

**Self-Regulation and Conduct Problems  
Among Low-Income African American Youth  
From Single-Mother Homes: The Roles of Perceived  
Neighborhood Context and Child Gender**

Alecia A. Zalot  
Deborah J. Jones

*University of North Carolina at Chapel Hill*

**Rex Forehand**  
*University of Vermont*

**Gene Brody**  
*University of Georgia*

*The present study examines perceived neighborhood context and gender as moderators of the relation between self-regulation and conduct problems among low-income African American youth (7 to 15 years old; 50% girls) from single-mother homes. Mother-child dyads (N = 277) provided ratings of self-regulation, neighborhood resources and risks, and aggression and other conduct problems. Analyses revealed a significant three-way interaction among self-regulation, neighborhood context, and gender. Neighborhoods lower in resources and higher in risks exacerbated the link between poor self-regulation and aggression and conduct problems for girls, but not for boys. Clinical implications of the findings and future research directions are discussed.*

**Keywords:** *self-regulation; neighborhood; conduct problems; African American*

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**AUTHORS' NOTE:** *This research was supported by the William T. Grant Foundation. Please address correspondence to Deborah J. Jones, PhD, University of North Carolina, Department of Psychology, Campus Box #3270, Chapel Hill, NC 27599-3270; e-mail: djones@email.unc.edu.*

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Self-regulatory difficulties, often characterized by hyperactivity, impulsivity, and inattention, are a well-established risk factor for conduct problems (e.g., Loeber, Keenan, & Zhang, 1997; Silverthorn, Frick, & Reynolds, 2001; Waschbusch, 2002). Yet, not all youth with self-regulatory difficulties go on to manifest conduct problems (Anderson, Williams, McGee, & Silva, 1987; Biederman, Newcorn, & Sprich, 1991; Cohen et al., 1993), suggesting that other variables may moderate this association. The current study examined neighborhood context as a moderator of the association between self-regulation and conduct problems among African American youth from single-mother homes. Thus, this research is consistent with ecological systems theory (Bronfenbrenner, 1992; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998), which suggests that youth must be studied within the multiple contexts within which they live and interact.

#### AFRICAN AMERICAN YOUTH, SELF-REGULATION, AND CONDUCT PROBLEMS

Conduct-disordered behavior is characterized by acting-out behaviors among youth, including oppositionality, aggression (verbal and physical), and other delinquent behaviors that can potentially result in arrest (e.g., stealing, vandalism). African American youth are more likely than White youth to report engaging in conduct-disordered behaviors and are overrepresented in official statistics as well (e.g., Elliott, Huizinga, & Menard, 1989; Peoples & Loeber, 1994; Tittle & Paternoster, 2000; U.S. Department of Justice, 2003). For example, self-report data indicate that African American youth, compared to White youth, are approximately 1.5 times more likely to engage in general delinquency and more than twice as likely to be involved in more serious and violent delinquent acts (Elliott et al., 1989). However, some work suggests that this racial disparity may be a function of increased risk among African American youth resulting from poverty and distressed neighborhoods (Peoples & Loeber, 1994; Sampson & Lauritsen, 1997). Accordingly, more research is necessary to identify the circumstances under which low-income African American youth are at heightened risk for conduct problems.

One well-established correlate of conduct problems is self-regulatory difficulties, typically characterized by hyperactivity, impulsivity, and inattention (Moffitt, 1993; see also Waschbusch, 2002, for a review). Examples of how these problems are manifested include difficulties with (1) frustrating easily, (2) planning ahead and considering consequences before acting, (3) talking out of turn and interrupting others, and (4) sustaining attention

during tasks without becoming distracted. Youth with self-regulatory difficulties evidence lower levels of academic and social competence, are at increased risk for school drop out, and are also more likely to evidence conduct problems (e.g., Farrington, Loeber, & van Kammen, 1990; Silverthorn et al., 2001; Waschbusch, 2002). In addition, youth displaying self-regulation problems are also more likely to progress along an *early-starter* pathway for the development of conduct problems (e.g., Lynam, 1996; Patterson, Capaldi, & Bank, 1991). Notably, the early-starter pathway is characterized by initiation of conduct-disordered behaviors during childhood (typically by the age of 7; Snyder, Prichard, Schrepferman, Patrick, & Stoolmiller, 2004), with a progression to more serious offenses as these children progress into adolescence and adulthood, when they are more likely to be diagnosed with antisocial personality disorder (e.g., Lynam, 1996; Moffitt, 1993).

Although the link between self-regulation difficulties and conduct problems has been well-established (see Waschbusch, 2002, for a review), research indicates that approximately 30% to 50% of youth with self-regulatory difficulties will also evidence conduct problems (Anderson et al., 1987; Biederman et al., 1991; Cohen et al., 1993), suggesting that other factors may moderate this association. One factor that may be a particularly important moderator of this link among African American youth is neighborhood context (Peoples & Loeber, 1994).

#### NEIGHBORHOOD CONTEXT AND YOUTH ADJUSTMENT

According to the bioecological model (Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998), child development involves the continual, bidirectional interaction between a child and his or her environment. Consistent with this model, research has shown that youth residing in neighborhoods that offer fewer resources and more risks are more likely to evidence maladaptive outcomes, including conduct problems, than youth residing in neighborhoods with relatively more resources and fewer risks (Brooks-Gunn, Duncan, Klebanov, & Sealander, 1993; Leventhal & Brooks-Gunn, 2003; Wandersman & Naton, 2002).

The characteristics of the neighborhoods in which children live have also been shown to interact with characteristics of the children to influence their psychosocial adjustment. Among African American youth, neighborhood context has been shown to exacerbate the link between conduct problems and several risk factors, including early-onset puberty, negative parenting processes, and older siblings' risky behaviors (Brody, Ge, et al., 2003a; Ge,

Brody, Conger, Simons, & Murry, 2002). Importantly, youth who evidence each of these risk factors are more likely to develop conduct problems if they also reside in neighborhoods characterized by greater risk. Most relevant to the current study, Lynam et al. (2000) reported that impulsive boys were more likely to evidence conduct problems if they resided in neighborhoods characterized by lower, rather than higher, socioeconomic status (SES). Notably, some evidence also suggests that neighborhood context may be an important moderator of the association between self-regulation and conduct problems within low-income African American communities for girls, as well.

Importantly, African American youth are more likely than White youth to reside in neighborhoods characterized by greater risk (e.g., unemployment, residential instability, inadequate education, crime, and violence), as well as fewer resources (e.g., community centers, convenient public transportation, and safe outdoor areas; e.g., Duncan, Brooks-Gunn, & Klebanov, 1994; Pinderhughes et al., 2001; Sampson, Raudenbush, & Earls, 1997). Accordingly, neighborhood researchers typically treat African American neighborhoods as a homogeneous category (i.e., low SES), with little attention to the variability in risks and resources that may exist within African American neighborhoods (Leventhal & Brooks-Gunn, 2003). This remains the case despite research that suggests that the perceived availability of resources can positively influence the adjustment of even those youth residing in the most impoverished and distressed communities (Forehand et al., 2000; Leventhal & Brooks-Gunn, 2000; Lee, Brooks-Gunn, Schnur, & Liaw, 1990). Thus, neighborhood context may moderate the association between individual risk factors, such as self-regulation, and conduct problems among African American youth living in distressed neighborhoods as well, and some evidence suggests that the role of neighborhoods may vary for boys and girls.

### NEIGHBORHOOD CONTEXT, YOUTH ADJUSTMENT, AND GENDER

Although boys were traditionally thought to engage in higher levels of conduct-disordered behaviors (see Lahey et al., 2000, for a review), studies examining less severe behavior problems (e.g., oppositionality, verbal aggression) have found less consistent gender differences (Lewinsohn, Hops, Robert, Seeley, & Andrews, 1993; Verhulst, van der Ende, Ferdinand, & Kasius, 1997; Williams, McGee, Anderson, & Silva, 1989), particularly in studies conducted around the time of puberty, when girls' conduct-disordered behavior is more likely to emerge (Silverthorn & Frick, 1999; U.S. Department of Justice, 2003).

Importantly, a growing literature also suggests that the role of neighborhood context in conduct-disordered behavior may depend on the gender of the child. That is, although some research suggests that neighborhood context may be a more robust correlate of boys' behaviors (Kroneman, Loeber, & Hipwell, 2004; Leventhal & Brooks-Gunn, 2000; Silverthorn et al., 2001), others suggest that it is equally important to consider the ecological context in which girls are residing (e.g., Farrell & Bruce, 1997; Ingoldsby & Shaw, 2002). For example, not all studies have found gender differences (Kroneman et al., 2004; Kupersmidt, Griesler, DeRosier, Patterson, & Davis, 1995; Plybon & Kliever, 2001), and high-risk neighborhoods have been shown to exacerbate the link between conduct problems and other risk factors (i.e., early-onset puberty, negative parenting, deviant behaviors of siblings) in both boys and girls (Brody, Ge, et al., 2003a; Ge et al., 2002).

Moreover, at least one study found that neighborhood context is related to the adjustment of African American girls, but not boys (Ceballo, McLoyd, & Toyokawa, 2004). Thus, preliminary evidence seems to suggest that boys and girls may be differently affected by their communities (Greenberg, Lengua, Coie, & Pinderhughes, 1999; Simons, Johnson, Beaman, Conger, & Whitbeck, 1995), depending on the neighborhood factors and youth outcomes under consideration (Kroneman et al., 2004). Building on this line of research, neighborhood context may differently moderate the association between self-regulation and conduct-disordered behaviors for boys and girls.

### THE CURRENT STUDY

This study builds on the aforementioned theoretical and empirical work by examining perceived neighborhood context as a moderator of the association between self-regulation and conduct problems among low-income African American boys and girls (7 to 15 years old) from urban and rural areas. Consistent with prior theory and research (e.g., Bronfenbrenner & Ceci, 1994; Ge et al., 2002; Lynam et al., 2000), it was hypothesized that the association between self-regulation difficulties and conduct problems would be exacerbated for children living in neighborhoods they characterized as having fewer resources and greater risks. Although urban and rural neighborhoods often do differ considerably (e.g., Cronk & Sarvela, 1997; Eberhardt et al., 2001; Scheer, Borden, & Donnermeyer, 2000), prior work suggests that it is the relative levels of risks and resources within these areas, rather than the areas themselves, that are associated with youth adjustment (Forehand et al., 2000; Levine & Coupey, 2000). Therefore, the relative level of risks and resources in the neighborhood was examined, rather than the urban versus rural status of the neighborhood (which was statistically controlled).

In addition to the aforementioned hypothesis, exploratory analyses were conducted to examine the three-way interaction of Self-Regulation  $\times$  Neighborhood Context  $\times$  Child Gender.

## METHOD

### OVERVIEW

The current study represents secondary analyses of a community sample of low-income African American single-mother-headed families ( $N = 277$ ) from rural and urban communities during the transition from preadolescence to adolescence. To participate, mothers had to self-identify as African American and single and had to have a biological child in the 7- to 15-year-old age range. If a mother had more than one child in this age range, the older of the two participated. Although families in the larger study participated in two assessments, each separated by approximately 12 months, only data from the first assessment were included in the current analyses because they afforded adequate power to examine the proposed two-way and three-way interactions.

### PARTICIPANTS

Participants for the current study were the 277 African American, single-mother-headed families with a 7- to 15-year-old child (mean age = 11.40 years; 50% girls). This age range was selected because (1) children within this age range are generally cognitively mature enough to respond to the types of self-report measures used in the current study, and (2) early-onset conduct-disordered behaviors are readily apparent in children as young as 7 years old (Snyder et al., 2004). Consistent with the communities from which the families were drawn, most of families in the current study were living below the poverty level (U.S. Census Bureau, 2000), had a per capita income of \$3,800 or less, and 97% received public assistance. As demonstrated in Table 1, approximately half (49%) of the families resided in rural neighborhoods, almost half (42%) of the mothers in the sample had less than a high school education, and more than a third (38%) were unemployed.

**Recruitment.** Families were recruited through community leaders (e.g., principals) at various community agencies (e.g., schools). Initially, each community contact was given the inclusion criteria (African American single-mother family with a child 7 to 15 years of age). Subsequently, community contacts gave the research staff member the names of families to approach, and the staff member contacted the families.

TABLE 1  
Descriptive Statistics for Demographic and Major Study Variables

Variable	M	SD	%
1. Child age	8.33	7.25	
2. Child gender (% girls)			50
3. Maternal age	34.00	6.25	
4. Maternal education			
< High school			42
HS diploma/GED			38
> HS/GED			20
5. Monthly income	1,095.53	805.19	
6. Maternal employment			
$\geq$ 32 hours per week			43
< 32 hours per week			19
Unemployed			38
7. Location (% rural)			49
Neighborhood context <sup>a</sup>	2.55	7.62	
Self-regulation <sup>b</sup>	25.70	7.30	
10. Conduct problems <sup>c</sup>	8.33	7.25	

a. Youth report resources in relation to risks.

b. Mother report Children's Self-Control Scale.

c. Youth report Youth Self-Report form.

Families were recruited from primarily lower-income metropolitan and nonmetropolitan counties in the southeastern United States in which 25% or more of the population was African American. Although these communities differed with regard to their urban or rural status, they were comparable with regard to proportion of African Americans and percentage of residents below the poverty level. Urban families were recruited from inner-city New Orleans, Louisiana. As reflected by the U. S. Census (2000) data reported at the time of data collection, the majority (67%) of residents of the city of New Orleans were African American (relative to 12.3% African Americans in the U.S.), nearly one third (30%) of families residing in New Orleans were living below the poverty level (relative to U.S. poverty level of 12.4%), and the neighborhoods in which families resided were characterized by significant overcrowding (2,684 people per square mile in New Orleans relative to 79.6 people per square mile in the U.S.). The rural families were recruited from several counties in Georgia with populations less than 7,500. Approximately 60% of residents in these counties were African American, nearly 30% of families lived below the poverty level, and families were relatively isolated (22 people per square mile).

## PROCEDURE

Mother-child dyads participated in two interviews at the first assessment—(1) the sociodemographic interview (i.e., consent/assent, sociodemographic information) and then (2) the psychosocial interview (i.e., all major study variables), which followed within 2 weeks. Fewer than 5% of families who participated in the first interview failed to complete the second. Because of issues of literacy, self-report questionnaires were administered in an interview format to both mother and child, although each was interviewed privately by separate interviewers to ensure confidentiality. Families were compensated \$50 for their participation in each of the two data-collection sessions.

## MEASURES

To ensure that measures were relevant to the sample under study, focus groups were formed prior to the initiation of the original project using community members in the counties from which the sample was drawn. The focus groups reviewed each item on the scales and suggested wording changes as well as the deletion of items that were unclear to them or irrelevant to families in their communities. After the data were collected, revised scales were subjected to confirmatory factor analyses using scree plots and eigenvalues (criteria for retention  $> 1$ ) to ensure that scales were composed of a coherent set of items for this study's population. If a scale was not revised, then just the coefficient alpha was computed. Items were retained if they loaded at .40 or above.

**Demographic information.** Mothers completed a demographic measure, which provided information about themselves (e.g., education), their children (e.g., age), and their families (e.g., income). In addition, the rural versus urban status of the neighborhoods were coded by project staff (1 = *rural*, 2 = *urban*).

**Youth self-regulation.** Drawing on prior research examining self-regulation among similar samples of African American youth (e.g., Brody, Kim, Murry, & Brown, 2003; Brody, Sooyeon, Murry, & Brown, 2005; Sooyeon & Brody, 2005), self-regulation was assessed using mother report on the Children's Self-Control Scale (Humphrey, 1982), a 15-item scale designed to assess children's difficulties regulating both their attention and behavior. Sample items on the Children's Self-Control Scale are comparable to items found on other well-established scales measuring self-regulation or the behavioral correlates of hyperactivity, impulsivity, and inattention (e.g., Conners, 1997) and include, "How often does \_\_\_ pay attention to what s/he is doing?" How often does \_\_\_ make careless mistakes because s/he rushes to turn in his/her

work?," and "How often does \_\_\_ talk out of turn?" Responses on the Children's Self-Control Scale range from 0 = *never* to 4 = *almost always*, with lower scores indicating lower levels of self-control. Given that this measure was not standardized with African American youth, a confirmatory factor analysis was conducted specifying one factor, and items loading .40 and above were retained for the current analyses. Using this criterion, 11 of 15 items were retained, yielding an internal reliability for the current sample of .82 (scores can range from 0 to 44).

**Perceived neighborhood context.** Perceived neighborhood context, the proposed moderator, was assessed via youth-report of the resources and risks available in their communities. Youth have been shown to be reliable reporters of the characteristics of their neighborhoods, with prior work demonstrating that youth's perceptions of neighborhood context correlate with both census-level data and structural characteristics of the neighborhood (e.g., Bass & Lambert, 2004; Hadley-Ives, Stiffman, Elze, Johnson, & Dore, 2000; Herrenkohl, Hawkins, Abbott, Guo, & Social Development Research Group, 2002), as well as their mental health, including aggression and conduct problems (Aneshensel & Sucoff, 1996). For the current study, risks (e.g., gangs, drug use/dealing, dirty, crowded) that were present in communities were developed based on risks examined in prior studies and interviews with community leaders (e.g., Miller, Forehand, & Koichick, 2000; Rutter, 1981). The risks were then refined and expanded based on pilot work with single-parent African American mothers and their children. Youth in the current sample were asked if each of nine risks was present in the community. These included (1) it is dirty, (2) it is noisy, (3) there are gangs, (4) there is physical fighting, (5) there are shootings and/or knifings, (6) there are people being killed, (7) there is drug use/dealing, (8) housing conditions are poor, and (9) it is too crowded; no privacy. The alpha coefficient for these nine risks was .84.

Investigators generated potential community resources (e.g., library, police station, outdoor parks, health center) by examining the yellow pages of phone books and talking with community leaders. Subsequently, pilot testing with single-parent African American mothers and children helped expand and refine the list. Youth were asked if each of eight resources, which directly pertained to youth activities, was available in their community. These included (1) organized/supervised sports, (2) clubs (e.g., Boy/Girl Scouts, 4-H), (3) private lessons (e.g., music, dance, sports), (4) public parks, (5) YMCA/YWCA, (6) swimming pool, (7) church youth group, and (8) library. The alpha coefficient was .77.

Building on prior research that demonstrates that the relative level of resources in comparison to risks is associated with the psychosocial adjustment of low-income African American youth, an index was created by subtracting

risks from resources, with increasingly large positive numbers indicating more resources relative to risks (Forehand et al., 2000). Thus, this index attempts to account for the interplay between community resources and risks, emphasizing that the relation between resources and risks, and the relative availability of each, is an important construct to consider when assessing children's perceptions of neighborhood.

**Youth conduct problems.** Youth conduct problems, the proposed dependent variable, were assessed via youth report of the Aggression and Delinquency subscales of the Youth Self-Report (YSR) form of the Child Behavior Checklist (Achenbach, 1991). The two scales were combined and used as a youth-reported indicator of aggression and conduct problems. The items are rated on a 3-point scale: 0 (*not true*), 1 (*sometimes or somewhat true*), and 2 (*very or often true*). These subscales have acceptable reliability and validity data (Achenbach, 1991) for youth greater than 10 years of age, and prior research has demonstrated that the YSR is a reliable instrument for African American samples (e.g., Forehand, Jones, Brody, & Armistead, 2002; Jones, Forehand, Brody, & Armistead, 2002a, 2002b). Although the YSR was not standardized with youth as young as some of those in the current sample (Achenbach, 1991), it was used in the current study because it includes behaviors that map onto theories of the early-starter model, with similar behaviors occurring among at-risk youth as young as 7 years of age (e.g., Lynam, 1996; Snyder et al., 2004). Accordingly, factor analyses specifying one factor for each subscale were conducted to determine the subscales' applicability to the current sample, yielding the following: 18 of the 19 items of the Aggression subscale loaded at .40 and, thus, were retained (alpha = .87); 7 of the 11 items loaded at .40 or higher and were retained for the Delinquency subscale (alpha = .72).

To create a conduct-disordered behavior construct for the current study, the Aggression and Delinquency subscales, which each contain indicators of conduct-disordered behavior, were combined. A factor analysis specifying one factor was conducted on the remaining 25 items. The factor analyses yielded 21 items that loaded at .40 or better, resulting in an alpha coefficient of .88 for the current sample. Therefore, the scores on the resulting conduct-disordered behavior scale could range from 0 to 42.

## RESULTS

### PRELIMINARY ANALYSES

Based on past research (Leventhal & Brooks-Gunn, 2000; Lynam et al., 2000), a medium effect size was estimated. With a sample size of 277, the

TABLE 2  
Bivariate Associations Between Outcome of Interest and Demographic and Major Study Variables

Variable	Conduct Problems <sup>a</sup>
Child age	-.03
Child gender	-.01
Maternal age	-.10
Maternal education	-.04
Monthly income	.06
Maternal employment	-.04
Location (rural/urban)	-.18**
Neighborhood context <sup>b</sup>	-.18**
Self-regulation <sup>c</sup>	-.23**

a. Youth report Youth Self-Report form.

b. Youth report resources in relation to risks.

c. Mother report Children's Self-Control Scale.

\*\* $p < .01$ .

study yielded a power level of at least .80 to detect differences using regression analyses with the estimated medium effect size and  $p = .05$  level (Faul & Erffelder, 1992).

The distribution of scores for each study variable revealed relatively normal distributions, with no notable outliers. Means and standard deviations among sociodemographic and major study variables are presented in Table 1. On average, mothers were 34 years of age, and almost half (42%) failed to complete high school. Although almost half of mothers (43%) reported working outside the home at least 32 hours per week, the average family income was \$1,009.53 per month, suggesting a relatively impoverished sample. On average, children were 11.34 years of age, and half were girls.

As demonstrated in Table 2, rural versus urban geographical distinction ( $r = -.18, p < .01$ ) was associated with the outcome of interest, aggression, and conduct problems. However, given prior research suggesting that the link between rural and urban status and child outcomes is better accounted for by the relative risks and resources in the neighborhoods (Forehand et al., 2000; Levine & Coupey, 2000), rural versus urban status was statistically controlled in the regression model, rather than examining it as a major study variable.

As demonstrated in Table 2, child gender was not associated with the outcome of interest ( $r = -.01, ns$ ). Examination of the means suggested that boys ( $M = 8.40, SD = 7.39$ ) evidenced only slightly, but not significantly, higher levels of conduct problems than girls ( $M = 8.27, SD = 7.13$ ). Given the

proposed exploratory hypotheses regarding gender, however, the main and interactive effects of child gender were included in the regression model.

Of note, age also was not associated with outcome ( $r = -.03, ns$ ). Given our interest in including children younger than those included in Achenbach's (1991) standardization sample, however, age was statistically controlled in the regression analyses.

Correlation analyses were also conducted to examine the bivariate associations among the major study variables and conduct problems (see Table 2). As predicted, mother report of children's self-regulation difficulties correlated significantly with child report of conduct problems ( $r = .23, p < .01$ ). Children whose mothers reported that they had more self-regulatory difficulties reported more conduct problems. Child-report of neighborhood context also correlated significantly with child-reported aggression and conduct problems ( $r = -.18, p < .01$ ). Children who resided in neighborhoods that they characterized as having relatively fewer resources and greater risks reported engaging in more aggressive and conduct-disordered behaviors.

#### PRIMARY ANALYSES

Following the examination of bivariate associations, data were analyzed using hierarchical regression in accordance with the proposed theoretical rationale. Rural versus urban residential status was entered in Block 1 to take into account differences between these geographical regions and to examine the contributions made over and above this broad geographical distinction by other variables. Additionally, although age and gender did not emerge in the bivariate analyses as significant sociodemographic covariates of aggression and conduct problems, boys reported slightly more conduct problems than girls, and both variables were controlled for in Block 1. Next, self-regulation scores and neighborhood context ratings were entered in the second block. All possible two-way interaction terms between gender, self-regulation, and neighborhood context were entered in the third block. Finally, the three-way interaction (Self-Regulation Difficulties  $\times$  Neighborhood Context  $\times$  Gender) was entered in the fourth block. All continuous variables were first centered before creating the two-way and three-way interaction terms to reduce multicollinearity (Baron & Kenny, 1986).

Consistent with the bivariate analyses, neither child gender,  $\beta = -.01, ns$ , nor child age,  $\beta = -.01, ns$ , was significantly associated with conduct problems in the regression model (see Table 3). Both girls and boys reported engaging in similar levels of conduct problems. Also consistent with bivariate analyses, the rural versus urban geographical distinction was associated with the outcome of interest,  $\beta = -.18, p < .01$ .

TABLE 3  
Hierarchical Regression Analyses Predicting Child Scores  
on the Aggression and Conduct Problems Index

Variable	F	R <sup>2</sup> $\Delta$	B	SEB	$\beta$	t
Block 1: demographic variables						
Rural vs. urban status	3.12*		-2.62	.87	-.18	-3.01**
Child age			-.03	.24	-.001	-.12
Child gender			-.08	.85	-.01	-.09
Block 2: main effects						
Neighborhood context (NC)	7.94***	.10	-.21	.06	-.22	-3.75***
Self-regulation (SR) difficulties			.21	.06	.21	3.76***
Block 3: 2-way interactions						
NC $\times$ SR Difficulties	5.05***	.00	.00	.01	.02	0.42
NC $\times$ Gender			-.04	.11	-.07	-0.37
SR Difficulties $\times$ Gender			.08	.12	.13	0.71
Block 4: 3-way interaction						
NC $\times$ SR Difficulties $\times$ Gender	5.07***	.02	.03	.02	.40	2.16*

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

There was, however, a significant main effect for both mother-reported self-regulation difficulties,  $\beta = .21, p < .001$ , and child-reported neighborhood context,  $\beta = -.22, p < .001$ . Consistent with the proposed hypotheses, poorer self-regulation, as well as fewer child-reported neighborhood resources relative to risks, were associated with higher scores on the child-reported aggression and conduct problems index.

In contrast to the study's hypotheses, self-regulation difficulties and neighborhood context did not interact to predict conduct problems,  $\beta = .02, ns$ . Moreover, neither self-regulation difficulties,  $\beta = .13, ns$ , nor neighborhood context,  $\beta = -.07, ns$ , interacted with child gender. A significant three-way interaction did emerge, however, among self-regulation difficulties, neighborhood context, and child gender,  $\beta = .40, p < .05$ .<sup>1</sup>

The significant three-way interaction of Self-Regulation  $\times$  Neighborhood Context  $\times$  Child Gender was explicated according to the recommendations of Aiken and West (1991) and using Preacher, Curran, and Bauer's (in press) Web-based program for probing significant interactions. Specifically, high and low values of neighborhood context were created using values of one standard deviation above and below the mean. The relation between boys' levels of self-regulation difficulties and aggression and conduct problems was not moderated by neighborhood context. That is, there was a similar relationship between self-regulation and aggression and conduct problems

conduct-disordered behaviors. In contrast, girls with poorer self-regulation who resided in neighborhoods they characterized as having higher resources relative to risks reported engaging in levels of conduct-disordered behaviors more similar to children with better self-regulation. Consistent with ecological systems theory (e.g., Bronfenbrenner & Ceci, 1994), the current findings suggest that disadvantaged neighborhoods may exacerbate the influence of individual risk factors, such as difficulties with self-regulation, for girls. Importantly, the current findings contribute to a growing literature that suggests the importance of considering the ecological context, particularly the neighborhood, in which girls are residing (Brody, Ge, et al., 2003; Ge et al., 2002).

Perceived neighborhood context did not moderate the association between boys' difficulties with self-regulation and aggression and conduct problems. That is, boys with poorer self-regulation engaged in increased levels of conduct-disordered behaviors, regardless of their neighborhood context. Taking into account the literature suggesting that neighborhood context is an important correlate of boys' behaviors (e.g., Kroneman et al., 2004; Silverthorn et al., 2001), one possible explanation for the current findings is that neighborhoods may have a direct influence on boys' conduct-disordered behaviors, rather than a moderating role. Consistent with this hypothesis, perceived neighborhood context had a main effect on boys', as well as girls', conduct-disordered behaviors. In addition, other variables may be more important moderators of the link between boys' self-regulation and conduct-disordered behaviors. For example, boys are more likely to affiliate with deviant peers than are girls, and the opportunity to affiliate with deviant peers is greater in low-income neighborhoods (e.g., Brody et al., 2001). Although beyond the scope of the current study, it will be important for future research with similar samples to examine the moderating role of neighborhood context using measures that do include the association with deviant peers, as well as to examine affiliation with deviant peers, specifically, as a moderator. Finally, it may be that the relatively low level of variability within the types of neighborhoods examined in this study may have been below the threshold necessary to moderate the association between self-regulation and boys' conduct-disordered behaviors (Kroneman et al., 2004). In contrast to girls, the role of neighborhood context may be more evident for boys in studies which examine variations in low-SES versus high-SES neighborhoods (e.g., Lynam et al., 2000).

As with all research, the findings of this study must be interpreted within the context of the limitations. First, the analyses were cross-sectional, limiting inferences that can be drawn about causality. Future studies with larger sample sizes will afford adequate power to examine the obtained three-way interaction longitudinally, as well as to examine higher order interactions including

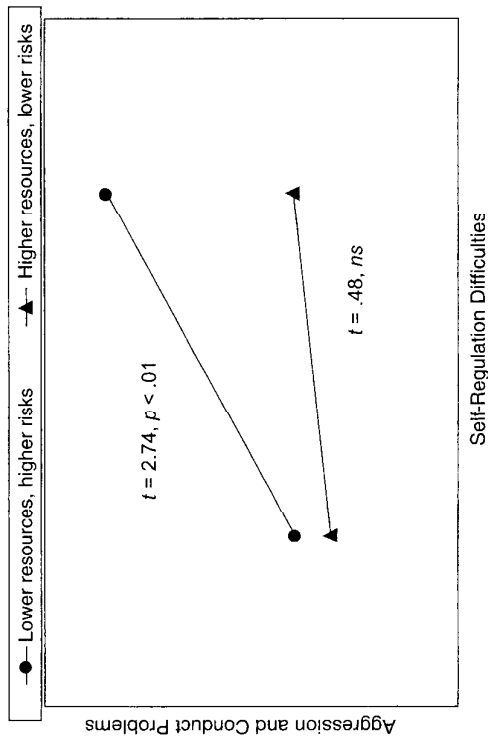


Figure 1: Explication of Three-Way Interaction for Girls

for boys regardless of their neighborhood contexts. As demonstrated in Figure 1, however, neighborhood context moderated the association between self-regulation and aggression and conduct problems for girls. Girls with poorer self-regulation were more likely to evidence aggression and conduct problems, but only in lower resource, higher risk neighborhoods.

## DISCUSSION

Consistent with ecological systems theory (Bronfenbrenner, 1992; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998), this study examined perceived neighborhood context and gender as moderators of the relation between self-regulation and conduct problems among low-income African American children from single-mother homes. Although the expected main effects were obtained for both self-regulation and neighborhood context, these were qualified by the obtained interaction of Self-Regulation  $\times$  Neighborhood Context  $\times$  Child Gender. Girls, but not boys, who displayed poorer self-regulation in the context of neighborhoods they characterized as having fewer resources relative to risks engaged in the highest levels of

rural versus urban status and child age. Related to the aforementioned point, the study included a relatively broad age range of children, but limited power precluded the examination of age as a primary study or moderator variable. Although age was not associated with the outcome of interest and the pattern of findings remained the same when the younger children were excluded, future research with larger samples should examine developmental trends with regard to age as well. Third, this study utilized a nonclinical measure of self-regulation, and, consistent with other community samples, these youth evidenced relatively low levels of conduct problems. Therefore, caution is warranted in generalizing the findings to clinical samples. Fourth, the current study relied on one method of data collection (i.e., interview). Confidence in the obtained findings will be strengthened by future research incorporating multiple methods, including observation of self-regulatory behaviors. Finally, it will be important to replicate and extend the current findings in future research by including an objective indicator of neighborhood SES, such as census data, which was not collected as part of the current study. Despite the aforementioned limitations, this study has several strengths. Notably, African American youth have been the focus of relatively little research in the child and family literatures. Given the statistics suggesting that African American youth from single-mother homes are at heightened risk for problem behaviors (e.g., Ackerman, D'Eramo, Umylny, Schultz, & Izard, 2001; Jenkins & Bell, 1994), studies such as this one that identify the circumstances that exacerbate the risk for problem behaviors among these children are critical for the development and implementation of successful prevention efforts. Additionally, unlike studies that have examined youth adjustment as a function of low-SES versus high-SES neighborhood contexts (Beyers, Loeber, Wikstrom, & Stouthamer-Loeber, 2001; Greenberg et al., 1999; Lynam et al., 2000), the present study investigated variation in perceived neighborhood context within one SES category, that is, low-income African American neighborhoods. As demonstrated by the study's findings, it is inaccurate to assume homogeneity of neighborhoods based solely on SES distinctions. Ignoring such variation within neighborhoods may hinder progression toward a complete understanding of the correlates of and pathways to conduct-disordered behaviors, particularly among girls.

Finally, the current study included both boys and girls, whereas other delinquency-related research has tended to focus on boys (e.g., Beyers et al., 2001; Lynam et al., 2000). In addition, few studies of neighborhood context have included girls or examined the role of child gender (see Greenberg et al., 1999; Simons et al., 1996, for notable exceptions). Importantly, studies that exclude girls may offer limited information to the clinicians treating the growing number of girls engaging in aggressive and delinquent behaviors

(U.S. Department of Justice, 2003). Similarly, studies of low-income African American families that exclude girls may underestimate the role of contextual variables, such as neighborhoods, on youth adjustment.

In summary, this research may be particularly beneficial to child and family psychologists whose research and clinical endeavors focus on underserved African American youth and the risk and protective processes that exacerbate adversity and promote resiliency. The findings of the current study suggest that low-income neighborhoods characterized by lower levels of resources relative to risks may exacerbate African American girls', but not boys', risk for engaging in conduct-disordered behaviors in the presence of self-regulatory difficulties. Although replication is necessary before clinical recommendations can be made, the current findings suggest that attention to neighborhood context may help to identify which African American girls with self-regulation difficulties are at greatest risk for engaging in conduct-disordered behaviors. In addition, the current findings contribute to a growing body of literature that suggests the relevance of studies that examine multilevel prevention and intervention efforts, including neighborhood-based programming (see Salzinger, Feldman, Stockhammer, & Hood, 2002, for a review).

## NOTE

1. The regression analysis was repeated, including only children greater than 10 years old ( $n = 190$ ). The analyses with the reduced sample yielded the same pattern of findings for both main effects and interactions as those reported with the full sample. Analyses are available on request from the second author.

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