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Mothers' Parenting and Child Sex Differences in Behavior Problems among African American Preschoolers

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Abstract

Sex differences in rates of behavior problems, including internalizing and externalizing problems, begin to emerge during early childhood. These sex differences may occur because mothers parent their sons and daughters differently, or because the impact of parenting on behavior problems is different for boys and girls. This study examines whether associations between observations of mothers' positive and negative parenting and children's externalizing and internalizing behaviors vary as a function of child sex. The sample consists of 137 African American, low-income families with one sibling approximately two-years-old and the closest aged older sibling who is approximately four-years-old. Results from fixed-effects within-family models indicate clear sex differences regardless of child age. Mothers were observed to use less positive parenting with sons than with daughters. Higher levels of observed negative parenting were linked to more externalizing behaviors for boys, while lower levels of positive parenting were linked to more externalizing behaviors for girls. No child sex differences emerged regarding associations between observed positive and negative parenting and internalizing behaviors.

Keywords

behavior problems; parenting; sex differences; early childhood; African American families

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Externalizing and internalizing behavior problems emerge during early childhood and persist throughout childhood and adolescence (Angold & Egger, 2007; Campbell et al., 2000). Early behavior problems develop first within the context of family interactions. Harsh (i.e., intrusive and hostile) and insensitive (i.e., lack of positively engaged) parenting has consistently been linked to elevated risks for behavior problems (e.g., Campbell et al., 2000; Shaw et al., 2003), while sensitive/child-centered parenting has been associated with less risk for behavior problems (e.g., Calkins, Smith, Gill & Johnson., 1998; Rutter, Caspi & Moffit, 2003). Although boys and girls seem to display different patterns of behavior problems during childhood and adolescence (e.g., Crick & Zahn-Waxler, 2003), reliable sex differences in rates of problem behaviors do not emerge until the late preschool period (e.g., Keenan & Shaw, 1997; Sterba, Prinstein & Cox, 2007). Quite possibly, patterns of parent-

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child interactions during early childhood may account for later sex differences. Despite the seminal review conducted by Keenan and Shaw (1997) describing potential pathways of problem behavior for girls, very little empirical research has demonstrated differential correlates of problem behavior during the early childhood period for boys and girls. Thus, very little is known regarding why sex-based differences in patterns of behavior problems develop.

Theoretically, differential exposure to risk and protective factors and/or differential susceptibility to specific risk or protective factors may explain sex differences in rates and trajectories of problem behaviors (Rutter et al., 2003). For example, if mothers are observed to use more positive and less negative parenting with girls than with boys, then these differences in exposure to parenting, specifically greater exposure to risk for boys, may account for sex-based variation in behavior problems. Alternatively, if boys and girls are exposed to similar levels of positive and negative parenting, then sex differences in behavior problems may result in part from differential effects of parenting on the development of girls and boys. In other words, a differential susceptibility perspective suggests that boys or girls may be more sensitive to, and thus more impacted by, mothers' parenting. Finding support for the differential exposure or the differential susceptibility perspective may reveal the mechanism that is the interactive process that accounts for different rates of behavior problems for boys and girls.

The present study considered both the differential exposure and susceptibility explanations and builds upon existing research in two important ways. First, we used a within-family sibling model to more rigorously test the differential effects of parenting on children's problem behavior for boys and girls (e.g., Conley, Pfieffer & Velez, 2007). Second, we relied on an economically disadvantaged sample of families with toddler and preschool-aged children. Greater variability in harsh and sensitive parenting may be evident among economically disadvantaged families because of the psychological stress associated with financial hardship (e.g., Conger & Donnellan, 2007). In the next sections, the differential exposure and susceptibility perspectives as well as the implications for children's development of behavior problems are first described. Next, the impact of parenting on levels of internalizing and externalizing behavior problems, with a particular focus on African American families and child sex differences in parenting, is discussed. We then consider the value of within family approaches to studying child development. Finally, we identify how child age and other confounds may influence these early family-based pathways for the development of externalizing and internalizing behaviors.

Do mothers parent boys and girls differently?: The differential exposure perspective

One cause of sex differences in behavior problems may be differential exposure to qualitative components of parenting, including different socialization for girls and boys (Keenan & Shaw, 1997). Exposure to positive and negative parenting may similarly affect all children such that more positive (i.e., responsive and warm) parenting, and less negative (i.e., harsh, intrusive and hostile) parenting, protects children from developing problem behaviors because such parenting effectively promotes children's emotional and behavioral control skills (e.g., Kochanska, Coy & Murray, 2001). Sex differences emerge when parents systematically socialize their boys and girls differently. If mothers are more negative and less positive with boys than girls, this variation in exposure may account for sex differences in levels of behavior problems during the preschool years.

Evidence regarding child sex-based differences in mothers' parenting is mixed (see Leaper (2002) for a review). In general, mothers of girls tend to be more positive and engaged during interactions than mothers of boys, but the magnitude of the sex difference is typically small (Leaper, 2002). According to a bidirectional approach to parent-child relationships

(e.g., Sameroff, 2009), mothers respond to the characteristics of their children, including sex-based behavioral differences. Studies comparing risks for behavior problems generally report few sex differences in mean-level parenting practices (Gershoff, 2002; Moffitt & Caspi, 2001). For example, comparing males and females experiencing childhood versus adolescent–onset delinquency, Moffitt and Caspi (2001) reported that the risk factors associated with delinquency, including poor parenting, were identical for both sexes, despite males being ten times more likely to become childhood delinquents.

However, recent work suggests that African American mothers may parent their sons and daughters differently, and that these parenting differences may partially account for sex differences in behavior and achievement (e.g., Mandara, Murray, Telesford, Varner, & Richman, 2012). While all parents use socialization practices aimed at preparing their children to navigate successfully the cultural and societal challenges they will likely face, ethnic minority parents face multiple contextual risks and may use parenting practices that promote optimal development in the face of racism, discrimination and restricted opportunities (Garcia Coll et al., 1996; McAdoo, 2002). Given increased risks that low-income African American boys face, as compared to girls, regarding school achievement, behavior problems, and exposure to discrimination and distrust, adaptive parenting by African American mothers may involve different socialization goals for their sons than for their daughters (e.g., Hill, 2002; Hughes et al., 2006). For example, some research on ethnic socialization indicates that African American parents are likely to emphasize messages of racial pride with their daughters and discrimination with their sons (Hughes et al., 2006). In order to protect their sons and prepare them for discrimination (Nelson et al., 2012), African American mothers may use harsher and less positive parenting styles with their sons than their daughters (Hill, 2002; Mandara et al., 2012).

Although limited, evidence that child sex moderates parenting effects on African American children's adjustment is mixed. Within a sample of African American six to seven year-old children, Tamis-LeMonda and colleagues (2009) reported that mothers were less sensitive and more controlling with boys than girls, and these parenting differences accounted for some, but not all, sex differences in levels of problem behaviors. Using a within family sibling design, Mandara and colleagues (2009) considered parenting effects on children's social and academic development using a subsample of 1500 African American families from the National Longitudinal Study of Youth. Limited support emerged for mothers' differential socialization of sons and daughters, and sex differences were moderated by birth order. Specifically, according to child reports, mothers were more engaged and demanding with later born daughters than later born sons, but there were no differential effects of parenting on externalizing behaviors. However, in another study that included observations of 99 African American mother-child dyads, Mandara and colleagues (2012) reported that mothers were warmer and more supportive and expressed less negative affect with their daughters than sons, and these parenting differences accounted for boys' more challenging behaviors. The reported socialization processes did not vary by child age, but the study included children from age 7 to 16 and compared mother-child dyads across families. The present study extends this work by focusing on early childhood, a time that is particularly ripe for the emergence of sex differences in rates of externalizing behaviors (e.g., Campbell et al, 2000), and examines systematic within family variation.

Does parenting affect children differently? The differential susceptibility perspective

Beyond differences in exposure to positive and negative parenting, exposure to the same parenting may affect boys and girls differently. Consistent with a differential susceptibility perspective, boys may be more affected by the harmful effects of negative parenting and/or the positive effects of sensitive or positive parenting than girls. In a meta-analysis on parenting and externalizing behaviors, Rothbaum and Weisz (1994) reported stronger

associations between parenting behaviors and externalizing symptoms for boys than for girls; more involved and positive parenting by mothers was associated with fewer externalizing problems for boys only. Similarly, less observed maternal sensitivity was positively related to trajectories of externalizing behaviors from age 2 to 9 for boys and not girls participating in the NICHD Study of Early Childcare (Miner & Clarke-Stewart, 2008). Using a twin design, Boeldt and colleagues (2011) reported that although increases in externalizing behaviors across childhood were linked with decreases in mothers' observed positive parenting for boys and girls, this effect was strongest for boys. More specific to the preschool period, Calkins (2002) found that observed emotional distress, one aspect of externalizing behaviors, was positively associated with observed harsh control by mothers for 24 month-old boys, but negatively correlated for girls. In sum, less positive parenting and more negative parenting seem to predict more strongly both levels of and increases in externalizing problems for boys than for girls.

Although less frequently considered, the effects of parenting on internalizing behaviors also may vary by child sex. For example, while parent-reported hostile-ineffective parenting was linked to increased risks for aggression and emotional disorders among boys and girls from early to middle childhood, inconsistent parenting and less positive interactions were related to increased risks for emotional disorders among boys only (Browne et al., 2010). The present study adds to this paucity of research regarding the potential differential effects of positive and negative parenting on levels of internalizing problems for boys and girls.

In some, there is evidence supporting both the differential exposure and susceptibility perspectives, particularly for African American children. That is, African American boys and girls may be differentially exposed *and* differentially susceptible to qualitative components of parenting. Very little work has considered how variations in exposure or susceptibility may vary across siblings, particularly during the early childhood period. That is, a within family sibling design provides a more stringent test of the differential exposure and susceptibility perspectives.

Within family sibling study designs have the power to tease apart the impact of family and child characteristics on parenting and adjustment across siblings by child age and child sex. For example, unobservable maternal characteristics or shared family characteristics, such as stressors related to economic disadvantage, could be associated with maternal parenting and maternal assessment of child behavior. The use of a within-family design controls for factors that are constant across siblings, thus allowing for a less-biased examination of the associations between parenting and children's behavior problems. When same and mixed sex dyads are included, within family sibling designs provide a rigorous test of child sex differences in parenting and associated child behaviors because the extent to which parents interact similarly with children of various ages and sexes can be empirically evaluated.

Within family sibling design approaches are rarely used during early childhood. In a notable exception, Conley and colleagues (2007) used fixed effects modeling techniques using a nationally representative sample of siblings. Three important findings emerged. First, and not surprisingly, levels of behavior were highly correlated across siblings, but concordance in problem behaviors was stronger among siblings from economically disadvantaged families than siblings from more affluent families. Second, problem behaviors were more strongly correlated among African American siblings than white siblings. Finally, boys were rated by parents as experiencing more behavior problems than girls. Similarly, and again using a fixed effects, within family design, Jaffee, Hulle and Rodgers (2011) reported that among five to seven year-old siblings, boys had higher rates of mother-reported behavior problems than their sisters. Taken together, these findings underscore the value of using within family approaches to consider child sex and age as important moderators of family

processes, especially among African American children and economically disadvantaged families.

Potential Confounds Affecting Parenting and Behavior Problems

In addition to parenting behaviors and child sex, other child and parent characteristics have been found to influence positive and negative parenting behaviors and the development of behavior problems. First, regarding children's characteristics that may elicit specific parenting behaviors, high levels of negative emotional reactivity (i.e., frequent, strong and sustained displays of negative affect, including signals of distress), can increase risks for experiencing non-optimal parenting and behavior problems (e.g., Campbell et al., 2000; Calkins, 2002), perhaps in part due to transactional parent-child processes. The present analyses include measures of each child's distress reactivity as observed in separate paradigms as a dimension of negative emotional reactivity in order to account for child effects on parenting and behavior problems. Second, mothers likely adapt their parenting responses and expectations to children's age. With development, parents increase their expectations for self-regulation (e.g., Calkins, 2002; Kochanska, Coy & Murray, 2001); thus we consider the extent to which child age accounts for systematic variation in parenting behaviors. Finally, children from single-mother households may be most at risk for exposure to compromised parenting and elevated behavior problems (e.g., McLanahan & Sandefur, 1994), although less so for African Americans and low-income families (e.g., Foster & Kalil, 2007). Mother's marital status was statistically controlled.

Goals of the Present Study

The primary goal of the present study was to examine whether the associations between mothers' observed positive and negative parenting and children's externalizing and internalizing behaviors varied as a function of child sex. Prior to testing child sex-specific associations between mothers' observed parenting and children's behavior problems, we first considered the extent to which boys and girls were differentially exposed to positive or negative parenting. Given the scarcity of findings reporting differential exposure to positive and negative parenting during early childhood, we did not expect boys and girls to be differentially exposed to positive and negative parenting. Second, we tested the differential susceptibility perspective by considering whether child sex moderated associations between mothers' observed parenting and children's externalizing and internalizing behaviors. Boys and girls were expected to be differentially susceptible to variations in parenting. Specifically, lower levels of positive parenting and higher levels of negative parenting were expected to predict increases in externalizing and internalizing behaviors more strongly for boys than for girls.

Method

Participants

Participants were from a longitudinal study of families recruited from urban Head Start centers when younger siblings were approximately two years-old, and older Head Start eligible siblings were 3 to 5 years-old. Of the 306 families who were eligible based on sibling age composition and English language use, nearly 55% participated. In order to test the research questions within an exclusively African American sample, we excluded 14 families (9%) who were not African American, bringing the final sample to N = 137 families (274 children, 137 mothers). Families completed annual assessments corresponding to the younger child's second (time 1), third (time 2), and fourth (time 3) birthdays. This study considers only observational data collected at time 1, and mother reported behavior problems collected at times 1 and 2. While 152 African American families participated at time 1, only 140 completed the second assessment (retention = 91.7%). Mothers who

dropped out of the study were older than those who were retained, but there were no other differences in mother or child characteristics. At time 1, children averaged 24 (younger child: mean = 24.16 months; SD = 1.77) and 48 months (older sibling: mean = 47.56 months; SD = 3.15) of age. The sample included 125 boys and 149 girls, including 25 male-male pairs, 37 female-female pairs, and 75 mixed-sex pairs. Families were predominantly low-income (mean income-to-needs-ratio = 1.06, SD = 0.70). Mothers averaged 25.31 years (SD = 3.36), and 73% of mothers earned a high school diploma or GED.

Procedure

All measures and procedures were approved by the Institutional Review Board of the affiliated researchers. Mothers and children participated in a filmed observational assessment lasting approximately one hour. Data collected during one of the family interactional tasks and one of the child temperament tasks were used in the present report. Parenting behaviors were observed from a matching game that mothers and children played together. Mothers were first instructed how to play the game, and then given three minutes to teach the younger child the rules. If dyads completed the activity before three minutes were up, mothers were told to replay the game. The interviewer returned after three minutes with the older sibling. For the next three minutes, mothers were instructed to moderate the play between the two children and to keep score. The task was considerably more difficult for the younger child than the older sibling.

Children's distress reactivity was measured during a two-minute structured fear task derived from the Laboratory Temperament Assessment Battery for preschoolers (Goldsmith et al., 1999). Mothers sat in a different area of the house so that they could hear but not see their child. Younger and older siblings were assessed separately following identical procedures. Children were instructed to sit on a designated spot on a floor mat and a remote control robot was placed approximately 18 inches from the child. The interviewer first turned the robot in a circle for approximately 30 seconds, and then paused for 15 seconds. Next, the robot roared 4 times (approximately 30 seconds in duration), then paused for 15 seconds. Finally, interviewers moved the robot forward to a spot approximately six inches from the child and then backwards to the end of the mat. This was repeated once (approximately 30 seconds). Interviewers then turned off the robot, informed the child that the robot was turned off, and invited the child to touch the robot. This task is designed to elicit diverse responses that highlight individual differences in children's distress reactivity in general, and more specifically regarding fear-inducing situations.

Mothers completed several questionnaires, some of which included measures of children's problem behaviors and basic family characteristics. Importantly, mothers did not report on younger and older siblings' behavior problems in back-to-back questionnaires, although all mothers reported on younger children's behaviors before older siblings' behaviors.

Measures

Externalizing and internalizing behaviors (times 1 and 2)—Mothers reported on children's behaviors using the Child Behavior Checklist for ages 1½ – 5 years (Achenbach, 1994) at both assessment time points. Mothers rated each of her children's behaviors during the past two months on a three-point scale ranging from 0 (*not at all true)* to 2 (*always or often true*). Externalizing behaviors consist of 26 items along two dimensions: (1) destructive behavior and (2) aggressive behavior. The items were averaged to create an externalizing behaviors scale (time 1: α = .90, .91 for younger and older child respectively; time 2 α = .83 for both children). The internalizing behaviors scale (time 1: α = .85, .87 for younger and older child respectively; time 2: α = .85, .88 for younger and older child,

respectively) consists of the average of 25 items from two subscales: (1) anxious/depressed, and (2) withdrawn.

Mothers' negative and positive parenting behaviors (time 1)—Mothers' parenting behaviors were assessed during the matching task. Global observational ratings of mothers' parenting behaviors directed towards each child were made on six 7-point global rating scales revised from scales developed in the NICHD Study of Early Child Care and (NICHD Early Child Care Research Network, 1999): sensitivity/responsiveness, intrusiveness, detachment/disengagement, positive regard for the child, negative regard for the child, and stimulation of cognitive development. Similar observational coding systems have been found to reliably predict children's development among low-income samples that include African American families (e.g., Zaslow et al, 2006). Trained reliable coders, who were blind to other information about the families, scored the interactions for maternal behavior. Mothers' behaviors directed towards the younger and older child were coded separately by different coders. Two criterion coders trained all other coders until excellent reliability (intra-class correlation (*ICC*) > 0.80) was maintained for each coder on each scale. Once reliability was met, a random selection of 30% of all interactions was double-coded. For those double-coded cases, each coding pair met to reconcile scoring discrepancies, reaching a final consensus score for each scale. Inter-coder reliability was calculated by comparing the scores of two coders on every double-coded interaction. The positive parenting composite (younger child: α = .73; older child: α = .74) represents the mean of sensitivity/ responsiveness, positive regard and cognitive stimulation scales. Higher scores on positive parenting indicate parenting that is in-tune with the child, aware of and responsive to the child's cues, warm and appropriately stimulating. Interactions with high positive parenting scores were generally child-centered, responsive to the child's needs and bids, engaged, warm and affectively positive, and cognitively stimulating. The negative parenting composite (younger child: α = .71; older child α =.66) represents the mean of intrusive and negative regard (i.e., negative affect directed at the child) scales. Intrusive behaviors include imposing parental agendas despite clear contrary signals from the child, overstimulation, inappropriately fast pacing, and physically manipulation of the child. Higher negative scores indicate parenting behaviors that are parent-centered, harsh, controlling and affectively negative, and may include parenting behaviors that focus on teaching the game or playing according to the mothers' rules, rather than responding to the child's abilities, needs, and expressed interests.

Children's distress reactivity (time 1)—Trained coders rated children's temperamental distress reactivity as observed during the filmed robot task. The intensity of children's distress as well as behaviors reflecting avoidance and approach were coded on 10 second intervals during the 30 seconds of activity. Inter-rater reliability was measured using Krippendorff's alpha (Hayes & Krippendorff, 2007). Scores were calculated for the 25% of cases that were rated by two independent coders. In order to include a measure of general negative emotional reactivity that may be related to parenting and behavior problems, only the intensity of distress scores are used in the present study. Inter-rater reliability for the intensity of distress scale was .91 for the younger child, and .76 for the older child. Distress vocalizations are restricted to children's communication of distress through verbalizations and vocalizations of anger, sadness, or distress. Negative vocalizations were rated on a 4-point scale ranging from 0 (no signs) to 1 (mild signs, including brief or low intensity negative vocalization), to 2 (moderate, including consistent moderate or strong short duration crying) to 3 (very intense, which included sustained high intensity crying). Ratings of distress vocalizations were made for three 10 second intervals across 4 trials. The peak distress score across the three trials was computed by averaging the peak distress ratings from each of the three epochs. The mean score for distress reactivity for the younger child

was 1.96 (SD = 1.07), indicating that on average children showed moderate distress, but there was considerable variability in distress reactivity. In contrast, the mean distress reactivity score for the older siblings was 1.14 (SD = 0.76), indicating generally less distress reactivity and variability. Not surprisingly, younger children displayed significantly higher peak distress reactivity than their older sibling (t = 7.42 [285], p < .001).

Maternal marital status—Mothers reported on their current romantic relationship status. Nearly 61% of the mothers indicated that they were currently single, 12% were cohabiting, and 27% were married. In order to create a simple covariate to measure the presence of a father or father figure in the household, married and cohabiting mothers were combined into one category so that 0 = single; 1= married/cohabiting.

Analytical Plan

Random effects regression models with Restricted Maximum Likelihood Estimates (REML) were estimated to test study hypotheses. Multi-level modeling techniques extend multiple regression models to account for the possible non-independence of within-family data (i.e., siblings nested within families). Failing to account for this non-independence could lead to inflated standard errors and inaccurate parameter and model fit estimates (Bryk & Raudenbush, 1992). All continuous independent variables were grand mean centered. Analyses proceeded in two stages. First, we tested the differential exposure model by computing two identical models to examine variation in 1) positive parenting, and 2) negative parenting by child sex. We controlled for child distress reactivity in order to assess how child sex, child age, and a child sex × age interaction term predicted parenting behaviors. Next, the differential susceptibility model was evaluated using two separate models with identical predictors predicting Time 2 externalizing and internalizing behaviors. Each model included child sex, child age, child sex × child age, child distress reactivity, Time 1 externalizing/internalizing behaviors, mothers' negative and positive parenting, and parenting × child sex interactions. All statistically significant interactions were interpreted using standard pick-a-point techniques, which have been validated in multi-level models (Preacher, Curran & Bauer, 2006).

Results

Descriptive and Correlational Analyses

As shown in Table 1, descriptive statistics were calculated separately for girls and boys, and means were compared across sexes using *T*-tests. On average, mothers were more positive during interactions with girls (t = −4.37 [287], p < .001), and more negative during interactions with boys (t = 3.19 [287], p < .01). There were no mean sex differences in problem behaviors.

Table 2 presents the results of the correlational analyses separately for girls and boys. In general, similar patterns of statistically significant associations emerged. Negative and positive parenting were inversely related for girls and boys. Within time, positive parenting was associated with lower levels of internalizing behaviors for boys and girls, but only associated with less internalizing behaviors across time for boys. In contrast, negative parenting was associated with less externalizing behaviors at time 2 for boys and girls, but with less time 1 externalizing behaviors for girls. Child age was statistically and significantly positively associated with negative parenting, and externalizing behaviors. Additionally, child age was unrelated to internalizing behaviors for girls, but child age was negatively correlated with time 2 levels of internalizing behaviors for boys only. Mothers were more negative with children rated as more distress reactive. In addition, more distress reactivity was associated with higher levels of externalizing behaviors, but was unrelated to

levels of internalizing behaviors. Finally, maternal marital status was unrelated to any other variables, and therefore in order to conserve statistical power and for parsimony, it was not included in the regression models.

Differential Exposure: Does child sex predict levels of positive and negative parenting?

Positive Parenting—Results of the unconditional means model predicting positive parenting indicate systematic nesting of positive parenting within family. Statistically significant between family ($\tau_{00} = 0.33$, $z = 3.38$, $p < .01$) and within family (i.e., between sibling; $\sigma^2 = 0.74$, $z = 8.14$, $p < 0.001$) variance in mothers' positive parenting emerged. The intraclass correlation (ICC) indicated that approximately 31% of the observed variance in positive parenting was accounted for by between family variance, suggesting that most of the variability in positive parenting is explained by differences in the parenting of siblings. Next, as shown in Table 3, child distress reactivity, child age, child sex, and a child sex × age interaction term were added to the model. Again, statistically significant within ($\sigma^2 = 0.74$, $z = 7.10$, $p < 0.001$) and between ($\tau_{00} = 0.28$, $z = 2.60$, $p < .01$) family variation persisted. Results indicated that mothers used more positive parenting with girls than boys. Controlling for the influence of all other variables in the model, the positive parenting mean was 2.49 for boys and 3.23 for girls.

Negative Parenting—The unconditional means model predicting negative parenting indicated considerable within family ($\sigma^2 = 1.39$, $z = 11.62$ $p < 0.001$) variability. However, the random intercept component was not statistically significant, indicating that all variability in the negative parenting individual children experience is explained by child-level predictors. That is, no systematic nesting of negative parenting within families emerged. This finding underscored the utility of using an MLM framework in order to test child sex differences in parenting by simultaneously estimating negative parenting behaviors for siblings. The next model considered child distress reactivity, age, sex, and child age by sex interaction influences on levels of negative parenting. The random effects results indicated that statistically significant within ($\sigma^2 = 0.96$ $z = 7.59$, $p < 0.001$) family variation was reduced, but not to non-significance, suggesting that unconsidered variables likely explained additional within family variation in negative parenting. Statistically significant fixed effects emerged, indicating that mothers were more negative with the younger child than with the older sibling.

Differential susceptibility: Does child sex moderate the effect of positive and negative parenting on change in internalizing and externalizing behaviors?

Externalizing behaviors—Analysis of the unconditional means model predicting externalizing behaviors indicated the presence of significant within ($\sigma^2 = 0.08$, $z = 7.48$, $p < 0.001$) and between ($\tau_{00} = 0.05$, $z = 3.84$, $p < .001$) family variability in externalizing behaviors. The ICC suggested that approximately 38% of the observed variance in externalizing behaviors was accounted for by between family variance. In other words, one third of the variability in individual children's externalizing behaviors is accounted for by differences between siblings. In order to explain this within family variability, the time 1 externalizing problems score, child age, child sex, child age × sex interaction, distress reactivity and parenting and parenting × sex interaction terms were entered into the equation. A statistically significant reduction in the amount of variability in externalizing behaviors observed between ($\tau_{00} = 0.02$, $z = 2.89$, $p < .001$) and within families ($\sigma^2 = 0.04$, $z = 7.00$, $p < 0.001$) emerged (ICC = .34). Earlier levels of externalizing problems were positively associated with externalizing problems at time 2, but child distress reactivity, age, sex, and the child age × sex interaction were not statistically and significantly associated with change in externalizing problems (see Table 4).

Consistent with support for the differential susceptibility perspective, statistically significant interactions between mothers' positive and negative parenting and child sex emerged (see Table 4). The interaction terms were decomposed by estimating the simple slopes of the association between negative parenting and externalizing behaviors separately for boys and girls, and positive parenting and externalizing behaviors separately for boys and girls. As shown in Figure 1, negative parenting was positively associated with externalizing behaviors for boys (beta = 0.08, $p < .01$), but not for girls (beta = −0.00, $p > .05$). As shown in Figure 2, positive parenting was negatively associated with externalizing behaviors for girls (beta = − 0.06, $p < .01$ for girls), but not for boys (beta = 0.02, $p > .05$).

Internalizing Behaviors—The same procedures were used to model the relationship between child characteristics, mothers' observed positive and negative parenting, and children's internalizing behaviors (see Table 4). The unconditional means model predicting internalizing symptoms indicated significant within ($\sigma^2 = 0.02$, z = 6.79, p < 0.001) and between ($\tau_{00} = 0.04$, z = 5.50, p < .001) family variability in internalizing behaviors. The ICC for this model was .67, indicating that much of the observed variability in children's internalizing behaviors was between families. Adding the parenting × child sex interactions did not account for statistically significant portions of the variance associated with internalizing problems. Fixed effects results indicated that after considering the association between time 1 and time 2 internalizing, only child age was statistically and significantly associated with change in internalizing behaviors over a one year period. Mothers reported that the younger child exhibited more internalizing problems than the older sibling (see Table 4).

Discussion

The present study examined potential sex differences in mothers' parenting and the processes linking mothers' parenting behaviors to children's externalizing and internalizing behaviors among economically disadvantaged, predominantly African American families. Results provide some support for both the differential exposure and susceptibility perspectives. Girls were generally exposed to more positive parenting than boys and more positive parenting predicted declines in girls' externalizing problems. Consistent with a differential susceptibility model, no sex differences in children's exposure to negative parenting emerged, but more negative parenting was associated with increases in externalizing problems for boys only.

Mixed Findings Regarding Differential Exposure to Mothers' Parenting

Sex differences in levels of externalizing and internalizing behavior problems begin to emerge during the late preschool period (e.g., Keenan & Shaw, 1997; Sterba et al., 2007). One explanation for these differences that we tested is that boys and girls are differentially exposed to parenting behaviors that increase risk for behavior problems. The findings were quite clear in this regard. A simple mean comparison showed that boys were exposed to more negative and less positive parenting than girls. However, using the more rigorous within family analysis, no sex differences in exposure to negative parenting emerged. Instead, within family differences in *positive* parenting emerged, suggesting that mothers were more positive with their daughters than their sons. This finding is in line with work by Mandara and colleagues (2012) who also found that African American mothers were observed to be more positive with their daughters, but there were no sex differences in overly controlling parenting.

Variability in exposure to positive and negative parenting may have several explanations. First, transactional models of socialization (e.g., Sameroff, 2009) suggest that mothers are

responding to children's behaviors and characteristics such as sex and social behaviors. Although there were no sex differences in mean levels of externalizing or internalizing behaviors, or in observed distress reactivity, girls may display other behaviors to which mothers are responding. For example, girls may be more effective in using language during their interactions with mothers, and in turn they may elicit more positive, engaged parenting than boys (e.g., Leaper, 2002). However, positive child behavior did not reduce mothers' use of negative parenting.

Low-income African American mothers may be deliberately less positive towards sons than daughters in order to better prepare their sons for discrimination and disadvantages they may face (Nelson et al., 2012; Tamis-LeMonda et al., 2009). It is unclear whether mothers do so intentionally, with the goal of raising their boys to be more aggressive, and thus seem "tougher" in dangerous contexts, or whether the increased risks for the development of externalizing behaviors is an accidental outcome of this parenting strategy. Future research is needed that includes the examination of culturally sensitive measures of parenting behaviors, and the beliefs that may underlie these behaviors. Particularly interesting, parenting was observed during a task in which mothers were teaching and facilitating playing a competitive game. If African American mothers hold higher educational expectations or aspirations for their daughters than their sons (e.g., Mandara et al., 2009), differences in observed positivity may be reflected in mothers putting more effort into teaching their daughters rather than their sons how to play the game. Future studies are clearly needed that vary the context in which mothers' socialization is measured. Quite possibly, mothers' positive or negative parenting directed towards sons and daughters varies by the demand characteristics of the task. Additional work is clearly needed to replicate and extend these findings by considering mechanisms, like child evocative effects and parenting beliefs, which may explain variability in mothers' positive parenting of boys and girls.

Support for Child Sex-Based Differential Susceptibility

The differential susceptibility perspective proposes that exposure to the same parenting will affect boys and girls differently. Although higher rates of behavior problems for boys tend to emerge later in childhood, earlier variations in susceptibility to parenting may underlie these later differences. We found some support for a differential susceptibility model. Exposure to negative parenting increased risks for externalizing behaviors for boys, while positive parenting was more protective for girls' development of externalizing behaviors. Economically disadvantaged children face elevated risks for negative parenting (e.g., Conger & Donnellan, 2007; McLoyd, 1998). The gender gap in externalizing behaviors may in part be explained by boys' greater sensitivity to mothers' negative parenting. That is, the boys and girls in the present study were equally likely to be exposed to negative parenting, but this parenting had a stronger impact on boys' externalizing behaviors than girls' externalizing behaviors.

In contrast, no evidence emerged that mothers' parenting differentially influenced the development of internalizing behaviors among their sons and daughters. Despite bivariate correlations linking positive and negative parenting to internalizing behaviors, the multivariate multilevel models indicated no associations between observed parenting and mother-reported internalizing behaviors for boys or girls. Only age predicted internalizing behaviors, such that younger children were reported to have more internalizing behavior problems than older children. Of concern was the relatively limited variability in internalizing behavior scores both within and across child sex and age. Given that gender differences in internalizing behaviors typically occur later in development (e.g., Crick & Zahn-Waxler, 2003), the differential effects of parenting on change in internalizing problems may not be evident in early childhood. Clearly, we need research that tracks the

extent to which parenting behaviors are linked to the development of externalizing and internalizing behavior problems over time for boys and girls.

Mothers' Parenting and Behavior Problems in African American Families

Evidence is accumulating to suggest weaker associations between harsh parenting and behavior problems for African American children as compared to White children (e.g., Murry et al., 2001). Explanations for this pattern of findings include cultural norms endorsing higher levels of parental control (e.g., Gershoff, 2002), involvement of multiple family members who buffer children from harsh parenting (e.g., Murry et al., 2001), and accumulation of risks and stressors which dilutes the effects of any one risk, such as harsh parenting, on child development (e.g., McLoyd, 1998). Failure to account for child sex is another potential explanation for the diminished associations between negative parenting and externalizing problems.

Study Strengths and Limitations

The present study has a number of strengths and limitations. The sibling design provided a rigorous test of child sex differences in mothers' parenting and the effects of parenting on children's behavior problems. In addition, all of the siblings in the sample are close (i.e., about two years) in age, and child age is controlled in the statistical models. Second, few other studies simultaneously consider the influences of negative and positive dimensions of parenting on children's behavior problems. Statistically significant associations between mothers' negative parenting and boys' externalizing behaviors occurred even after considering the potentially protective effects of positive parenting. Likewise, the protective effects of positive parenting on reducing externalizing problems among girls emerged even after considering the impact of negative parenting. Third, shared method variance was limited because independent observers rated mothers' parenting towards each sibling and each sibling's distress reactivity, although future research should consider teacher or other nonmaternal reports of children's behaviors.

Despite these strengths, the study includes some limitations. First, although we considered behavior problems and parenting assessed one year earlier to predict children's behavior problems, the direction of effects is unclear. Future research should include longitudinal measures of parenting and child behaviors in order to test the timing of effects, including the extent to which parenting and behavior problems are linked reciprocally. Second, like much research on low-income, especially African American, families, we did not measure fathers' parenting. Although maternal marital status was unrelated to parenting or child behavior problems, the presence or absence of a father figure in the household tells us little about the level of paternal involvement, the quality of paternal parenting, or how fathers' parenting may differ by child sex and differentially influence development of boys and girls. Future work should consider interactions between multiple caregivers and child sex to estimate the impact of parenting behaviors on children's behavior problems. Third, results may not generalize to larger more socioeconomically advantaged and ethnically diverse samples. Finally, children's observed distress reactivity was statistically controlled, but other child characteristics may interact with child sex to influence parenting and the links between parenting and early behavior problems.

Implications

The need to examine sex-specific pathways for risk and protection among children growing up in African American, economically disadvantaged families is clear. These findings have several prevention implications. Specifically, mothers' positive parenting may be particularly advantageous for girls, thus underscoring the need for parenting interventions to bolster sensitive parenting among low-income ethnic minority parents. Moreover, one

pathway placing low-income African American boys at increased risk for the development of behavior problems may be their sensitivity to negative parenting, especially given the risks for negative parenting linked to economic disadvantage. Programs and policies aimed at alleviating poverty and associated family stress, and in turn reducing negative parenting, may be particularly beneficial for boys and girls. Culturally sensitive programs should educate mothers about the development of boys and girls, give them the skills necessary to be equally positive and supportive with boys and girls, and reduce overall negative parenting behaviors. These programs should also address mothers concerns regarding the risks their sons and daughters may face. This approach to parenting education and support programs may be particularly effective at reducing the risks for behavior problems encountered by young boys.

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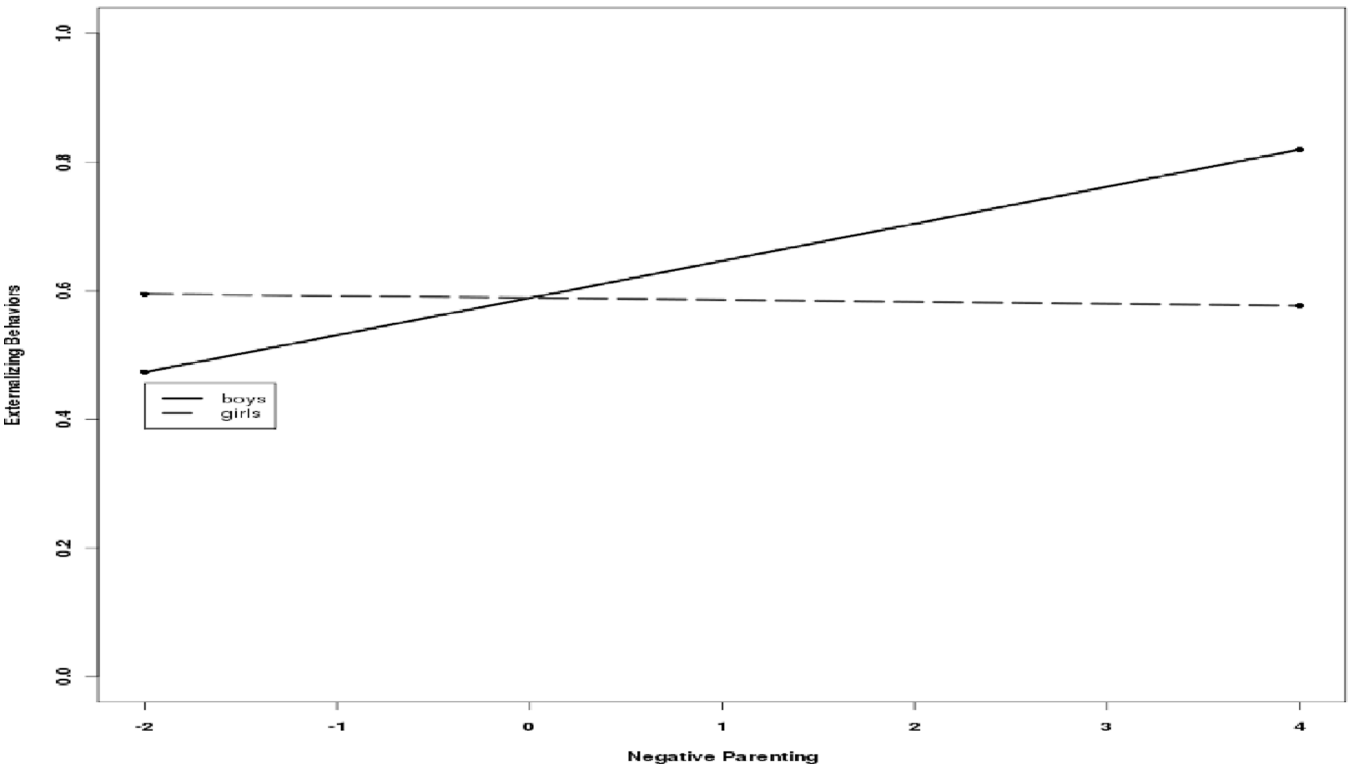

Figure 1.
Child Sex Moderates the Association between Negative Parenting and Externalizing Behaviors

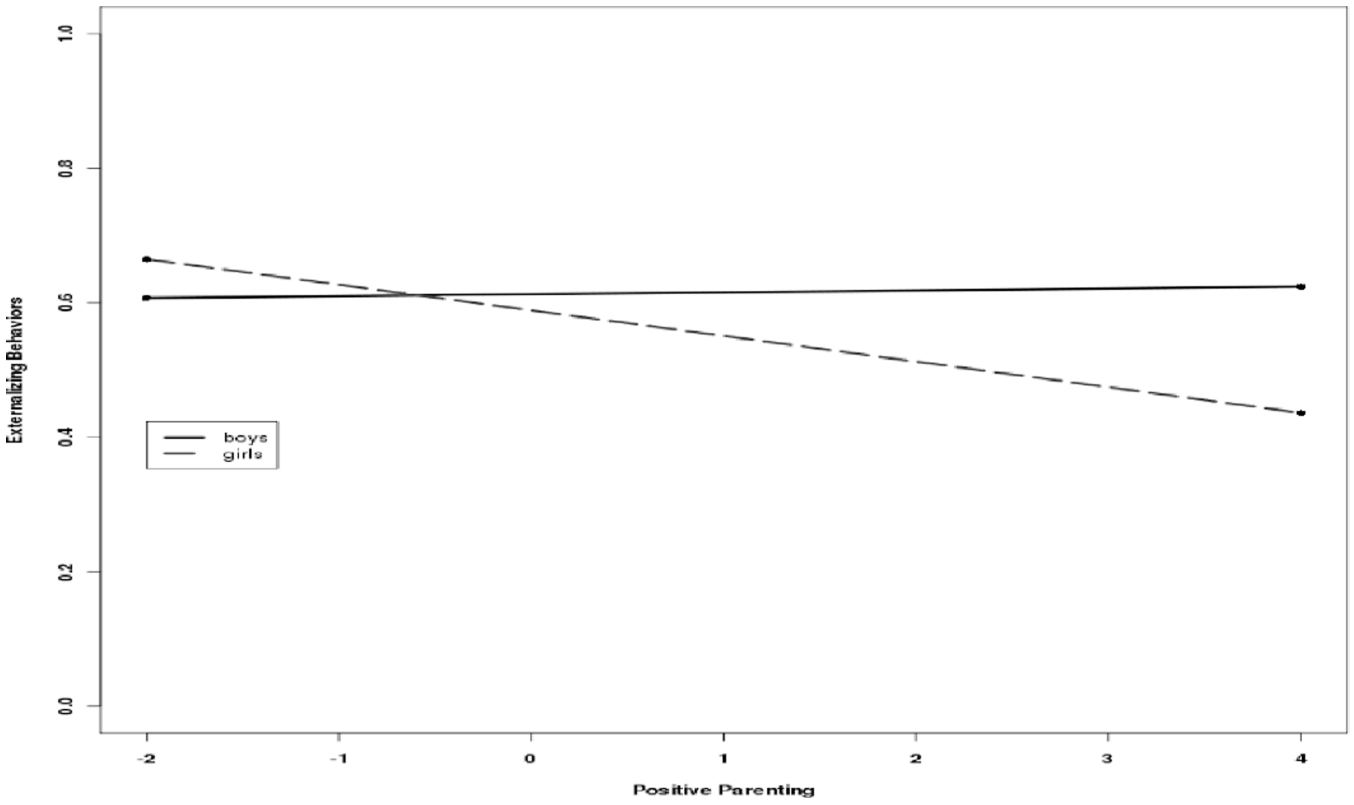

Figure 2.
Child Sex Moderates the Association between Positive Parenting and Externalizing Behaviors

Table 1

Means, standard deviations (SD), and ranges of study constructs.

	Girls ***(n =1494)***			**Boys** ***(n = 125)***			**Total** **(N =274)**		
Variable	**M**	**SD**	**Range**	**M**	**SD**	**Range**	**M**	**SD**	**Range**
Positive Parenting Time 1[a]	3.29	1.04	1 – 6.00	2.75	0.96	1 – 5.50	3.04	1.04	1–6.00
Negative Parenting Time 1[a]	2.83	1.07	1 – 7.00	3.28	1.26	1–7.00	3.04	1.79	1–7.00
Externalizing Time 1	0.59	0.36	0 – 1.61	0.65	0.35	0 – 1.68	0.62	0.35	0–1.68
Externalizing Time 2	0.54	0.35	0 – 1.65	0.60	0.35	0 – 1.57	0.57	0.35	0–1.59
Internalizing Time 1	0.52	0.31	0 – 1.65	0.52	0.29	0 – 1.39	0.52	0.30	0–1.65
Internalizing Time 2	0.47	0.30	0 – 1.52	0.50	0.28	0 – 1.12	0.49	0.29	0–1.52
Child Age Time 1 (months)	36.74	13.43	22 – 71	36.65	13.67	21 – 65	36.61	13.50	21–71
Distress Reactivity Time 1	1.54	1.03	0 – 3.00	1.50	0.98	0 – 3.00	1.54	1.00	0–3.00

Note.

[a] statistically significant mean difference for girls and boys

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Table 2

Bivariate correlations of study constructs for girls (n = 149 above the diagonal) and boys (n = 125; below the diagonal).

Variables	1	2	3	4	5	6	7	8
1. Mothers' Positive Parenting	–	.45***	−.10	−.13	−.21**	−.15	.05	.05
2. Mothers' Negative Parenting	−.48***	–	.24**	.15	.12	.13	−.39**	.23**
3. Externalizing Time 1	−.18*	.15	–	.25**	.67***	.16	−.22**	.17*
4. Externalizing Time 2	−.17	.28**	.62***	–	.21**	.96**	−.17*	.20*
5. Internalizing Time 1	−.22*	.14	.75**	.39***	–	.22**	−.03	−.05
6. Internalizing Time 2	−.23*	.18*	.50***	.70***	.55***	–	−.11	.06
7. Child Age	−.03	−.24*	−.30**	−.38***	−.15	−.22*	–	−.41***
8. Distress Reactivity	−.06	−.26*	.20*	.27**	.07	.13	−.43***	–

Note.

* $p < .05$;

** $p < .01$,

*** $p < .001$

Table 3

Multi-Level Model Predicting Mothers' Observed Positive and Negative Parenting.

	Positive Parenting		Negative Parenting	
	b	**SE**	**b**	**SE**
Fixed Effects				
Intercept	2.86***	0.20	3.23***	0.22
Distress Reactivity	−0.06	0.07	0.12	0.07
Child Sex	0.37*	0.18	−0.14	0.20
Child Age	−0.15	0.19	−0.45*	0.31
Child Sex × Child Age	0.28	0.25	−0.32	0.28
Random Effects				
Intercept	0.28**	0.08	0.08	0.11
Residual	0.74***	0.09	0.96***	0.14

Note.

[a] Child sex: 0 = *male*, 1 = f*emale*.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 4

Multi-level Models Predicting Externalizing and Internalizing Behaviors.

	Externalizing Behaviors		Internalizing Behaviors	
	b	**SE**	**b**	**SE**
Fixed Effects				
Intercept	0.59***	0.03	0.25*	0.03
Ext/InternalizingTime 1	0.56***	0.05	0.45***	0.05
Distress Reactivity Time 1	0.01	0.02	0.00	0.01
Child Age	−0.01	0.00	−0.08*	0.04
Child Sex	0.44	0.07	−0.01	0.19
Child Age × Child Sex	0.00	0.00	0.00	0.00
Positive Parenting Time 1	0.03	0.03	−0.01	0.02
Negative Parenting Time 1	0.06**	0.02	0.02	0.02
Positive Parenting × Child Sex	−0.06*	0.02	−0.02	0.03
Negative Parenting × Child Sex	−0.07*	0.03	−0.01	0.03
Random Effects				
Intercept	0.05***	0.01	0.04***	0.00
Residual	0.02**	0.01	0.02***	0.00

Note.

[a] Child sex: 0 = *male*, 1 = f*emale*.

* $p < .05$.

** $p < .01$.

*** $p < .001$.