

PARENT INVOLVEMENT IN EDUCATION AS A MODERATOR OF FAMILY AND NEIGHBORHOOD SOCIOECONOMIC CONTEXT ON SCHOOL READINESS AMONG YOUNG CHILDREN

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Limited socioeconomic family and neighborhood resources are known to influence multiple aspects of school readiness skills. Early parent involvement in education is hypothesized to attenuate risk for academic underachievement related to socioeconomic disadvantage. The current study used multilevel modeling to test whether parent involvement moderates the effects of family and neighborhood level socioeconomic resources on school readiness among a sample of 171 urban 4-year-olds. Parent involvement moderated the effect of family and neighborhood socioeconomic resources on the social-emotional-behavioral components of school readiness. Increased parent involvement in education was related to lower rates of behavior problems among children of single parents and among children from neighborhoods with higher levels of childcare burden. In contrast, parent involvement did not moderate the relation between socioeconomic risk and cognitive-academic components of school readiness skills. © 2012 Wiley Periodicals, Inc.

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A substantial body of research has documented lower academic achievement among low-income children relative to more affluent children (e.g., Gershoff, Aber, Raver, & Lennon, 2007). Lower levels of school readiness among low-income preschoolers have been hypothesized to contribute to this disparity (Entwisle, Alexander, & Olson, 2005). Like academic achievement among older children, school readiness skills in young children have been linked to both family and neighborhood socioeconomic resources (e.g., Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998).

While the exact definition of school readiness varies across studies of academic functioning (Lemelin et al., 2007), the term generally refers to the ability to respond adequately to the demands of a school setting (Carlton & Winsler, 1999). Most current definitions include cognitive-academic skills, such as preliteracy and prenumeracy, and social-emotional-behavioral skills, such as regulating emotions and engaging in prosocial behavior (Duncan et al., 2007; Denham 2006; Ladd et al., 2006; Lemelin et al., 2007). Cognitive-academic and social-emotional-behavioral aspects of school readiness skills in preschool and kindergarten-aged children have been linked to both increased attention to academic tasks and improved academic achievement in later grades (Duncan et al., 2007; Fantuzzo et al., 2007; La Paro & Pianta, 2000; Lemelin et al., 2007; Reynolds, Ou, & Topitzes, 2004; Reynolds & Temple, 1998; Sénéchal & LeFevre, 2002; Ursache, Blair, & Raver, 2011).

Socioeconomic context measured at both the family level and the neighborhood level has been associated with school readiness skills in young children (Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998). At the family level, parental education, family income and residing in a two-parent household are positively associated with school readiness skills (Connell & Prinz, 2002; Farver, Xu, Eppe, & Lonigan, 2006; Gershoff et al., 2007; Janus & Duku, 2007; Sénéchal, LeFevre, Hudson, & Lawson, 1996; Umek, Kranjc, Fekonja, & Bajc, 2008; Yeung, Linver, & Brooks-Gunn, 2002). At the neighborhood level, concentrated affluence, defined as the proportion of residents with high incomes, college degrees, and professional occupations, is associated with higher school readiness, whereas poverty rates and the proportion of single parent families is associated with lower school readiness (Chase-Lansdale & Gordon, 1996; Duncan, Brooks-Gunn, & Klebanov, 1994; Kershaw, Forer, Irwin, Hertzman, & Lapointe, 2007; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998; Lapointe, Ford, & Zumbo, 2007; Lesaux, Vukovic, Hertzman, & Siegel, 2007). Neighborhood affluence in particular has been found to contribute to both cognitive and behavioral aspects of school readiness (Carpiano, Lloyd, & Hertzman, 2009; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998; Kohen, Brooks-Gunn, Leventhal, & Hertzman, 2002).

The findings for both family-level and neighborhood-level socioeconomic context indicate the importance of socioeconomic resources to the development of school readiness skills. However, family protective factors may partially offset the negative effects of poverty on child outcomes (Burton & Jarrett, 2000; Kershaw et al., 2007). Promoting parent behaviors that have the potential to increase school readiness skills, such as reading to children and maintaining frequent contact with teachers, have been proposed as one strategy to reduce disparities in school readiness experienced by low-income children (Sénéchal & LeFevre, 2002; Farver et al., 2006; Yeung et al., 2002).

Parental behavior does appear to attenuate the relationship between family-level socioeconomic factors and school readiness (e.g., Yeung et al., 2002). When parents regularly engage young children with cognitively stimulating materials and activities, the effects of family income and material hardship on cognitive skills are reduced.

Similarly, when parents engage in positive parenting practices such as expressing affection, praising positive behaviors, and providing an appropriate degree of instruction and structure, the effects of family income on social-emotional and behavioral competencies are reduced (Connell & Prinz, 2002; Gershoff et al., 2007; Raver, Gershoff, & Aber, 2007; Yeung et al., 2002). Although there has been little research to assess whether parent involvement attenuates the relationship between neighborhood-level socioeconomic factors, one study measuring the effects of neighborhood-level economic deprivation on cognitive and behavioral outcomes among Head Start students failed to identify a clear pattern of association between parent behavior and neighborhood-level deprivation and school readiness (Vaden-Kiernan et al., 2010).

This study investigates whether parent involvement in education moderates the relationship between family and neighborhood socioeconomic resources and school readiness. It was hypothesized that both family-level and neighborhood-level socioeconomic resources would be positively related to cognitive-academic and social-emotional-behavioral aspects of school readiness, and that parent involvement would moderate this relationship such that the negative relationship between socioeconomic deprivation and school readiness would be reduced at high levels of parent involvement.

METHODS

Procedures

Data were drawn from the baseline assessment of a cluster randomized controlled trial of ParentCorps, a preventive intervention designed to decrease behavior problems and increase social and academic competence for low-income children attending eight pre-kindergarten programs in public elementary schools in lower and middle-income urban neighborhoods (Brotman et al., 2011). All families of children enrolled in the pre-k classes were eligible for the study if they had a primary caregiver who spoke English. Parent interviews, teacher reports on child behavior and parent involvement in education, and individually administered tests of school readiness were conducted in the fall of pre-k.

Participants

A total of 554 children were enrolled in pre-k in the eight study schools during the study period; 410 (74%) children were eligible to participate and 171 families consented to participate in the study, resulting in an overall participation rate of 42%. Study children were an average of 4.14 years old ($SD = .33$ years) and 56% were girls. Thirty-nine percent of children were Black (19% African American, 20% AfroCaribbean), 24% were Latino, 13% were White, 12% were Asian, and 12% were of mixed race/ethnicity.

Thirty-two percent resided in single-parent families. The mean age of primary caregivers was 33.8 years ($SD = 7.6$ years) and 56% of primary caregivers had less than a high school education. Over half (55%) the children resided in low-income families. The majority of primary caregivers were mothers (88%); 11% were fathers and 1% were maternal grandmothers. More than half (53%) of primary caregivers were born outside the United States. Eight percent of families lived in census tracts characterized by concentrated poverty (40% or more of the population lived below the poverty line) and 66%

of families lived in census tracts where 40% or more of the population made less than a living wage (annual income less than 200% of the poverty line).

Measures

Neighborhood socioeconomic resources. Participating families' addresses were geocoded into 63 census tracts ranging from 1 to 13 participant families within a particular census tract and a mean of 2.7 families per census tract. Three measures of neighborhood resources were included: concentrated affluence, professional occupation, and childcare burden. Concentrated affluence was measured by the percentage of households with annual incomes above \$75,000 and ranged from 2% to 45% for individual census tracts of study families. The percent of individuals that were employed in a professional occupation ranged from 12% to 52%. Finally, childcare burden was calculated by combining the child to adult ratio, adult male to adult female ratio, and percent of elderly persons in the neighborhood (Coulton, Korbin, & Su, 1999). High levels of childcare burden are considered to result in a lack of interpersonal resources to devote to the supervision and nurturance of children.

Family socioeconomic resources. Parents reported on family demographics including child gender, race/ethnicity, marital status, family income, and primary caregiver educational achievement. Three indicators of family resources were included: marital status, parent educational attainment (i.e., more than a high school diploma), and income. Families were rated as low-income if the primary caregiver reported at least one of the following: (a) family income of less than \$15,000, (b) receiving means-tested government aid such as food stamps, or (c) living in subsidized housing.

Parent involvement in education. Teachers completed a modified version of the Involvement Questionnaire (INVOLVE-T; Webster-Stratton, Reid, & Hammond, 2001). The 13-item scale combined teacher ratings of parent involvement in education (six items) and parent involvement with their child's school/teacher (seven items), based on teacher perceptions of parent involvement during the past 2 months. The scales were combined ($r = .44$). Internal consistency for the composite was $\alpha = .84$.

School readiness: cognitive-academic skills. The cognitive-academic dimension of school readiness was evaluated with the Developmental Indicators for the Assessment of Learning-3 (Speed DIAL-3; Mardell-Czudnowski & Goldenberg, 1998). The Speed DIAL-3 is a standardized test that yields a total score based on three domains: motor, language and conceptual skills related to school readiness. The Speed DIAL was administered by trained study personnel in the school setting. The Speed DIAL has adequate test-retest reliability for children entering pre-k ($r > .70$; Mardell-Czudnowski & Goldenberg, 1998).

School readiness: social-emotional-behavioral skills. This dimension of school readiness was evaluated with the adaptive skills and externalizing behavior scales of a standardized measure, the Behavior Assessment System for Children-Preschool Version (BASC-2; Reynolds & Kamphaus, 2004). The adaptive scale measures prosocial behaviors (e.g., adaptability, social skills) and the externalizing problems scale measures problem behaviors (e.g., aggression, disruptive behaviors, hyperactivity). Pre-k teachers rated how often the child had engaged in each behavior during the past 4 weeks on a 4-point scale, ranging from 0

(*never*) to 3 (*almost always*). Internal consistency was high (adaptive: $\alpha = .90$; externalizing: $\alpha = .92$).

Analyses

Multivariate mixed effects models, using the SAS PROC MIXED procedure (SAS 9.1.3, Cary, NC) were used to account for the nested nature of the data. Family data were nested within neighborhood census tracts and schools. To understand the contribution of family and neighborhood economic resources on school readiness, two sets of multivariate analyses were conducted (one set included family economic resources only, and the other set included both family and neighborhood economic resources). We compared R^2 derived from these two sets of analyses. Analyses were conducted separately for three school readiness outcomes (DIAL score, adaptive, externalizing).

To study parent involvement as a moderator of the link between socioeconomic resources and school readiness, again, two sets of moderation analyses were conducted to examine family and neighborhood resources separately. In each set of moderation analyses, the model included family or neighborhood socioeconomic resources, parent involvement, and three interaction terms (parent involvement and each socioeconomic indicator). Again, analyses were conducted separately for each of the three child outcomes.

RESULTS

Table 1 presents descriptive statistics and zero-order correlations among the study variables.

Relationships Between Family and Neighborhood Socioeconomic Resources and Child School Readiness

Table 2 shows the association between family and neighborhood socioeconomic resources and school readiness. At the family level, parental education was positively associated with DIAL scores. At the neighborhood level, neighborhood childcare burden was associated with lower scores on BASC adaptive skills scores. R^2 results indicated that family level socioeconomic resources accounted for 1% to 7% of the variance associated with each of the school readiness measures, representing small to medium effects. The combination of family and neighborhood level socioeconomic resources accounted for 6% to 12% of the variance, representing medium to large effects (Cohen, 1977).

Interaction of Family and Neighborhood Socioeconomic Resources With Parent Involvement

Table 3 reports the interactions between parent involvement and socioeconomic resources. Parent involvement did not moderate the relation between family socioeconomic resources and DIAL scores or BASC adaptive skills, but it was a significant moderator for BASC externalizing problems (see Table 3 Model 1). As shown in Figure 1, consistent with the hypothesis, children from single-parent families whose parents exhibited high levels of school involvement engaged in lower levels of externalizing behaviors compared to children with less involved single parents. Surprisingly, the opposite pattern occurred for

Table 1. Descriptive Results and Correlations for Study Variables

	Mean (SD)/ or %	1	2	3	4	5	6	7	8	9
Family factors										
1. Single parent	32.5%	1.00								
2. Education (1 = > HS)	44.0%	-.15	1.00							
3. Low income	54.8%	.22**	-.20*	1.00						
Neighborhood factors										
4. Childcare burden	1.31 (.19)	.34***	-.18*	.27***	1.00					
5. % Professionals	30.87 (9.53)	-.18*	.13	-.40***	-.67***	1.00				
6. % Households >75K	17.46 (9.19)	-.10	.13	-.33***	-.56***	.75***	1.00			
Parent involvement										
7. School & education INV	3.01 (.78)	-.33***	.19*	-.09	-.22**	.13	.02	1.00		
School readiness										
8. DIAL	18.47 (6.49)	-.02	.19*	-.18*	.01	.07	.10	.18*	1.00	
9. Adaptive skills	27.86 (8.63)	-.14	.15	-.15	-.29***	.16*	.17*	.33***	.34***	1.00
10. Externalizing	7.46 (7.91)	.05	-.09	.08	.09	.05	-.07	.05	.05	-.34***

Note. SD = standard deviation; HS = high school; INV = involvement.
*p < .05. **p < .01. ***p < .001.

Table 2. Relationships Among Family and Neighborhood Socioeconomic Resources and Child School Readiness

	DIAL		Adaptive skills		Externalizing	
	B(SE)	p	B(SE)	p	B(SE)	p
Family factors						
Single parent	.47 (1.26)	.71	.64 (1.60)	.69	-.05 (1.52)	.97
Education (1 = > HS)	2.65 (1.15)	.02	2.08 (1.42)	.15	-.86 (1.37)	.53
Low income	-1.66 (1.21)	.17	-1.72 (1.50)	.25	1.27 (1.42)	.37
Neighborhood factors						
Childcare burden	5.25 (3.88)	.18	-13.73 (4.83)	.01	6.17 (5.27)	.24
% Professionals	.05 (.10)	.61	-.10 (.12)	.39	.24 (.13)	.06
% Income ≥ 75K	.04 (.09)	.66	.04 (.11)	.74	-.15 (.11)	.20
R² family	.07		.05		.01	
R² total	.08		.12		.06	

Note. SE = standard error. The results shown in the table were based on analyses that included family and neighborhood factors simultaneously. R² family is amount of variability explained by three family factors; R² total is based on all six family and neighborhood factors.

Table 3. Moderation Effect of Parent Involvement in the Association between Family and Neighborhood Socioeconomic Resources and Child School Readiness

	DIAL		Adaptive skills		Externalizing	
	B(SE)	p	B(SE)	p	B(SE)	p
Model 1: Interaction of involvement (INV) and family factors						
Intercept	19.03 (.67)	<.001	27.88 (.84)	<.001	7.18 (.92)	<.001
Single parent	1.08 (1.35)	.42	1.37 (1.70)	.42	-.20 (1.61)	.90
Education (1 = > HS)	1.60 (1.24)	.20	1.83 (1.48)	.22	-1.03 (1.42)	.47
Low income	-1.78 (1.21)	.15	-2.32 (1.48)	.12	.86 (1.41)	.54
Involvement (INV)	1.38 (.91)	.14	3.59 (1.12)	.002	-.65 (1.04)	.53
Single * INV	-1.20 (1.92)	.53	.81 (2.42)	.74	-6.63 (2.28)	.005
Education * INV	-1.54 (1.79)	.39	.85 (1.98)	.67	-1.13 (1.87)	.55
Poverty * INV	-.44 (1.78)	.81	-.60 (2.10)	.78	2.75 (2.01)	.17
Model 2: Interaction of INV and neighborhood factors						
Intercept	18.99 (.64)	<.001	28.25 (.78)	<.001	7.59 (.89)	<.001
Childcare burden (CCB)	5.06 (4.13)	.22	-11.67 (5.08)	.02	6.13 (5.70)	.29
% Professionals	.08 (.10)	.41	-.10 (.12)	.42	.22 (.13)	.10
% income ≥ 75K	.03 (.09)	.75	.04 (.11)	.73	-.11 (.12)	.35
Involvement (INV)	1.57 (.83)	.06	3.29 (.99)	.001	.31 (.97)	.75
CCB * INV	-8.71 (5.62)	.13	.87 (6.91)	.90	-13.64 (6.85)	.05
% Professionals * INV	-.13 (.12)	.28	-.23 (.14)	.10	.03 (.14)	.83
Income75K*INV	-.03 (.10)	.80	.26 (.12)	.03	-.20 (.12)	.08

Note. SE = standard error. Analyses for Model 2 controlled for the three family socioeconomic factors (estimates for these three variables are not shown).

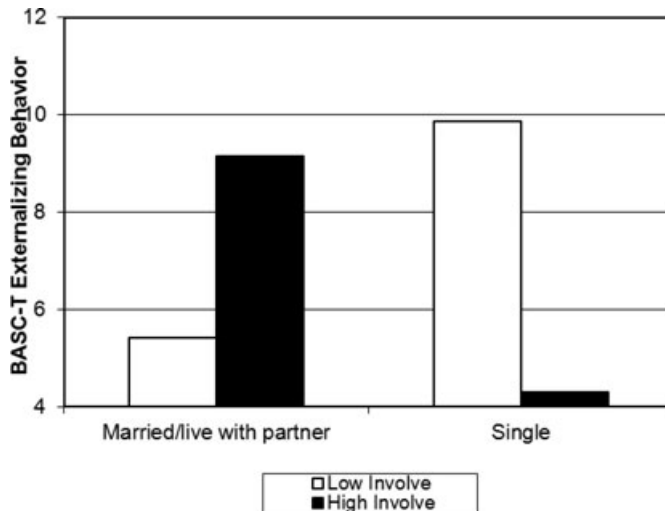


Figure 1. Involvement by parent marital status on child externalizing problems.

dual-parent families; children with highly involved parents engaged in more externalizing behaviors than those with less involved parents.

In examining neighborhood-level socioeconomic resources (Table 3 Model 2 results), we found parent involvement did not moderate the association between neighborhood socioeconomic resources and DIAL scores, but it was a significant moderator for BASC adaptive skills and externalizing problems. As showed in Figure 2, children who lived in

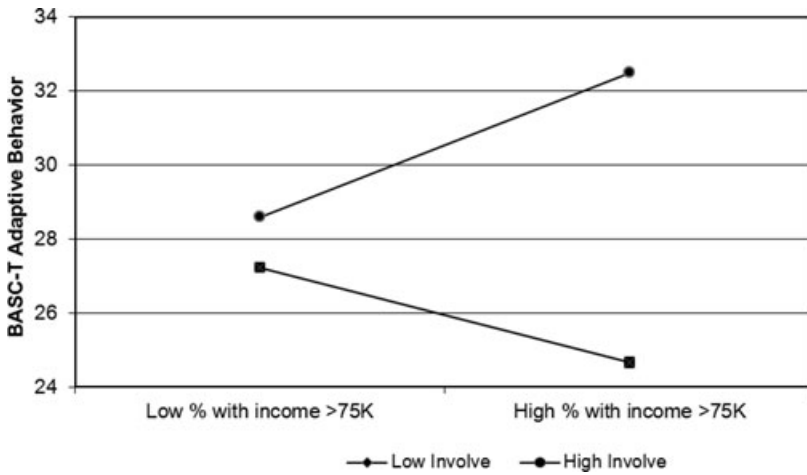


Figure 2. Involvement by level of neighborhood income on child adaptive skills.

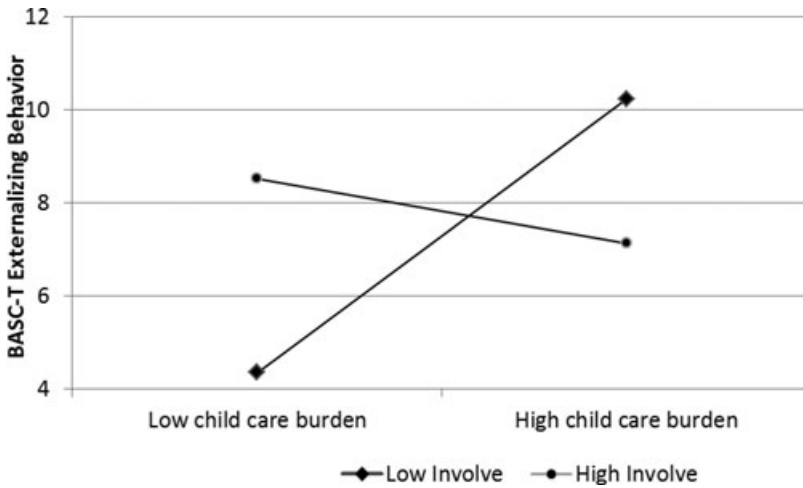


Figure 3. Involvement by level of neighborhood childcare burden on child externalizing problems.

neighborhoods with a higher percentage of residents with incomes above \$75,000 and had more involved parents had higher scores on adaptive behaviors. Children who lived in neighborhoods with higher levels of childcare burden and had less involved parents engaged in more externalizing behaviors (Figure 3). Unexpectedly, children who lived in neighborhoods with lower levels of childcare burden children and had less involved parents engaged in the least externalizing behaviors.

DISCUSSION

This study examined parent involvement as a moderator of the association between socioeconomic resources and school readiness. Family-level and neighborhood-level socioeconomic resources were directly associated with school readiness and parent involvement

did moderate some of the relationships between socioeconomic resources and social-emotional-behavioral dimensions of school readiness.

Parent involvement in school moderated the relationship between family structure and neighborhood childcare burden on externalizing behavior. For single-parent families and for those living in neighborhoods with higher childcare burden, higher levels of parent involvement were associated with lower levels of externalizing behaviors. These results suggest that in resource-deprived settings such as single parent families and neighborhoods with high levels of childcare burden parental involvement acts as a protective factor. Counterintuitively, in dual-parent families and neighborhoods with lower levels of childcare burden, higher levels of parent involvement in school were associated with increased externalizing behavior. In more resource rich settings, high levels of parent involvement may be the result of parents and teachers attempting to address preschoolers' problem behavior.

Parent involvement in school also moderated the relationship between neighborhood socioeconomic resources and adaptive skills. Higher levels of parent involvement were associated with increased adaptive behavior in children. This relationship was stronger in neighborhoods with higher levels of concentrated affluence, suggesting a synergistic effect of parent involvement and neighborhood affluence.

It appears that parent involvement in school and socioeconomic context interact in complex ways with differential effects depending on whether children are living in resource rich versus resource-deprived conditions. While parental involvement is associated with decreased child externalizing behaviors in resource-deprived contexts, its effects on adaptive skills are stronger in resource-rich contexts. Addressing resource deprivation at family, school and community levels and helping parents develop effective child management strategies may be more effective than interventions that focus primarily on promoting parent engagement with their child's school and teachers, particularly if parental distress related to economic hardship discourages positive parenting practices that have been shown to be associated with higher levels of school readiness (McLoyd, 1990). Parental distress is more likely to be relieved by the provision of needed resources and the development of effective child management practices that decrease child misbehavior than increased expectations for parent interaction at school (Kaminski, Valle, Filene, & Boyle, 2008; Mistry, Vandewater, Huston, & McLoyd, 2002; Plant & Sanders, 2007).

As expected, the results of the current study supported previous research (e.g., Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998) in finding that children who lived in families and neighborhoods with fewer resources demonstrated lower school readiness skills as rated by their teachers. The current study extends our understanding of the effects of neighborhood social and economic conditions on young children's social development by establishing a link between neighborhood childcare burden and poorer adaptive skills in school. After controlling for the effects of family socioeconomic status and family structure, preschoolers living in neighborhoods with higher levels of childcare burden display less adaptive behavior in school settings than children in neighborhoods with more adult resources. Future research should investigate how urban adults provide resources to families and children in their neighborhoods (Kershaw et al., 2007; Kohen et al., 2002; Lapointe et al., 2007).

The current study has several limitations. The study is a cross-sectional examination of school readiness in the fall of pre-k. The ability of parent involvement in school to attenuate socioeconomic deprivation may increase over time as children progress through the school system (Gutman & Eccles, 1999; Reynolds et al., 2004). The study also used teacher

ratings as the sole measure of parent involvement. Future studies should include additional measures of parent involvement such as parent ratings and direct observation of parent-child interactions to gain a fuller understanding of how parent behaviors interact with socioeconomic resources. In addition, the sample size did not allow for comparisons of children of different racial/ethnic groups or comparisons based on immigration status. Research has indicated that both race/ethnicity and immigration status have implications for the relationships between economic deprivation, parent behavior, and school readiness (Fuller et al., 2009; Hill, 2001; Palacios, Guttmannova, & Chase-Lansdale, 2008).

The current study contributes to the understanding of the interaction between parent behaviors and neighborhood context on child development. While parent involvement did moderate the relationship between high levels of neighborhood childcare burden and externalizing behavior in expected ways, the relationship between parent involvement and children's adaptive behavior was stronger for children in high-income neighborhoods compared with low-income neighborhoods. Parent involvement did not moderate the relationship between neighborhood context and cognitive aspects of school readiness. This suggests involvement in education may not be sufficient to attenuate neighborhood risk on school readiness among preschoolers in deprived neighborhoods. Future research should examine what types of school readiness interventions are likely to be effective in resource deprived neighborhoods.

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