate fit ($\chi^2(14) = 22.62$; $CFI = 0.97$; $TLI = 0.96$; $RMSEA = 0.045$), and the resulting seven items had satisfactory loadings on a single parental monitoring construct ranging for 0.40–0.73. The coefficient alpha of this scale was 0.70. In the present sample, coefficient alpha for each scale in 7th grade were as follows: parental monitoring (0.70); inconsistent discipline (0.77), parent-rejection (0.70), and low reinforcement (0.66). One-year test-retest reliability of the parental monitoring subscale ranged from 0.49–0.54 in this sample (7th–9th grade); inconsistent consistent discipline ranged from 0.47–0.71; parent rejection ranged from 0.58–0.65; and low reinforcement ranged from 0.39–0.46.

Neighborhood disorder

The Neighborhood Environment Scale (NES; Elliot et al., 1985) was used to assess neighborhood disorder based on youth report in 7th grade. The NES is a measure of neighborhood disorganization, including questions about violent crime (e.g., "Every few weeks, some kid in my neighborhood gets beat up or mugged") and drug use and sales (e.g., "I have seen people using or selling drugs in my neighborhood"). Youth rate each item on a 4-point Likert scale (1 = not at all; 4 = very much) and higher scores indicate greater neighborhood disorganization (10 items, $\alpha = 0.85$ and 0.86 in 7th and 9th grade, respectively). Studies with youth in the PIRC trials show that the NES predicts meaningful youth outcomes such as drug use in African American youth (Crum et al., 1996).

Racism

Seven items drawn from the Racism and Life Experiences Scales (RaLES; Harrell, 2000) were used to assess experiences with racism and discrimination in 7th grade. The RaLES assesses how often youth have experienced racism or negative events associated with his or her race (e.g., "How often have you or a family member been ignored, overlooked, or not given service in a restaurant, store, etc?"; "How often have you or a family member been treated rudely or disrespectfully because of your race?"). Youth respond to each item using a six-point frequency scale (1 = "never", 2 = "less than once a year", 3 = "a few times a year", 4 = "about once a month", 5 = "a few times a month", 6 = "once a week or more"). A summary score is created by taking the mean of the seven items, and higher scores indicate more experiences with racism. Grade 7 was the first year this scale was administered in the present study. Cronbach α for the 7-item scale was 0.78 and 0.85 in grades 7 and 9. In terms of concurrent validity, the RaLES correlates positively with conceptually similar measures including the Index of Race-Related Stress (Utsey and Ponterotto, 1996) which assesses stress experienced due to racism and discrimination. Additionally, three prior studies have validated the 7-item RaLES in this sample of African American youth (Copeland-Linder et al., 2011; English et al., 2014; Lambert et al., 2009). Lambert et al. (2009) reported that scores on the RaLES scores in 8th grade predicted depression in 10th grade for African American youth in this sample. Criterion validity was demonstrated by evidence that in each of grades 8, 9, and 10, African American participants in this sample reported significantly more experiences with racism and discrimination on the RaLES than White participants (Lambert et al., 2009).

Social and behavior problems (TOCA)

School Behaviors and Symptoms. Teacher Observation of Classroom Adaptation-Revised (TOCA-R; Werthamer Larsson, Kellam, and Wheeler, 1991). Teacher ratings of oppositional defiance and conduct disorder were obtained in

the spring semester 7th, 9th, and 12th grade using the TOCA-R (Werthamer-Larsson, Kellam, and Wheeler, 1991). The TOCA-R was developed and employed by the Johns Hopkins University (JHU) Prevention Intervention Research Center (PIRC) in the evaluation of the 1st and 2nd generation trials; thus, much of the reliability and validity data on the TOCA-R has been with African American youth. The TOCA-R requires teachers to respond to 43-items pertaining to the child's adaptation to classroom task demands over the last three weeks. Adaptation is rated by teachers on a six-point frequency scale (1 = almost never to 6 = almost always). Each subscale is reported as a mean score of all items. Items for the sub-scales were largely drawn from the DSM-III, III-R and IV; common symptoms that appear on all versions of the DSM were selected. The Oppositional-Defiance subscale includes four items that focus on disobeying and talking back to adults as well as breaking rules. Coefficient alphas for this subscale were high during 7th, 9th, and 12th grade: 0.93, 0.90, and 0.87, respectively. The Conduct Problems subscale, measuring aggressive/disruptive behaviors, has nine items including the following: started physical fights with classmates, lied, took other's property, and coerced classmates. The coefficient alpha for the Conduct Problems subscale during 7th, 9th, and 12th grade were 0.88, 0.89, and 0.83, respectively. The 6-month test-retest intraclass reliability coefficient was 0.50. Scores on the Conduct Problems subscale have been shown to significantly relate to the incidence of school suspensions (i.e., the higher the score, the greater the likelihood of being suspended from school that year). We used the teacher-rated Oppositional-Defiance and Conduct Problems subscales in 7th, 9th, and 12th grade.

Youth anxiety

Baltimore How I Feel-Adolescent Version (BHIF-A). The BHIF-A is a youth self-report of internalizing symptoms, which was developed for use in grades 6-12. For the 26-item anxiety subscale, youth report the frequency anxious symptoms over the last two weeks on a 4-point frequency scale. Items were keyed for the most part to Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R; American Psychiatric Association, 1987) criteria for anxiety disorders. A pool of items was drawn from existing child self-report measures including the Revised-Children's Manifest Anxiety Scale (Reynolds and Richmond, 1985). The alphas for the BHIF Anxiety subscale ranged from 0.79 to 0.85 in the middle school years with mostly African American youth. Two-week test-retest reliability coefficients was 0.76. In terms of concurrent validity, youth self-reports on the BHIF Anxiety subscale scores significantly predicted a diagnosis of Generalized Anxiety Disorder on the DISC-IV (Lambert et al, 2009). We used youth report of anxiety in 7th, 9th, and 12th grade.

Procedure

The present study was a part of a larger longitudinal study conducted by the Prevention Intervention Research Center (PIRC) at John Hopkins University (JHU) that has explored the relationship between family and school interventions that can help redirect or improve the academic development and behaviors of low income children. Students' first grade classrooms were randomly assigned to one of three intervention conditions: classroom instruction and behavior management, family support, or control. Given our interest was not in the intervention effects, which have been reported in prior studies, we simply controlled for intervention status in the present study. Intervention status was coded 0 for the control group and 1 for either intervention group and was included as a covariate in all regression analyses reported below. Interviews with youth and parents were completed annually through 12th grade. T-tests indicated that African American children who completed one or more follow-ups in 7th, 9th, and 12th grade did not significantly differ from the African American children who did not on measures of self-reported depression, teacher-rated attention problems, or academic achievement scores collected during fall of first grade (p values < 0.05). Chi square test found that participants who completed one or more 7th, 9th, and 12th grade assessments were equally likely to qualify for free or reduced price lunch as those who did not complete these assessments ($p < 0.05$).

Analytic Plan

We first examined descriptive statistics and intercorrelations among study variables. Next, we conducted a series of six regression analyses for each of several outcomes: anxiety, oppositional behavior, and conduct problems in 9th and 12th grade. The first step of each of these analyses involved entering gender and intervention status (both coded 0 or 1) as covariates, and 7th grade neighborhood risk, racism experiences, and parental monitoring as main effects. We standardized all continuous dependent variables for ease of interpretation. We controlled for intervention status given the need to account for the fact that some youth had been exposed to an intervention in first grade. Although we expected intervention status to have minimal to no influence on outcomes in 9th or 12th grade, this is a conventional approach for handling intervention in longitudinal studies (see Lambert et al., 2009). Additionally, we controlled for gender given the well-established differential prevalence rates of externalizing and internalizing behaviors between adolescent boys and girls. We also included grade 7

baseline scores of the symptom outcome variables in these analyses. This allowed us to test for the emergence of new symptoms of behavior problems over time. Finally, we included punitive parenting practices (inconsistent discipline, parent rejection, and low reinforcement) as covariates to isolate the unique main and interactive effects of parental monitoring on youth outcomes. In the second step, we entered the neighborhood risk X parental monitoring interaction term; we also tested the neighborhood risk X racism term. Using guidelines recommended by Aiken and West (1991), we graphed any statistically significant interaction effects using the unstandardized regression coefficients for the predictor, moderator, and interaction terms. We used the most commonly used metric for determining effect size of interaction terms, f^2, which is the unique portion of total variance accounted for by the interaction term (Aiken et al., 1991). Finally, we probed significant interaction terms by calculating the statistical significance of simple slopes at one standard deviation above and below the mean of the moderator (Holmbeck, 2002). We used the False Discovery Rate (FDR; Benjamini and Hochberg, 1995) to correct for multiple comparisons involved in these analyses; based on the six regression analyses, the cut-off Q-value (e.g., corrected p-values based on FDR calculations) equaled 0.033.

Results

Preliminary Analysis

Descriptive statistics and correlation analyses were calculated to determine the bivariate relations among study variables (see Tables 1 and 2). Grade 7 parental monitoring had a small negative correlation with neighborhood risk ($r = -0.25$) and neighborhood risk had a small positive correlation with racism experiences ($r = 0.21$). The small correlation between neighborhood risk and racism experiences justified our decision to treat these as separate constructs rather than as a single latent construct (as in Copeland-Linder et al., 2011). Parental monitoring in 7th grade also had small and significant correlations with most grade 7, 9, and 12 behavior outcomes (r's $= -0.14$–0.19) and with anxiety symptoms in 7th grade but not grades 9 and 12. Of the other parenting variables, parent rejection had significant concurrent correlations (r's $= 0.27$ and 0.28) with oppositional and conduct, respectively and prospective relations with youth behavior problems (r's ranging from 0.16 and 0.20). Racism experiences had significant correlations with anxiety symptoms at each time point. Finally, neighborhood risk had small and significant relations with outcomes, except for oppositional in grades 7 and 12.

Table 1 Descriptive statistics of observed continuous variables

Variable name	Grade	M	SD	Range
Parental Monitoring	7	3.91	0.69	1–5.00
Inconsistent Discipline	7	1.96	0.67	1–4.50
Low Reinforcement	7	1.80	0.830	1–5.00
Parental Rejection	7	2.06	0.62	1–4.50
Neighborhood Risk	7	1.74	0.64	1–4.00
Racism	7	1.74	0.88	1–5.29
Anxiety	7	0.61	0.48	0–2.30
Oppositional Defiance	7	2.34	1.10	1–6.00
Conduct Disorder	7	1.51	0.60	1–4.43
Anxiety	9	0.48	0.42	0–2.10
Oppositional Defiance	9	2.30	1.14	1–6.00
Conduct Disorder	9	1.58	0.68	1–4.71
Anxiety	12	0.38	0.43	0–2.70
Oppositional Defiance	12	1.86	0.87	1–6.00
Conduct Disorder	12	1.42	0.48	1–4.36

Regression Analyses

Assumptions

We plotted the residual versus predicted values for each regression equation and found evidence to support homoscedasticity (i.e., the shape of the plot and also the residual values were within 3). To examine autocorrelations, we calculated the Durbin-Watson statistic and found values ranging from 1.96 to 2.21, all well within the recommended ranges to meet the assumption of independent error terms. Multicollinearity was not a concern given the low to moderate correlations between predictors and outcome variables; additionally, all dependent variables were standardized to minimize potential multicollinearity issues. Simple plots also supported linear relations among study variables. Finally, we found evidence of skewness in most study variables; we explored potential solutions to minimize skewness including log and reciprocal transformations but these attempts yielded little to no improvement in skewness. Given that regression is robust with regard to departures from non-normality and the potential for biased estimates in outcome transformations (e.g., Schmidt and Finan, 2018), we opted to retain the original data structure.

Hierarchical linear regressions

A series of hierarchical linear regression analysis were conducted to test for main effects and interactions between neighborhood risk/racism and parental monitoring in the 7th grade on 9th and 12th grade behavior outcomes. Following guidelines on testing moderator models outlined by Jaccard et al. (2003), predictor variables were entered in the following order: (1) main effects for racism, neighborhood

Table 2 Interrcorrelations among contextual factors and youth symptoms in 7^{th}–12^{th} grade

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. G7 monitor	–													
2. G7 neighbor risk	−0.25**	–												
3. G7 racism	−0.05	0.21**	–											
4. G7 anxiety	−0.13**	0.24**	0.27**	–										
5. G7 oppositional	−0.15**	0.08	0.08	0.01	–									
6. G7 conduct	−0.19**	0.12**	0.05	0.03	0.81**	–								
7. G9 anxiety	−0.02	0.21**	0.22**	0.51**	0.01	−0.03	–							
8. G9 oppositional	−0.12*	0.13**	0.13**	0.05**	0.47**	0.46**	0.03	–						
9. G9 conduct	−0.19**	0.20**	0.10*	0.12*	0.44**	0.48**	0.05	0.81**	–					
10. G12 anxiety	−0.05	0.13**	0.21**	0.34**	−0.01	−0.02	0.33**	.03	0.05	–				
11. G12 oppositional	−0.14**	0.07	0.06	0.03	0.38**	0.38**	0.03	0.49**	0.48**	−0.05	–			
12. G12 conduct	−0.17**	0.12*	0.05	0.04	0.34**	0.38**	0.02	0.46**	0.51**	−0.07	0.79	–		
13. G7 inc. discipline	−0.02	0.11*	0.05	0.00	0.10*	0.08	0.05	0.12*	0.10*	0.05	0.04	.08	–	
14. G7 low reinforce	−0.51**	0.22**	0.11*	0.15**	0.05	0.05	0.11*	0.01	0.06	0.08	0.04	.03	.07	–
15. G7 parent reject	−0.11*	0.13**	0.11*	0.01	0.27**	0.28**	0.03	0.16**	0.16**	0.07	0.19**	0.20**	0.31**	0.07

Grade 7: $n = 522$; Grade 9: $n = 463$; Grade 12; $n = 358$

**$p < 0.01$; *$p < 0.05$

risk, and parental monitoring as well as baseline, other parenting practices, and background covariates (sex and intervention status); and (2) 2-way interaction terms. The racism X monitoring interaction term was not significant for any of the analyses, so in the results described that follow we focus on the neighborhood X monitoring term. We controlled for baseline scores on the symptom outcome measures to determine the relations between study variables and the emergence of new youth symptoms, rather than simply the maintenance of symptoms.

Tables 3–5 provide results from all regression analyses. First, analyses focused on predicting anxiety symptoms in the 9^{th} and 12^{th} grade. Baseline anxiety ($\beta = 0.46$ and 0.29, respectively) significant predicted anxiety in both equations at step 1. Additionally, racism ($\beta = 0.12$) and gender ($\beta = 0.10$) were significant predictors of 12^{th} grade anxiety indicating that girls and youth reporting racism experiences in 7^{th} grade were more likely to experience the emergence of new anxiety symptoms by 12^{th} grade. In step 2, the interaction term (neighborhood X monitoring) was not significant, indicating that parental monitoring did not moderate the effects of neighborhood risk on the emergence of new anxiety symptoms.

Second, analyses focused on oppositional behaviors at 9^{th} and 12^{th} grade revealed significant effects for baseline oppositional behaviors at both time points ($\beta = 0.51$ and 0.33, respectively). Gender was a significant predictor of 12^{th} grade oppositional behaviors ($\beta = -0.13$) with boys more likely to have higher oppositional behaviors. At step 2, the neighborhood risk X parental monitoring interaction was significant at both time points ($\beta = -0.13$ and −0.14). Examining the graphs of the statistically significant interactions (Fig. 1) revealed that there was a positive association between neighborhood risk and increases in oppositional defiant behavior at low levels of parental monitoring, in 9th and 12th grades, but not at high levels of parental monitoring. The interaction term effect sizes were 0.01 to 0.03 on oppositional defiant, medium to large effects according to Kenny's (2016) suggested guidelines. Kenny offered these guidelines as potentially more realistic than those of Cohen given a comprehensive review that revealed the median effect size of interaction effects was only 0.002 (Aguinis et al., 2005). Evaluation of the simple slopes revealed that the neighborhood risk and oppositional defiant link in 9^{th} ($\beta = 0.20$; $p = 0.002$) and 12^{th} grade ($\beta = 0.16$; $p = 0.01$) significantly differed at varying levels of parental monitoring; the high parental monitoring slopes were not significant at either time ($\beta = -0.06$; $p = 0.50$ and $\beta = -0.08$; $p = 0.37$), respectively. In other words, youth exposed to low neighborhood risk had similar levels of oppositional behaviors in 9^{th} and 12^{th} grade regardless of parental monitoring levels whereas, under high neighborhood risk conditions, youth with lower parental monitoring had significantly elevated levels of oppositionality compared to their peers in higher parental monitoring.

Third, the findings with conduct problems in 9^{th} grade and 12^{th} grade as the outcome of interest revealed a similar pattern. Gender and baseline conduct problems were significant in both equations. The interaction between neighborhood risk and parental monitoring in 7^{th} grade was significant in predicting 9^{th} and 12^{th} grade conduct problems. The graph of these significant interaction effects

Table 3 Multiple regressions predicting 9th grade and 12th grade anxiety

Variable	β	B	SE	p	R^2
Model 1a: Predicting 9th grade Anxiety					
Step 1:					0.27***
Gender	0.04	0.03	0.04	0.41	
Intervention	−0.07	−0.04	0.02	0.10	
Anxiety (grade 7)	0.46	0.20	0.02	0.00***	
Inconsistent Discipline (grade 7)	0.04	0.02	0.02	0.33	
Low Reinforcement (grade 7)	0.06	0.03	0.02	0.20	
Parent Rejection (grade 7)	0.01	0.00	0.02	0.91	
Racism (grade 7)	0.09	0.04	0.02	0.04*	
Neighborhood Risk (grade 7)	0.04	0.02	0.02	0.34	
Parental Monitoring (grade 7)	0.07	0.03	0.02	0.16	
Step 2:					0.27***
Neighborhood × Monitoring	0.02	0.01	0.02	0.73	
Model 1b: Predicting 12th grade Anxiety					
Step 1:					0.15***
Gender	0.10	0.09	0.04	0.03*	
Intervention	0.09	0.02	0.02	0.06	
Anxiety (grade 7)	0.29	0.13	0.02	0.00***	
Inconsistent Discipline (grade 7) 0.02	0.01	0.02	0.73		
Low Reinforcement (grade 7)	0.00	0.00	0.02	0.99	
Parent Rejection (grade 7)	0.06	0.03	0.02	0.23	
Racism (grade 7)	0.12	0.05	0.02	0.02*	
Neighborhood Risk (grade 7)	0.00	0.01	0.02	0.96	
Parental Monitoring (grade 7)	−0.04	−0.02	0.03	0.50	
Step 2:					0.15***
Neighborhood × Monitoring	−03	−0.01	0.23	0.20	

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

revealed a similar pattern of monitoring buffering the effects of both risk contexts on subsequent outcomes (see Fig. 2). The interaction term effect sizes outcomes ranged from 0.03–0.04 for conduct problems outcomes, large effects according to Kenny's (2016) suggested guidelines. Similar to the findings with oppositional behaviors, evaluation of the simple slopes revealed that the neighborhood risk and conduct problems link in 9th ($\beta = 0.13$; $p = 0.001$) and 12th ($\beta = 0.10$; $p < 0.001$) was significantly different at varying levels of parental monitoring; the high parental monitoring slopes were not significant at either time ($\beta = -0.03$; $p = 0.67$ and $\beta = -0.04$; $p = 0.57$).

Discussion

The present study investigated the effects of parental monitoring, neighborhood risk, and racism on adolescents' social and academic outcomes in 9th and 12th grade. The results were consistent with our hypotheses that neighborhood risk and racism would have small and significant relations with anxiety, oppositional behavior, and conduct problems. Of particular interest, we found that parental monitoring moderated the effects of neighborhood risk on future behavior problems at both follow-up time-points. In particular, low parental monitoring was associated with escalating youth behavior problems in high risk neighborhoods. Finally, parental monitoring did not moderate effects of risk contexts on the development of anxiety problems.

These findings suggest that low parental monitoring may be an especially important vulnerability factor for youth in high-risk settings during middle school. Popular opinion and some studies suggest that punitive and restrictive parenting provides protection for African American youth living in these contexts (Baldwin et al., 1990; Dearing, 2004; Roche et al., 2007). However, these prior studies did not examine the role of monitoring as a buffer. The connection between parent awareness of and involvement with children during early adolescence and youth social and emotional outcomes is consistent with existing theories of effective parenting (Biglan et al., 2012; Hurd et al., 2013). Moreover, the medium to strong effects of high levels of parental monitoring in mitigating the development of youth behavior problems in high risk settings is consistent with theories about the mechanisms by which neighborhood risk leads to negative youth behavioral, emotional, and academic outcomes (Leventhal and Brooks-Gunn, 2000). Although low parental monitoring may not cause negative youth outcomes, finding ways to bolster parental monitoring practices in high risk contexts may help buffer the negative effects of neighborhood risk conditions on youth outcomes. Unlike harsh parent behaviors and values, which are hard to promote and inconsistent with theory and research on nurturing environments (Patterson et al., 1992; Biglan et al., 2012), parental monitoring is a discrete, easily taught and learned behavior that can be promoted in most contexts.

The benefits of parental monitoring observed in our study contrast with the null findings in the Copeland-Linder et al. (2011) study. Two critical differences between these studies likely explain the effects. First, in the present study we unpacked and examined the interaction between monitoring and neighborhood separately versus the Copeland-Linder model that aggregated neighborhood risk, racism, and exposure to violence in a single latent variable. Second, we examined outcomes in 9th and 12th grade versus the single time-point considered in the Copeland-Linder study.

Table 4 Multiple regressions predicting 9th grade and 12th oppositional-defiant behaviors

Variable	β	B	SE	p	R^2	R^2 Δ^b
Model 2a: Predicting 9th grade Oppositional–Defiant						
Step 1:					0.33***	
Gender	−0.07	−0.17	−0.15	0.12		
Intervention	0.02	0.03	0.06	0.70		
Oppositional-Defiant (grade 7)	0.51	0.60	0.05	0.00***		
Inconsistent Discipline (grade 7)	0.06	0.07	0.05	0.17		
Low Reinforcement (grade 7)	−0.11	−0.13	0.06	0.03*		
Parent Rejection (grade 7)	0.01	0.01	0.06	0.86		
Racism (grade 7)	0.10	0.11	0.05	0.03*		
Neighborhood Risk (grade 7)	0.07	0.08	0.05	0.12		
Parental Monitoring (grade 7)	−0.10	−0.11	0.06	0.06		
Step 2:					0.35***	0.02*
Neighborhood × Monitoring	−0.13	−0.13	0.05	0.004**		
Model 2b: Predicting 12th grade Oppositional-Defiant						
Step 1:					0.19***	
Gender	−0.13	−0.22	0.09	0.01*		
Intervention	−0.06	−0.06	0.06	0.26		
Oppositional-Defiant (grade 7)	0.33	0.33	0.05	0.00***		
Inconsistent Discipline (grade 7)	0.02	0.02	0.05	0.71		
Low Reinforcement (grade 7)	−0.08	−0.07	0.05	0.22		
Parent Rejection (grade 7)	0.11	0.10	0.05	0.04		
Racism (grade 7)	0.03	0.02	0.04	0.61		
Neighborhood Risk (grade 7)	0.06	0.06	0.05	0.27		
Parental Monitoring (grade 7)	−0.08	−0.10	0.06	0.13		
Step 2:					0.20***	0.01*
Neighborhood × Monitoring	−0.14	−0.12	0.05	0.008**		

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Thus, aggregating racism and neighborhood risk at a single, earlier time-point likely concealed the benefit of monitoring in risky neighborhoods that we found in the present study.

The findings were particularly robust given that different informants were used to define key variables thus ruling out source bias as an explanation for the study results. For instance, youth provided ratings of monitoring, anxiety, neighborhood risk, and racism experiences; parents provided ratings of other parenting practices; and teachers at each grade level provided ratings of youth behavior problems. Additionally, we controlled for three other parenting practices and attitudes, which further strengthens confidence in the unique role of parental monitoring in influencing youth outcomes in high risk settings. The longitudinal design and control for baseline values on youth symptoms also allowed us to test for the emergence of new emotional and behavior problems.

Notably, the benefits of parental monitoring were specific to youth behavior problems and not youth anxiety. In fact, unlike prior studies (Ballash et al., 2006), none of the parenting behaviors measured in this study (discipline practices, low reinforcement, parent rejection, monitoring) were related to youth anxiety at any time point. Only contextual risks, racism experiences and neighborhood risk, were linked to youth anxiety in a univariate sense, at both follow-up time points. Obviously, preventing negative life events such as racism experiences or those induced by neighborhood contexts would be the most effective way to reduce their effects on youth anxiety. In contexts where youth are experiencing racism, other parenting behaviors, such as racial socialization, may be important in reducing the negative emotional outcomes (Harris-Britt et al., 2007). In contexts with neighborhood risks where children have higher rates of exposure to violence, crime, and drugs, parental monitoring alone may not be enough to diminish the link between these experiences and subsequent anxiety.

Strengths and Limitations

The study has several noteworthy strengths. First, the longitudinal design allowed us to examine the moderating role of parental monitoring at two key follow-up points in high school, 9th and 12th grade, to determine how persistent any moderating effects were. Second, we controlled for

Table 5 Multiple regressions predicting 9th grade and 12th grade conduct problems

Variable	β	B	SE	p	R^2	R^2 Δ^b
Model 3a: Predicting 9th grade Conduct Disorder						
Step 1:						0.31^{***}
Gender	−0.11	−0.14	0.06	0.02^{*}		
Intervention	0.00	0.00	0.04	0.96		
Conduct Disorder (grade 7)	0.45	0.33	0.03	0.00^{***}		
Inconsistent Discipline (grade 7)	0.06	0.04	0.03	0.16		
Low Reinforcement (grade 7)	−0.05	−0.07	0.03	0.18		
Parent Rejection (grade 7)	0.02	0.01	0.03	0.72		
Racism (grade 7)	0.07	0.04	0.03	0.14		
Neighborhood Risk (grade 7)	0.09	0.06	0.03	0.07		
Parental Monitoring (grade 7)	−0.09	−0.13	0.04	0.01^{*}		
Step 2[a]:					0.33^{***}	0.02^{*}
Neighborhood × Monitoring	−0.14	−0.08	0.03	0.002^{**}		
Model 3b: Predicting 12th grade Conduct Disorder						
Step 1:					0.21^{***}	
Gender	−0.17	−0.17	0.05	0.001^{**}		
Intervention	−0.11	−0.06	0.03	0.03^{*}		
Conduct Disorder (grade 7)	0.33	0.20	0.03	0.00^{***}		
Inconsistent Discipline (grade 7)	0.07	0.04	0.03	0.18		
Low Reinforcement (grade 7)	−0.09	−0.04	0.03	0.17		
Parent Rejection (grade 7)	0.08	0.04	0.03	0.13		
Racism (grade 7)	0.01	0.02	0.02	0.68		
Neighborhood Risk (grade 7)	0.08	0.04	0.03	0.17		
Parental Monitoring (grade 7)	−0.10	−0.05	0.05	0.13		
Step 2 [a]:					0.22^{***}	0.01^{*}
Neighborhood × Monitoring	−0.14	−0.07	0.02	0.005^{**}		

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

baseline levels of behavior problems to highlight how parental monitoring moderated the emergence of new behavior problems in 9th grade not simply their maintenance. Third, we relied on multiple informants to rule out source bias as an explanation for the findings.

It is also important to note study limitations. First, causal interpretations are not warranted given that the study design was not a true experiment. Future research is needed to experimentally manipulate monitoring strategies (e.g., by randomly assigning parents to receive monitoring supports or to a comparison condition) in high risk settings to determine if monitoring yields benefit for subsequently reducing youth disruptive behaviors.

Second, parental monitoring is a multifaceted construct that can be measured in various ways. Here we relied on youth self-report on a brief set of items that tapped aspects of their parents' communication with and knowledge of their whereabouts. Youth report provides one, albeit important, perspective on monitoring behaviors. Future studies are needed with multiple informants and methods defining this construct to include independent observations (Stattin and Kerr, 2000).

Fourth, this study only focused on African American families who live in low income areas, thus, it is unknown how the findings would generalize to other families in other contexts. Additional research is needed that examines ways to provide parents with adequate ways to tailor their parenting behaviors to the neighborhood context in which they live. Future research should consider other malleable aspects of parenting styles that mitigate risk for negative youth outcomes.

Implications

The findings have implications for clinicians working with parents in providing effective environments for their children. Here we focused on a parenting practice, parental monitoring, versus broader parenting styles (e.g., Baumrind, 1966); one benefit of focusing on parenting practices is that these refer to discrete and modifiable behaviors rather than a constellation of behaviors that may be more difficult to enact simultaneously. Similarly, the findings highlight a behavior that clinicians can work with families to change rather than other behaviors or attitudes which may be either

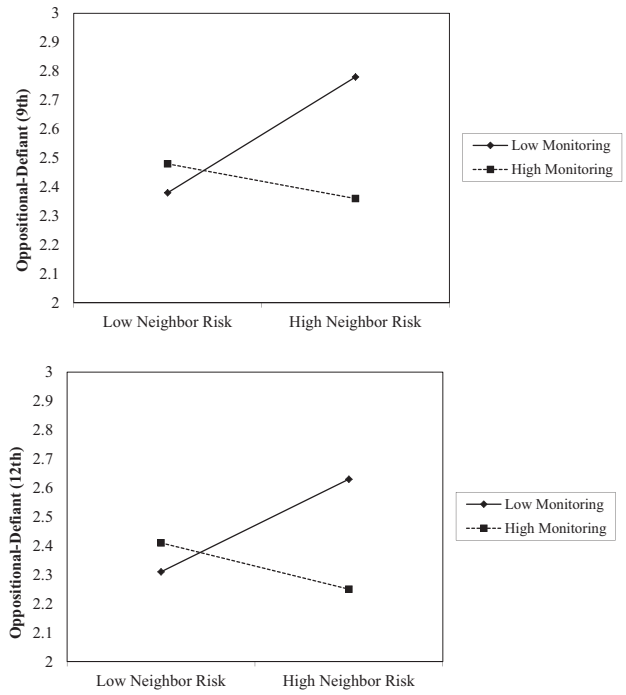

Fig. 1 Interaction between neighborhood risk and parental monitoring in predicting 9th and 12th grade oppositional-defiance controlling for demographics, baseline scores, and parenting practices

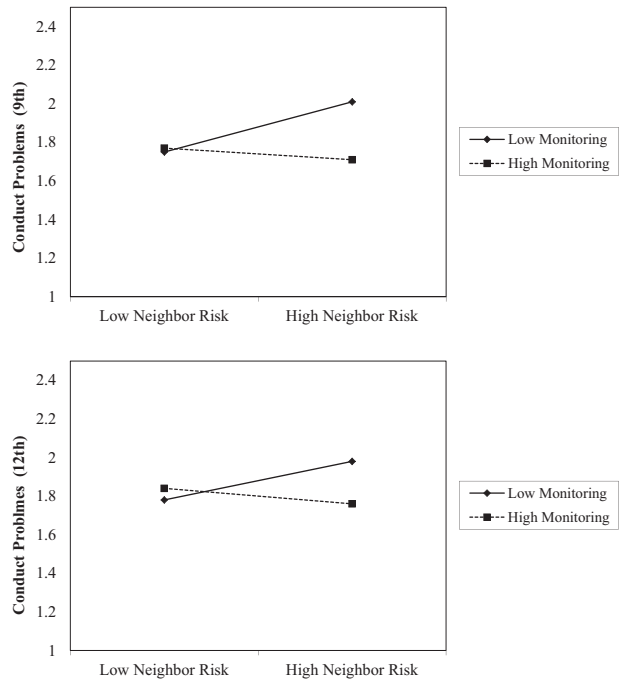

Fig. 2 Interaction between neighborhood risk and parental monitoring in predicting 9th and 12th grade conduct problems controlling for demographics, baseline scores, and parenting practices

too difficult or unethical to attempt to change. For instance, unlike the Dearing (2004) study, which highlighted a link between a broad parent construct, restrictive parenting beliefs, here we found evidence to support the importance of a very explicit parenting skill, monitoring, in supporting youth development. The Dearing finding was unactionable in many ways because it is difficult to change parenting values; additionally, the construct in that study was overly general to include punitive parenting practices which may lead parents to presume hostile parenting is appropriate in high risk settings. In the present study, we found evidence that a discrete and malleable parenting behavior, monitoring, could mitigate risk for adverse youth outcomes for those living in high-risk contexts. This finding is consistent with empowerment theories and approaches to support African American families (Tucker and Herman, 2002).

Conclusion

The study supports the importance of early adolescence as a critical developmental period for identifying and manipulating malleable risk and protective factors that contribute to youth social and emotional development. We found that youth reports of low parental monitoring in high risk neighborhoods at a single point in time during early adolescence predicted an escalation of youth problem behaviors two years later and these effects were sustained at five years. Examining supports and other interventions to help parents, in these settings during this development period especially, increase their attention and awareness of their child's whereabouts may yield significant benefits and alter life course trajectories of youth in a favorable way. Social contextual factors have a profound influence on youth development. Finding other ways to support parents and youth in high risk contexts and how they interact with one another can lead to improved outcomes for youth most at risk.

Funding Preparation of this manuscript was supported in part by research grants from the National Institute of Mental Health (RO1 MH57005, P30 MH086043) and the National Institute on Drug Abuse (RO1 DA11796) awarded to Dr. Nicholas Ialongo.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Johns Hopkins University Institutional Review Board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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