BRIEF REPORTS

Social Risk and Protective Factors for African American Children's Academic Achievement and Adjustment During the Transition to Middle School

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The transition to middle school is often marked by decreased academic achievement and increased emotional stress, and African American children exposed to social risk may be especially vulnerable during this transition. To identify mediators and protective factors, the authors related severity and timing of risk exposure to academic achievement and adjustment between 4th and 6th grade in 74 African American children. Longitudinal analyses indicated that severity more than timing of risk exposure was negatively related to all outcomes and that language skills mediated the pathway from risk for most outcomes. Transition to middle school was related to lower math scores and to more externalizing problems when children experienced higher levels of social risk. Language skills and parenting served as protective factors, whereas expectations of racial discrimination was a vulnerability factor. Results imply that promoting parenting and, especially, language skills, and decreasing expectations of racial discrimination provide pathways to academic success for African American children during the transition from elementary to middle school, especially those exposed to adversity.

Keywords: African American youth, academic achievement and adjustment, cumulative social risk, middle school, expectations of racial discrimination

Identifying protective factors in primary school and during the transition to middle school for African American children exposed to social risk is especially important with the current mandate of academic success for all children. African American children, on average, experience more social risk factors (Luster & McAdoo, 1994; McLoyd, 1998), and those children experiencing moderate to high levels of risk are less likely to start school ready to learn and are more likely to fall behind their more advantaged peers in elementary school (Children's Defense Fund, 2001; The College Board, 1999) and especially during the transition to middle school (Barber & Olsen, 2004).

The exposure to social risk is clearly detrimental for children's social and cognitive development and can be overwhelming when exposure is severe (NICHD Early Child Care Research Network, 2005; Sameroff, Seifer, Baldwin, & Baldwin, 1993; Shonkoff & Phillips, 2000). The multiple risk model proposed by Rutter (1979) and Garmezy, Masten, and Tellegen

(1984) focuses on risk indexes that describe the extent of exposure to multiple risk factors. The model recognizes that distal indexes of risk, such as poverty, single parenthood, large households, low parental education, unemployment, and low-income communities and schools, and more proximal measures, such as maternal depression and lack of social support, tend to cluster in the same individual (Masten et al., 1995). The family process model theoretically and empirically links exposure to social risk to elevated psychological stress to harsher less positive parenting to impaired child outcomes (Conger & Elder, 1994; McLoyd, 1998). Transactional theories have linked proximal processes such as parenting to language and cognitive skills, with good empirical support (Snow, Burns, & Griffin, 1998). Accounting for these correlated constraints through multiple or cumulative risk indexes provides better theoretical and empirical models of how exposure to negative distal factors impact children's development than does examining any single individual risk factor or examining them in an additive manner (Sameroff & Mackenzie, 2003). Although many studies formed risk indexes by counting the number of risk factors, the use of risk composites based on continuous risk variables is becoming more common because it retains much more of the information in the individual risk factors and, thereby, increases power for detecting the interactions necessary to identify protective factors (Burchinal, Roberts, Hooper, & Zeisel, 2000; Deater-Deckard, Dodge, Bates, & Pettit, 1998).

The conceptual framework of these transactional models was extended by García Coll et al. (1996) to describe development for

children of color in the United States. They argued that generic developmental models need to represent social stratification derivatives such as racism, prejudice, discrimination, and segregation to contextualize development for children of color with their cultural, economic, and social realities. The impact of social position within the child's neighborhood on child and family characteristics and child outcomes is thought to be through racial discrimination and the associated segregation.

Two different types of factors associated with success among children exposed to risk have been delineated (Gutman, Sameroff, & Cole, 2003). The first type operates differently for children exposed and not exposed to risk. Protective factors are related to better outcomes in a high-risk sample but not in a low-risk sample, whereas vulnerability factors are related to worse outcomes in a high-risk sample, not in a low-risk sample. In contrast, promotive factors are related to better outcomes for all children. These promotive factors can, but do not necessarily, mediate (i.e., account in part for) the anticipated negative pathway from exposure to multiple risk factors and impaired academic trajectories.

We examined three factors implicated by theory and prior research. First, parenting served as a mediator in several studies of cognitive and academic skills of African American children in early childhood (Krishnakumar & Black, 2002; Linver, Brooks-Gunn, & Kohen, 2002) and middle childhood (Burchinal, Roberts, Zeisel, Hennon, & Hooper, 2006) and as a protective factor in middle school and high school (Gutman, Sameroff, & Eccles, 2002; Masten et al., 1999). Second, children's cognitive skills served as both promotive and protective factors for African American adolescents (Gutman et al., 2002; Masten et al., 1999), and language skills mediated and protected academic outcomes in earlier assessments with the analysis sample (Burchinal et al., 2006). Third, experiences of racial discrimination served as a risk factor for many African American children (Fisher, Wallace, & Fenton, 2000; Wong, Eccles, & Sameroff, 2003). The extent to which exposure to adversity could exacerbate the anticipated negative association between expected discrimination and academic outcomes has not been examined.

This study examines pathways within a lifespan framework from the role of exposure to adversity through hypothesized mediators and protective factors to school competence during the transition to middle school for African American children. A variety of academic outcomes was measured because the risk literature suggested that children exposed to risk might function well in one domain and do poorly in other domains (Luthar, 1993). We hypothesized that severity of risk exposure, more than the timing of when the risk exposure occurred, would predict children's academic achievement and adjustment and that two universal process factors, parenting and children's language skills, and a factor specific to children of color, racial discrimination, would serve as both mediators and moderators in the pathway from risk to outcomes.

Method

Participants

The sample of 74 African American children was followed from their 1st year (see Roberts et al., 1995, for details). Originally, 118 infants were recruited from nine local child centers when they were 6–12 months old. The families lost to follow-up had less responsive home environments but did not differ on maternal IQ, education, depression, or their early risk index.

Procedure

Parents were interviewed, teachers completed questionnaires about the study children, and children were assessed annually in the summer following each grade. See Table 1 for a description of the social risk variables, hypothesized mediator/protective factors, and child outcomes in Grades 4–6. Six social risk factors were included: family poverty, single mother, large household size, low maternal education, high maternal depression, and low school quality. Depressive symptoms were assessed with the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) after kindergarten and using the Parental Stress Index in early childhood (Abidin, 1995). School quality was directly measured with the Early Childhood Environment Rating Scale (Harms & Clifford, 1980) in early childhood and was indirectly measured starting in Grade 1 by school poverty (i.e., percentage of students receiving free or reduced-price lunch). After we demonstrated that the risk variables showed high levels of internal consistency before a cumulative risk score for each time point, the cumulative risk scores for each year were averaged to describe exposure to risk during early childhood (1–4 years of age), early elementary school (kindergarten to Grade 3), and concurrently (Grades 4–6; Burchinal, Vernon-Feagans, & Cox, 2007). Despite the changes over time in two risk factors, analyses of the risk variables indicated substantial loadings for all risk variables at all three ages, and the correlations among the risk variables were high ($.75 < r < .97$).

Mediating and protective factors. We assessed the child's language using the Clinical Evaluation of Language Fundamentals—Third Edition (Semel, Wiig, & Secord, 1995) in Grades 2, 4, and 6. We computed a total language score as the mean Clinical Evaluation of Language Fundamentals—Third Edition standard score for receptive and expressive language ($\alpha = .81$). The repeated assessments of the language measures were highly correlated ($.75 < r < .88$). We measured the child's IQ in Grade 2 using the Wechsler Intelligence Scale for Children—Third Edition (Wechsler, 1991) using two subtests, Block Design and Vocabulary. A parenting variable was created as the mean of the scores from modified Home Observation for Measurement of the Environment developed for the National Longitudinal Survey of Youth (HOME; Center for Human Resources Research, 1997) and Child Parent Relationship Scale (CPRS; Pianta & Lothman, 1994). The HOME is a structured interview with the mother ($M = 0.74$, $SD = 0.14$), and CPRS is a questionnaire describing the warmth in the parent–child relationship ($M = 4.28$, $SD = 0.60$). The HOME and CPRS Warmth scores were correlated with each ($r = .39$). Across-time correlations involving the HOME mean from early childhood and the composite parenting scores from kindergarten to Grade 3 and from Grade 4 to Grade 6 ranged from .48 to .72. We measured expectation of discrimination via the Racial Stories Task (Johnson, 2001) in Grade 5. We read four vignettes to the children to assess their expectations for cross-race social situations involving European American teachers, peers, and school administrators. A composite score reflecting the proportion times that the child reported expecting racial discrimination (i.e., a negative outcome occurring for race-related reasons) was created (interrater reliability of items

Table 1

Descriptive Statistics for Risk Variables, Covariates, Hypothesized Protective Factors, and Child Outcomes in Grades 4–6

	Grade 4			Grade 5			Grade 6		
Variable	%	M	SD	%	M	SD	%	M	SD
Risk variables									
Maternal education		13.18	2.07		13.18	2.07		13.32	2.00
Family poverty	50			47			49		
Married parents	37			41			39		
Household size		2.42	1.48		2.43	1.78		2.49	1.82
CESD Maternal Depression		8.34	7.60		9.07	8.50		8.61	9.81
School poverty[a]		0.46	0.25		0.40	0.21		0.49	0.21
Covariates[b]		13.18	2.07		13.18	2.07		13.32	2.00
Gender (% male)	45								
Maternal IQ		86.36	10.00						
Parenting					.01	.89		.01	.79
HOME					.73	.12		.72	.14
Child–Parent Relationship Scale					4.28	.66		4.29	.62
Child language		96.06	12.84					92.45	14.59
Child IQ					90.8	10.8			
Expected discrimination		.54	.37					.48	.35
Child outcomes									
WJ-R[c] Broad Reading		103.15	12.30		102.83	12.62		102.06	12.06
WJ-R[c] Broad Math		105.82	14.88		104.55	15.73		99.80	14.04
SSRS Social Skills		91.93	13.35		92.71	15.11		91.59	13.15
SSRS Externalizing Problems	32			38			46		

Note. CESD = Center for Epidemiologic Studies Depression Scale; HOME = Home Observation for the Measurement of the Environment; WJ-R = Woodcock–Johnson Psycho-Educational Battery—Revised; SSRS = Social Skills Rating Scale.
[a] Proportion of students in the school who receive free or reduced-price lunch.   [b] Maternal IQ and child gender collected during the child's 1st year. Grade 4 language scores were carried forward to Grade 5.   [c] Raush scores used in analyses to reflect acquisition of skills over time, but standard scores are presented descriptively.

ranged from .89 to 1; see Rowley, Burchinal, Roberts, & Zeisel, 2007, for details).

Covariates. The child's gender and maternal IQ were included as covariates in all analyses. As in previous studies with this sample, maternal IQ was included as a partial control for genetic effects and maternal IQ was determined by the Vocabulary and Block Design subtests of the Wechsler Adult Intelligence Scale—Revised (Wechsler, 1955).

Academic and social skills. We measured the child's overall reading and math skills with the Broad Reading and Broad Math cluster scores on the Woodcock–Johnson Psycho-Educational Battery—Revised (Woodcock & Johnson, 1990) annually between Grades 4 and 6. *W* scores are age-equivalent scores with an expected mean of 500 for 5th graders. The child's school adjustment was annually assessed by teachers using the Social Competence (α = .93) and Behavior Problems (α = .91) scales on the Social Skills Rating Scale, for kindergarten to Grade 6 (Gresham & Elliot, 1990). The Behavior Problems scale was highly skewed and was recoded as being in the normal (<115) or at-risk or problematic range ($\geq$115).

Data Analysis

With longitudinal analyses we examined the extent to which developmental trajectories in reading, math, social skills, and behavior problems varied as a function of social risk and whether child or family factors moderated those associations (Bryk & Raudenbush, 2002; Singer & Willett, 2003). To account for dependencies in repeated assessments, we used hierarchical linear models (HLM) to analyze the continuous outcomes and longitudinal logistic regressions to analyze the one categorical outcome using generalized estimating equations (Singer & Willett, 2003). Hypothesized mediated paths were tested (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), and effect sizes were computed (see Gutman et al., 2003, for details).

A series of models was fit. Preliminary models asked whether severity of earlier or concurrent exposure to social risk was more strongly related to academic outcomes during the transition to middle school. Subsequent models included either the risk indices that were significant in this analysis or the concurrent risk index if none was significantly stronger than the others. In the next two models, we added parenting and child characteristics (language, IQ, and expected discrimination) as predictors to examine issues of mediation and moderation in separate models due to the expected causal link between parenting and child characteristics. All models included maternal IQ and gender as covariates to adjust for potential genetic and gender differences and a time-varying indicator of whether the child was in primary or middle school. Age was centered at fifth grade. All predictors were centered at the sample mean and were crossed with age. When interactions with risk were detected, we estimated effect sizes at one standard deviation above and below the mean on the moderator.

Results

First, although we chose to use the continuous risk variables to create our risk variable because it demonstrated better psychometric properties than the cumulative risk count, we computed the

number of risk factors experienced on average during Grades 4–6 to describe the level of risk. Only 27% of the sample experienced low levels of risk during the transition to middle school (i.e., less than one third of the risk factors), with 5 children experiencing no risk factors, and 21 children experiencing only one risk factor. In contrast, 50% of the sample experienced moderate levels of risk (one third to one half of risk factors), with 27 experiencing two risk factors and 10 experiencing three of the six risk factors. About 13% of the sample experienced more than half of the risk factors, with 4 children experiencing four risk factors, 4 experiencing five factors, and 2 experiencing all six factors.

The first set of analyses demonstrated that severity, but not timing, of risk exposure predicted academic outcomes in Grades 4–6 (results not shown in Table 2 or Table 3). In all analyses, the risk variables, covariates, and potential mediators were statistically associated with the intercept in the HLM analysis, but not with the slope. This suggests these predictors were related to the child's level of academic skill and behavior in a similar manner over time. The block of indexes describing risk during early childhood, kindergarten to Grade 3, and Grades 4–6 were significantly negatively related to reading, $F(3.64) = 5.09$, $p < .01$, math, $F(3.64) = 5.45$, $p < .01$, social skills, $F(3.64) = 4.20$, $p < .05$, and externalizing problems, $\chi^2(1, N = 73) = 8.51$, $p < .05$. Concurrent risk provided independent prediction of math skills ($B = -9.23$, $p < .05$), but earlier risk indexes were not significantly related to any outcomes when all three indexes were considered together. Accordingly, the concurrent risk index was used in subsequent analyses.

Table 2 shows the individual growth curve parameter from the unconditional model. Children showed significant individual difference in their overall level (intercept) in reading, math, and social skills and in their change over time (age slope) for reading. Table 3 shows the group growth curve parameter for the three models.. The first model includes concurrent risk and demonstrates that children exposed to more risk factors scored significantly lower across Grades 4–6 on reading ($B = -5.95$, $d = -.44$), math ($B = -5.97$, $d = -.50$), and social studies ($B = -4.75$, $d = -.36$) and were more likely to have behavior problems according to their teachers (odds ratio [OR] = 1.68). Transition to middle school was related to lower math scores ($B = -5.99$, $d = -.50$) and to stronger association between risk and behavior problems. That is, for children with risk scores that were one standard deviation higher, the odds of being rated as in the at-risk range on the SSRS externalizing subscale (Gresham & Elliot, 1990) was 1.68 times larger in

elementary school and 4.14 times larger in middle school. Exposure to risk was not related to change in scores over time for any outcome.

The second model examined parenting as a mediator and protective factor. Parenting emerged as a promotive factor for the intercept in HLM analysis of for social skills ($B = 4.66$, $d = .25$) and behavior problems ($B = -1.19$, OR = .40), and appeared to be a mediator, $t(171) = 2.42$, and protective factor ($B = .67$, $p < .01$) in the association between risk and teacher rating of externalizing problems. Behavior problems were higher when children experienced risk among children whose parenting scores were low (e.g., OR = 2.32) but not among children whose parenting scores were high (e.g., OR = 1.19).

The third model examined three child characteristics—IQ, language, and expected discrimination—as possible mediators and protective factors. Again, these characteristics were related to the intercept, not the slope, in the HLM analyses. IQ did not interact with risk for any outcome, thus the interaction term was dropped from the model. Including these child characteristics reduced the effect sizes of risk severity from $d = -.44$ to $-.23$ for reading, from $d = -.50$ to $-.19$ for math, from $d = -.36$ to $-.24$ for social skills, and from OR = 1.68 to 1.19 for behavior problems. IQ was neither a statistically significant mediator nor a protective factor in these analyses that included language, although it was a significant promotive factor of both reading ($B = 0.23$, $d = .19$) and math ($B = 0.31$, $d = .28$). Language skill was a promotive factor for reading ($B = 0.28$, $d = .32$), math ($B = 0.33$, $d = .39$), and social skills ($B = 0.22$, $d = .21$) and significantly mediated the association between risk severity and both reading, $t(66) = 2.61$, $p < .01$, and social skills, $t(55) = 2.07$, $p < .05$. Language skills also served as a protective factor for both reading and math skills. Risk severity was a nonsignificnat predictor of reading ($d = -.08$) and math skills ($d = -.04$) when language skills were strong but was a much stronger negative predictor of both reading ($d = -.34$, $p < .01$) and math ($d = -.33$, $p < .01$) when language skills were weak. Low expectations of discrimination was a significant promotive factor for reading ($B = -6.62$, $d = .18$) and behavior problems ($B = 1.78$, OR = 1.93). In addition, expected discrimination served as a significant vulnerability factor for math and behavior problems. Risk severity was not significantly related to math skills ($d = -.13$), social skills ($d = .01$), or behavior problems (OR = 1.0) among children with low expectations of discrimination but was a strong predictor of math skills ($d = -.36$), social skills ($d = -.49$),

Table 2
Longitudinal Analyses of Academic Outcomes: Coefficients From Individual Growth Curves

	Hierarchical linear models (HLMs)			Longitudinal logistic regression: SSRS Externalizing Problems
	WJ-R Reading	WJ-R Math	SSRS Social Skills	
Individual growth curve	$B\ (\sigma^2)^\alpha$	$B\ (\sigma^2)^\alpha$	$B\ (\sigma^2)^\alpha$	$B\ (SE)$
Intercept	**503.5 (120.4***)**	**506.5 (110.1***)**	**92.07 (106.8***)**	−.57 (.22)
Age slope	**6.41*** (4.23*)**	**8.20*** (2.42)**	1.41 (1.25)	.22 (.17)

Note. Statistically significant parameter estimates are in boldface. WJ-R = Woodcock–Johnson Psycho-Educational Battery—Revised; SSRS = Social Skills Rating Scale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Longitudinal Analyses of Academic Outcomes: Coefficients From Group Growth Curve Describing Academic Trajectories as a Function of Risk and School, Peer, and Child Characteristics

	Hierarchical linear models (HLMs)			Longitudinal logistic regression: SSRS Externalizing Problems
	WJ-R Reading	WJ-R Math	SSRS Social Skills	
Predictor	B (SE)	B (SE)	B (SE)	B (SE)
	Model 1: Concurrent risk			
Predicting intercept				
Middle school	−1.28 (1.02)	**−5.99 (1.12)*****	−1.99 (2.30)	−.44 (.37)
Risk × Middle School	.66 (1.02)	−1.86 (1.10)	−2.89 (2.40)	**.99 (.44)***
Mean IQ	.20 (.16)	.13 (.16)	−.08 (.17)	−.00 (.03)
Male	**−8.37 (2.63)****	−3.25 (2.53)	4.23 (2.75)	.25 (.43)
Predicting slope				
Mean IQ	.01 (.05)	.01 (.05)	.15 (.09)	−.00 (.02)
Male	.09 (.80)	**−2.167 (.80)****	−2.56 (1.58)	.27 (.27)
	Model 2: Parenting[a]			
Predicting intercept				
Risk: Grades 4–6	−3.69 (1.92)	**−4.76 (1.87)***	−3.02 (2.05)	.33 (.34)
Parenting: Grades 4–6	3.56 (2.15)	2.00 (2.11)	**4.66 (2.27)***	**−1.19 (.41)****
Risk × Parenting	2.69 (1.83)	1.21 (1.59)	−1.87 (1.92)	**.67 (.24)****
	Model 3: Child characteristics[a]			
Predicting intercept				
Risk: Grades 4–6	**−2.93 (1.30)***	−2.23 (1.10)	−3.18 (1.76)	.64 (.32)
Language: Grades 4–6	**.28 (.07)*****	**.33 (.06)*****	**.22 (.11)***	−.04 (.02)
Risk × Language	**.12 (.05)***	**.12 (.05)***	−.05 (.08)	−.03 (.01)
IQ[b]	**.23 (.08)****	**.31 (.07)*****	.17 (.12)	−.01 (.02)
Expected discrimination	**−6.62 (3.07)***	−3.75 (2.58)	−3.73 (4.03)	**1.78 (.83)***
Risk × Discrimination	−.79 (3.24)	**−5.69 (2.72)***	**−8.86 (4.22)***	**1.71 (.75)***

Note. Statistically significant parameter estimates are in boldface. WJ-R = Woodcock–Johnson Psycho-Educational Battery—Revised; SSRS = Social Skills Rating Scale.
[a] All terms in Model 1 were retained including middle school, Risk × Middle School, gender, and maternal IQ as predictors of intercept and slope. Model 2 also included parenting and Risk × Parenting as predictors of the slope, but neither contributed significantly and so were not included in this table. Model 3 included Language Risk × Language, child IQ, expected discrimination, and Risk × Discrimination as predictors of slope, but, again, none contributed significantly and so they were not entered into this table.   [b] The interaction between IQ and risk was nonsignificant in all models and was dropped to enhance power to detect other interactions.
* $p < .05$.   ** $p < .01$.   *** $p < .001$.

and behavior problems (OR = 3.56) when children had high expectations of discrimination.

Discussion

The results of this study identified characteristics of the family and child that appeared to serve as mediators and protective or vulnerability factors for academic outcomes between Grades 4 and 6 among African American children exposed to social risk factors. There were three major findings. First, although severity of exposure to multiple social risks was related to lower reading, math, social skills, and more problem behaviors between Grades 4 and 6, no consistent evidence emerged relating timing of risk exposure to these outcomes. Second, several mediating and protective/vulnerability factors were identified. Children's concurrent language skills served as a promotive factor, mediating the negative association between risk and children's reading, math, and social skills. It also served as a protective factor for academic achievement. Parenting was a promotive factor for academic adjustment and was a mediator and protective factor for the pathway from risk to children's behavior problems. In contrast, expecting racial dis-

crimination was a vulnerability factor for children's math, social skills, and externalizing problems. Third, the transition from elementary to middle school was related to lower math scores and increased association between exposure to risk and externalizing problems.

The association between the extent of exposure to social risk factors and impaired child development is one of the most consistent findings in child development (Sameroff & Fiese, 2000). In this study, African American children who experienced more social risk demonstrated lower reading and math skills on standardized tests, fewer prosocial skills, and more problem behaviors as rated by their elementary and middle school teachers, even after adjusting for maternal IQ and children's gender. Although severity of risk exposure was clearly related to all outcomes, no consistent evidence emerged indicating that the timing of risk exposure predicted academic outcomes between Grades 4 and 6. Because families who experience high levels of risk are much more likely to experience social risk consistently over time (NICHD Early Child Care Research Network, 2005; Sameroff et al., 1993), it is likely that the impact of timing on academic outcomes may be less

relevant than severity of exposure in other studies as it was in this study.

In recent years, researchers have moved beyond documenting the impact of risk severity to identifying processes through which risk affects academic outcomes and factors that may protect African American children from the negative effects of exposure to multiple social risks. Results from this study replicate and extend findings from previous studies. Although both IQ and language skills were promotive factors, only language skills was a mediator and protective factor. Results suggest a pathway from risk exposure to impaired language skills to lower academic outcomes in middle childhood. In addition, language skills provided protection from the negative effects of risk exposure on the acquisition of reading and math skills. These findings indicate that language skills not only provide the underpinning for acquisition of academic and behavior skills for all children, but they also apparently account, in part, for why children exposed to social risk are more likely to struggle academically. Further, as a protective factor and mediator, language skills appear to be especially important in the prevention of school failure when African American children are exposed to many social risks. These findings provide further evidence (Snow, Burns, & Griffin, 1998) that a focus on teaching language skills, not just reading skills, in preschool through middle school may help protect vulnerable children from academic failure.

As suggested by the integrative model (García Coll et al., 1996), expectations of discrimination appeared to exacerbate the negative association between exposure to risk and academic outcomes. As hypothesized under the model, the pathway from risk to math, social skills, and externalizing problems was significant only when children also reported anticipating discrimination in their interactions with teachers and students at school. These results underscored results of other studies showing that discrimination was negatively related to well-being for African American children (e.g., Wong et al., 2003), even when measured indirectly as expectations as in this study instead of directly as reports of discrimination. In another study (Rowley et al., 2007) using this sample, believing that others view African Americans positively appeared to reduce expectations of discrimination in Grades 3–5 in this sample, but further research is needed to determine how to prevent or reduce expectations of discrimination of African American children exposed to social risk.

The final factor, parenting, showed evidence of promoting positive outcomes but was not a consistent mediator or protective factor. Previous studies with this sample (Burchinal et al., 2006) and others (Gutman et al., 2002; Masten et al., 1999) demonstrated that parenting is an important mediator and protective factor when one considers the negative impact of risk on academic achievement and adjustment for African American children. The discrepancy between those findings and the results from this study likely reflects the finding that the association between parenting and academic outcomes markedly declines after early elementary school (Bradley, Corwyn, Burchinal, McAdoo, & García Coll, 2001) and researchers' limited power to detect modest interactions.

Several limitations and strengths need to be considered. First, the sample size was small to moderate, and therefore power to detect interactions is limited (Cohen, 1988). Second, the sample is a sample of convenience that, on average, experienced moderate, not high levels of risk. Attrition analyses indicate that we disproportionately lost the neediest and most disadvantaged African American children. Third, as in any study, it is especially important to replicate findings—especially those involving interactions—because they are particularly vulnerable to being specific to a given sample. Fourth, as an observational study, it is not possible to know whether the obtained pathways represent causal links or even the appropriate direction of effects, especially given the high across-time stability in risk, parenting, and language skills. The strengths include multiple measurement methods (i.e., direct assessments of the academic and language skills, teacher report of the target child's adjustment, and child report of discrimination) and extensive psychometric analyses of each measure in each domain to optimize researchers' ability to detect mediation and moderation. Each of these limiting factors should decrease researchers' ability to detect mediator and, especially, protective factors. That we found consistent evidence of mediation and protection with reduced power suggests that our use of multiple types of measures and our focus on psychometrics may have offset these limitations or that the observed associations may, in fact, be stronger in the population than in our sample.

In conclusion, identification of mediating and protective factors in the association between exposure to social risk and academic trajectories indicates that risk exposure has its impact on child outcomes through multiple pathways through parenting, children's language skills, and children's expectations of discrimination. These results provide further evidence that, beginning in early childhood and continuing into elementary and middle schools, African American children need involved supportive parents and experiences that focus on teaching children language skills and decreasing children's perceptions of discrimination to ensure that African American children, especially children exposed to higher levels of social risk, succeed in school.

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