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Unique Contributions of Fathering to Emerging Self Regulation in Low-Income Ethnic Minority Preschoolers

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Abstract

Self regulation ability is an important component of school readiness and predictor of academic success, but few studies of self regulation examine contributions of fathering to the emergence of self regulation in low-income ethnic minority preschoolers. Associations were examined between parental child-oriented parenting support and preschoolers' emerging self regulation abilities in 224 low-income African American (n=86) and Latino (n=138) children observed at age 30 months in father-child and mother-child interactions to determine unique predictions from fathering qualities. Child-oriented mothering but not fathering predicted greater simple response inhibition for both African American and Latino children. Fathering but not mothering quality uniquely predicted greater complex response inhibition, but only for the African American children. The culture-specific fathering effects could not be explained by differences in father involvement.

Keywords

self regulation; poverty; ethnic-minority children; fathering

Although there have been repeated calls to extend our perspective on children's parenting experiences to include caregiving experiences with fathers as well as mothers and to broaden our understanding of cross-cultural differences and similarities, parenting qualities and practices of mothers in European American samples have dominated developmental theory, research, and practice (Shweder, 2003). The continued focus on mothering occurs despite social and demographic shifts in western societies that have resulted in a high prevalence of women in the labor force, greater father involvement in childrearing, and greater involvement of nonresidential fathers. Moreover, mono-cultural developmental theory and practice cannot be sustained given increasing ethnic, racial, and cultural diversity of children and families. Although a sizeable body of research on fathering has developed, attention to fathers in ethnic minority families continues to lag behind.

Low-income minority children are more likely than non-minority children to experience academic failure. The differences are seen starting in the first year of formal schooling and are predictable from noted deficits in school readiness (Burchinal et al., 2011; Lee & Burkam, 2002). Reducing disparities in school readiness requires not only enhancing readiness related to literacy and math but also readiness related to socioemotional skills

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important for early school success such as children's ability to get along with teachers and peers and to manage their behavior in the classroom (Raver, 2002). In studies of school readiness, there is growing interest in how individual differences in self-regulation are associated with positive adjustment and early achievement (e.g., Graziano, Reeves, Keane, & Calkins, 2007; Miech, Essex, & Goldsmith, 2001; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009), and study of the development of self regulation is potentially important to understanding the achievement gap (Blair & Diamond, 2008).

Blair and Diamond (2008) define self regulation as "the primarily volitional cognitive and behavioral processes through which an individual maintains levels of emotional, motivational, and cognitive arousal that are conducive to positive adjustment and adaptation, as reflected in positive social relationships, productivity, achievement, and a positive sense of self" (p. 900). Self-regulation skills are important for the practical skills of school success such as following directions and working independently, and a national survey of kindergarten teachers identified problems in self regulation as among teachers' most significant concerns for children entering kindergarten (Rimm-Kaufman, Pianta, & Cox, 2000).

As children develop, physiological and cognitive advances support the development of self-regulation abilities comprised of both emotional and behavior regulation involving controlling emotional impulses, directing attention, and planning. These developmental changes are supported by children's social interactions with their parents in terms of parental supportiveness (Gilliom et al., 2002; Eisenberg, Zhou, Losoya, Fabes, Shepard, Murphy, et al., 2003), the synchrony of mother-child interactions (Feldman, Greenbaum, & Yirmiya, 1999), and children's positivity and lack of negativity with their mothers (Calkins, Smith, Gill, & Johnson, 1998). The general lack of study of the emergence of self-regulation abilities for children most at risk for poor school achievement extends to the paucity of studies of how parenting qualities support self-regulation abilities among at-risk ethnic minority preschoolers. With very few exceptions, this is particularly the case with respect to children's fathering experiences. In the present study, we followed African American and Hispanic (primarily Mexican American) preschoolers from low-income families to examine how parent-child relationship processes with fathers and mothers contribute to the children's emerging self-regulatory capacity, paying particular attention to contributions of fathering.

Fathers play an important role in children's cognitive and social-emotional development (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Flouri, 2005; Lamb & Lewis, 2010; Parke, 2002; Pleck, 1997). Moreover, fathering quality makes unique contributions to children's development even after effects of mothering are taken into account (Isley, O'Neil, & Parke, 1996; Mosley & Thompson, 1995; Early Child Care Research Network (ECCRN), 2004, 2008; Parke, 1996; Rohner, 1998). Positive paternal involvement, including affection, responding, and stimulation, supports young children's healthy development in multiple domains, including cognitive abilities in infancy (Nugent, Yogman, Lester, & Hoffman, 1988), and intelligence, academic achievement, and social maturity in the transition to school (Gottfried, Gottfried, & Bathurst, 1988; Martin, Ryan, & Brooks-Gunn, 2007; NICHD ECCRN, 2004, 2008).

Far less is known regarding the influence of ethnic minority fathers who are living in poverty, and the higher likelihood of non-residential fathers makes direct measurement of the father-child relationship more complicated. Some of the few exceptions comes from data from the Early Head Start Research and Evaluation study of low-income fathers that indicate that children living with a resident biological father or having a stable relationship with a non-resident father scored higher on measures of self regulation and cognitive function (Vogel, Bradley, Raikes, Boller, & Shears, 2006) and that having a supportive father can

buffer a child against the negative effects of having a nonsupportive mother for cognitive outcomes (Ryan, Martin, & Brooks-Gunn, 2006).

We extend the study of the development of self regulation to examine associations between preschoolers' emerging self regulation abilities and different profiles of parent-child interactions for father-child and mother-child relationships. We focused primarily on the father-child relationship in our sample of low-income African American and Latino children. Although there is abundant evidence that sensitive and responsive caregiving is associated with better self regulation development (Bernier, Carlson, & Whipple, 2010; Grolnick, Kurowski, & Gurland, 1999; Lengua, Honorado, & Bush, 2007; NICHD ECCRN, 2008; Mistry et al., 2010; Spinrad et al., 2007), it is only recently that evidence has emerged regarding mechanisms of this association. Specifically, Blair and colleagues (Blair et al., 2011; Blair et al., 2008; Blair, Granger, & Razza, 2005) have posited that positive caregiving affects child self-regulation development by supporting a child's ability to regulate stress. However, there is some evidence that fathering is associated differently than mothering with stress regulation. Using data from the Family Life Project, a large sample of low-income mostly rural children, Mills-Koonce, Garrett-Peters, Barnett, Granger, Blair, & Cox (2011) found that father negativity may be a more salient and influential feature of the father-child relationship than degrees of father responsiveness.

The particular salience of father negativity for children's developing stress regulation abilities has some parallels with the 'activation relationship theory' of the father-child relationship put forth by Paquette (2004). According to this theory, unique contributions of father-child relations to children's development pertain to the fathers' tendency to engage their children in physical, arousing, and somewhat dominating play to a greater extent than mothers who are more likely to engage with their children in caregiving and object-mediated play. Father-child interactions, primarily through physical play, are proposed to effectively stimulate the child with excitement and momentary destabilization when in the context of a warm emotional bond. Such experiences may uniquely contribute to the child's growing ability to deal with and resolve conflict situations and regulate stress. In the present study, we examine whether aspects of fathering and mothering are differentially associated with emerging qualities of self regulation and whether associations are culturally universal or culturally specific with regards to African American and Latino preschoolers. We examine behavioral self regulation tasks for low income ethnic minority preschoolers in two interrelated domains based upon previous literature (Carlson, 2005; Carlson & Moses, 2001; Garon, Bryson, & Smith, 2008; Li-Grining, 2007): simple response inhibition and complex response inhibition. 'Simple response inhibition' tasks require children to refrain from looking at or touching a desired object. 'Complex response inhibition' tasks are more cognitively demanding and require attentional shifting in that children must not only inhibit an inappropriate response but also remember and activate an arbitrary rule to be successful (Garon et al., 2008). Supported both theoretically and empirically, the key difference between simple and complex inhibition tasks is the demand on working memory, which is greater for complex inhibition tasks.

In the present study of parenting and the emergence of self regulation in low income African American and Latino preschoolers, we examine: (1) differences in the quality of fathering by demographic and family characteristics, (2) associations between child self regulation skills and fathering and whether such associations differ for African American and Latino children, and (3) unique predictions of fathering to child self regulation skills controlling for mothering qualities, father and family characteristics and whether predictions from fathering quality vary by child ethnicity.

Method

Participants

Participants included 404 2 ½-year-old children and their families. Families were recruited through a wide range of community-based strategies including distributing study information to organizations and agencies serving low-income communities such as WIC clinics, medical clinics, day care centers, recreational centers, churches, community fairs, or from other venues in low-income communities where families with young children are present such as parks or grocery stores. The sample was comprised of African American children ($N=182$) and Latino children ($N=222$). Of the Latino families, 75.7% preferred to communicate in Spanish, and 73.4% were foreign born, of which 95.6% were of Mexican origin.

Many family demographics differed by child ethnicity (see Table 1). Extreme poverty, as determined by family income less than one-half the federal poverty level was more prevalent among African American families (61.8%) than Latino families (19.3%). The father or a father figure was more likely to reside with the child and mother among Latino families (90.1%) than African American (40.7%), and African American children were much more likely than Latino children to reside with a father figure that rather than their biological father. African American fathers were less likely to be employed (57.6%) than were Latino fathers (87.5%), but they were much more likely to have at least a high school education or GED (78.6%) than Latino fathers (30.8%).

Of the 310 fathers or father figures eligible for data collection according to the mother's report of co-residency, 224 (73%) participated in the father-child interactions. This participation rate is considerably higher than the reported 49% participation of co-residing fathers in the comparably economically disadvantaged Early Head Start Research and Evaluation Project (Martin, Ryan, & Brooks-Gunn, 2007). Similar to participation factors reported by Martin et al., co-resident Latino fathers were marginally less likely to participate in the present study than co-resident African American fathers, 69% vs. 78%, $\chi^2(1) = 2.98$, $p = .08$. The sample of 224 children with both mother-child and father-child interaction data consisted of 86 (38%) African American and 138 (62%) Latino children, according to mothers' report of ethnicity. Among the Latino children, there are four cases in which the mother did not report her own ethnicity as Latino and 13 cases in which she reported the father was not Latino. There are no cases in which the child was reported African American and either the mother or father in the interactions was Latino. Unless otherwise specified, characteristics of the participants and analyses are reported in terms of the child's ethnicity.

The average age of the children at the time of assessment was 29.79 months ($sd = .63$, range 28-31 months). African American children were slightly older than Latino children, 29.87 months ($sd = .69$) vs. 29.73 months ($sd = .56$), for African American and Latino children, respectively, $t(402) = 2.31$, $p < .05$.

Measures

Simple Response Inhibition

Three delay tasks were included in the simple response inhibition composite. All tasks were videotaped and scored from the recordings. In the snack delay task (Kochanska, Murray, & Harlan, 2000), children were asked to wait to eat a chocolate candy piece until a bell was rung. Four trials were administered with varying wait times. Scoring on a 6-point scale reflects children's delay abilities (0 = ate chocolate before halfway point of trial, 6 = waited until bell was rung). Interrater reliability as determined by Kappa coefficients for the snack delay task coding was .99 (range .993 - .998). In the wrapped gift task, the children were

instructed not to peek while a gift was wrapped directly behind them. The visitor then instructed the child not to touch the gift while she left the room to get a bow. Scoring included the nature of children's peeking (e.g., peeked but turned back around), latency to peek time, whether children touched the gift, and latency to touch, lift, and open the gift. Interrater reliability kappa coefficients for the wrapped gift task ranged from .90 to .99 (average = .96). The forbidden toy task was adapted from the NICHD Study of Early Child Care and Youth Development (SECCYD) procedure (NICHD ECCRN, 1998). The toy was a car that rolls rapidly with an engine noise after shaking it. After 60 seconds of play with the visitor, children were asked not to touch or play with the car until the visitor returned to the room (150s). Type of engagement (e.g., touched car, played with car) and latency to engagement were scored. Interrater reliability kappa coefficients for the forbidden toy task averaged .95 (range .93 - .96).

The snack delay analytic variable was computed as a standardized average of the trial scores. The wrapped gift variable was computed by standardizing and averaging the peek score, and the peek, touch, lift, and open latencies. The forbidden toy variable was formed by standardizing and averaging the engagement and latency scores. With support from a confirmatory factor analysis, a simple response inhibition composite was formed by averaging the standardized scores for snack delay, wrapped gift, and forbidden toy.

Complex Response Inhibition

An attentional conflict task was the study's measure of more complex response inhibition at this age. In the mommy and me task (Bell & Wolfe, 2007) children were presented with pictures of themselves and their mother. The "silly game" instructions were to point to the picture of their self when the visitor said "point to Mommy" and point to their mother's picture when the visitor said "point to [child's name]". Children were scored on their ability to name each picture (naming), respond correctly in practice trials (practice), and respond correctly in test trials. All trials, including the naming and practice trials, were coded 1 = incorrect, 2 = self correct, or 3 = correct by the home visitor conducting the task. To capture the full range of performance, children were categorized into one of six groups based on the highest number of teaching, practice, and test trials they passed: Refused, Could not pass naming trials, 1-2 naming trials correct, 1-2 practice trials, 1-2 test trials correct, or 3-4 test trials correct.

Parent-child Interactions

The mother-child and father-child 15-minute videotaped interaction procedures followed those used in the SECCYD (NICHD ECCRN, 1999). Toy stimuli were contained in numbered bags. Parent and child were instructed to spend time with the contents of three numbered bags, each containing toy stimuli. The validity of this procedure for assessments of fathering qualities, as well as mothering, has been demonstrated in multiple reports from the SECCYD as well as those from the Early Head Start Research Evaluation Study Fatherhood Initiative (e.g., Martin et al., 2007; NICHD ECCRN, 2004, 2008; Ryan et al., 2006). For the father-child interactions the contents were: the picture book "Goodnight, Gorilla" by Peggy Rathmann (or "Buenas Noches, Gorila" for Spanish-speaking fathers) in bag one, Cool Tools Activity Set by I-Play in bag two, and a Schoolhouse by Learning Resources in bag three. Contents for the mother-child interaction were the picture book "Good Dog Carl" by Alexandra Day in bag one, an Early Learning Centre "First Kitchen" set in bag two, and the Fisher Price "Discovery Cottage" in bag three.

Observations of the interactions were independently rated using 5-point global rating scales (1 = low; 5 = high) (Owen, Amos, Bondurant, Caughy, Hasanizadeh, Hurst et al., 2009) adapted from the 4-point rating scales used at this age in the SECCYD (Owen, Vaughn,

Barfoot and Ware, 1996) to measure the parenting qualities of sensitivity, intrusiveness, detachment, cognitive stimulation, positive regard, and negative regard. The English language coding team of two raters included one member who is African American; the Spanish language coding team of three raters included two Latino coders. To ensure reliability between the English and Spanish coding teams, both groups met together weekly to code an English-speaking dyad. Interrater reliability kappa coefficients determined from independent double coding of 29% of mother-child and 25% of the father-child videotapes ranged from .77 to .87. Interrater reliability did not differ significantly between mother-child and father-child dyads or between African American and Latino dyads.

Latent class analyses were conducted using MPlus to derive parenting profiles from the mother behavior ratings and the father behavior ratings. Support was found for three parenting profiles defining fathering groups characterized as child-oriented (48.7%), directive (43.8%), and hostile (7.6%). In analyses of the entire sample of 398 collected mother-child interactions that included mothers included in the current study as well as those from households without a father present and those in which the father did not participate, support was found for four parenting profiles defining mothering groups characterized as child-oriented (39.4%), directive (37.9%), hostile (10.1%), and uninvolved (12.6%). Child-oriented parenting was characterized by high levels of sensitivity, cognitive stimulation, and positive regard, and low levels of detachment, intrusiveness and negative regard. Directive parenting was characterized by moderately high levels of sensitivity, cognitive stimulation, positive regard, and intrusiveness, and low levels of detachment and negative regard. Hostile parenting was associated with high levels of intrusiveness and negative regard and low levels of sensitivity, cognitive stimulation, and positive regard. Finally, uninvolved mothering was characterized by high detachment and low levels of all other parenting indices.

Father Involvement

Mothers reported the father's involvement in day-to-day care of the child from questions adapted from the Fragile Families and Child Wellbeing Study (The Fragile Families and Child Wellbeing Study, 2008). The measure included 10 particular activities with the child. The response format for each item was the number of days per week the father engaged in that particular activity, from 0 to 7. An exploratory factor analysis using principal axis extraction and an oblique rotation identified two factors explaining 50.5% of the variance. The first factor, labeled Daily Care/Affection was comprised of five items (feeds child, hugs child, changes diaper, plays peek-a-boo/gotcha games, puts to bed) with internal reliability of .78. The second factor, labeled Cognitive Stimulation, was comprised of four items (tells stories, reads stories, sings songs, plays indoor games) with internal reliability of .68. One item (takes child to see relatives) was dropped because it failed to load significantly on either factor.

Results

Associations of Fathering Qualities with Demographic Characteristics

The distribution of the different fathering profiles (child-oriented, hostile, directive) differed by child and by father ethnicity, family income, and father education (see Table 3). Child-oriented fathering was more prevalent among Latino fathers (60.0%) than among African American fathers (34.3%), and hostile parenting was more than three times more prevalent among African American fathers (13.1%) than among Latino fathers (3.2%). Most of the fathers with a hostile fathering profile had family incomes of less than half the federal poverty level, and child-oriented fathering was more likely when fathers were employed than not employed.

Distributions of fathering profiles by father education did not indicate a clear pattern, but in follow-up tests stratified by child ethnicity, higher father education was associated with more child-oriented fathering among African American but not Latino fathers. Child-oriented fathering was more frequent among African American fathers with more than a high school education (61.9%) than among those with less education (25.4%), $\chi^2(1) = 11.02, p < .01$.

Associations of Child Self Regulation Skills with Presence and Quality of Fathering, Child, and Family Characteristics

Associations of child self-regulation skills with the presence of father in the home, profiles of fathering qualities, child gender, and family characteristics were examined in a series of analyses of variance as shown in Table 4. Self-regulation outcomes included the simple response inhibition composite and the single index of more complex response inhibition skill. Differences stratified by child ethnicity were also examined.

Variations in the children's response inhibition were unrelated to whether or not the father resided in the household, and fathering profiles were unrelated to children's simple response inhibition. Associations of fathering profiles with complex response inhibition were modified by the child's ethnicity, such that complex response inhibition skill was greater for child-oriented fathering than for directive or hostile fathering among African American children but not Latino children. Average scores for complex inhibition for African American children were 3.10 (sd = 1.16), 2.64 (sd = 1.22), and 2.00 (sd = 1.41) for child-oriented, directive, and hostile fathering groups, respectively, $F(83,2) = 3.87, p < .05$. Post-hoc comparisons using a Bonferroni correction indicated that complex response inhibition scores were significantly higher among African American children who experienced child-oriented fathering compared to hostile fathering, but that differences between child-oriented fathering and directive fathering were not significantly different.

Girls were marginally more self regulated than boys in simple response inhibition skills and significantly more self regulated in more complex response inhibition. When stratified by child ethnicity, African American girls had greater average complex response inhibition scores than African American boys, 3.05 (sd = .99) and 2.56 (sd = 1.32) for girls versus boys, respectively, $t(177) = -2.84, p < .01$. Although Latina girls had somewhat higher complex response inhibition scores than did Latino boys, 2.87, (sd = 1.16) versus 2.61 (sd = 1.37), the difference was not significant. Self-regulation skills did not differ significantly by family income, father employment or father education, either for the whole sample or stratified by child ethnicity, and self regulation did not differ by child ethnicity.

Multiple Prediction of Child Self Regulation Skills from Quality of Fathering and Mothering

Multivariate regression analyses were used to examine differences in self regulation uniquely predicted by mothering and fathering profile class and to examine if differences were moderated by child ethnicity. Parenting profiles were coded 1 if the parenting profile was child-oriented and 0 otherwise. A series of five models were tested. Model 1 examined the multiple prediction of self regulation from child gender, family income-to-needs ratio (centered), and child-oriented mothering. Model 2 added child-oriented fathering to the model. Model 3 added child ethnicity (1 = Latino child ethnicity) and the interaction of child-oriented fathering $\times$ child ethnicity. The final two models added father characteristics of employment and education (Model 4) and the two forms of father involvement (Model 5). Results of these series of regressions are shown predicting simple response inhibition in Table 5 and predicting complex response inhibition in Table 6.

As shown in Table 5, better simple response inhibition skills were consistently predicted by child-oriented mothering, but not by fathering quality. We also tested whether child ethnicity modified the prediction from child-oriented mothering, but the interaction was not significant, and results from this model are not shown in Table 5.

Results of the regressions predicting complex response inhibition as shown in Table 6 indicated that child-oriented fathering uniquely predicted greater complex response inhibition in the children when the interaction with child ethnicity was included (Model 5). To explore the nature of the interaction, we used methods outlined by Preacher, Curran, and Bauer (2004, 2006) to calculate the ethnicity-specific slopes for African American and Latino children. The interaction is displayed in Figure 1. Among African American children, father-oriented fathering was associated with significantly higher complex inhibition scores, $b = 1.08$, $se = .40$, $t = 2.72$, $p < .01$. Among Latino children, child-oriented fathering was associated with marginally lower but not significantly different complex inhibition scores, $b = -.50$, $se = .29$, $t = 1.72$, $p = .09$.

Discussion

While much research suggests that individual differences in children's impulsivity and early self control abilities are seen even in infancy and can be attributed to temperamental differences that are brain based (Sutton & Davidson, 1997; Tarullo, Obradovic, & Gunnar, 2009), studies also find that early relationships help to shape children's self-regulation abilities (Gunnar, 2003). For example, early relationship quality with the mother starting in infancy as well as relationship quality with child care providers in early childhood have been shown to predict children's self-regulation and attention in first grade (NICHD ECCRN, 2005). The current study contributes to the small literature addressing emerging self-regulation abilities and relationship quality with the father as well as mother in low-income ethnic minority children.

The findings confirm contributions of sensitive, warm, and stimulating mothering to young children's developing response inhibition skills for both African American and Latino preschoolers, but when including contributions of fathering qualities, child-oriented mothering was not a significant predictor of more complex response inhibition skills that were just beginning to emerge at age 2 ½ years. Supportive, child-oriented mothering was associated with better simple response inhibition skills as measured by three tasks. For African American but not Latino children, child-oriented fathering was a unique contributor to the children's emerging complex response inhibition skills. The findings regarding the unique importance of sensitive, stimulating fathering in predicting African American children's emerging self regulation in an attention conflict task is consistent with others' highlighting the developmental importance of fathers' sensitive and challenging play (e.g., Grossmann et al., 2002) and an 'activation relationship' (Paquette, 2004) in father-child play interactions.

Culture-specific Associations of Fathering with Toddlers' Self Regulation

Although these young children's self regulation abilities did not differ by child ethnicity, associations between child-oriented fathering and individual differences in the emergence of more complex self regulation skills were culturally specific, in that more child-oriented fathering predicted better complex response inhibition only among African American and not Latino children. We sought to explain the lack of association with Latino fathering qualities by examining father involvement. Among those observed in parent-child interactions, Latino fathers were less involved than African American fathers with their preschoolers, according to the mothers' reports. This difference may have been due, at least in part, to Latino fathers' greater absence from the home, given that many fathers worked in

jobs that took them out of town for considerable periods of time. The collection of father-child interactions in the Latino sample frequently required a second visit to the home when the father returned to town, whereas father-child and mother-child interactions for the African American children were more often collected in the same visit. African American fathers were also present more often than Latino fathers because of their much greater likelihood of unemployment. The measure of father involvement, however, was unassociated with children's self-regulation abilities. Further, additional follow-up analyses (unreported) found no evidence that the degree of father involvement moderated associations of fathering with child self regulation.

The lack of evidence for father involvement to explain cultural differences in the association between child-oriented fathering and complex self regulation skills in these young preschoolers suggests that other cultural differences may be at play. With follow-up data we are collecting in a visit at age 3 ½ years, we will examine whether associations with fathering arise for the Latino children at older ages.

Associations found between simple response inhibition skills of self regulation with child-oriented mothering did not differ for African American and Latino children, indicating that such qualities of mothering support the development of these foundational skills of self regulation for both cultures. This finding provides evidence of the universality of such socialization supports for the development of self regulation.

Certain limitations should be kept in mind when interpreting the results of this study. Because the sample of Latino families was almost exclusively of Mexican origin, the results cannot be generalized to Latino families from other countries of origin. Researchers are increasingly aware of the importance of examining differences between Latino subgroups, and future research should examine the unique role of fathering in the development of young children of these subgroups. Another limitation stems from the relative lack of data collected from the fathers themselves, notably the reliance on mothers' reports for the measure of father involvement. Although we collected extensive questionnaire data on parenting values and socialization goals from the children's mothers, data collected from fathers at this age was limited to the interaction observations. In our follow up visits we are collecting more extensive information from fathers regarding their values and socialization goals that may assist in explaining the ethnic differences found in this first wave of data collection in the relation between fathering and children's emerging self regulation skills.

The results of this study make important contributions to the study of how sensitive, stimulating fathering is uniquely important for the school readiness of children who are at significant risk for early academic failure. The policy implications of these findings are self-evident. Early interventions to improve school readiness in at risk populations should strive to engage fathers as well as mothers in their programs (Roggman et al., 2004). Such efforts will likely require novel approaches that accommodate the availability of fathers to participate as well as their preferred mode of participation in playful interactions with their children. Helping fathers to develop the skills to foster the school readiness of their young children is another important avenue for reducing disparities in early academic achievement.

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Figure 1.
Differences in complex inhibition skills by quality of fathering and child ethnicity

Table 1

Characteristic of study sample (N=404)

	<u>Child ethnicity</u>		χ^2
	<u>African American (N = 182)</u>	<u>Latino (N = 222)</u>	
	<u>N (%)</u>	<u>N (%)</u>	
Family Income*			
< 50% federal poverty level	96 (61.1)	40 (19.3)	71.35 ***
50-99% federal poverty level	27 (17.2)	86 (41.5)	
100-149% federal poverty level	22 (14.0)	57 (27.5)	
150-200% federal poverty level	7 (4.5)	21 (10.1)	
>200% federal poverty level	5 (3.2)	3 (1.4)	
Child gender			
Boy	101 (55.5)	116 (52.3)	.58
Girl	81 (44.5)	106 (47.7)	
Father/father-figure in household			
No	74 (40.7)	22 (9.9)	52.20 ***
Yes	108 (59.3)	200 (90.1)	
Family structure			
Nuclear	36 (20.1)	133 (59.9)	154.25 ***
Nuclear extended	4 (2.2)	49 (22.1)	
Single parent	47 (26.3)	9 (4.1)	
Single extended	39 (21.8)	23 (10.4)	
Single parent plus partner	31 (17.3)	4 (1.8)	
Other	22 (12.3)	4 (1.8)	
Father-figure's relationship to child			
Father	74 (68.5)	187 (93.5)	39.41 ***
Mother's partner	12 (11.1)	1 (.5)	
Grandparent	10 (9.3)	8 (4.0)	
Other adult relative	9 (8.3)	4 (2.0)	
Sibling	3 (2.8)	0 (.0)	
Father's ethnicity			
African American	108 (100.0)	22 (11.0)	227.73 ***
Latino	0 (.0)	178 (89.0)	
Father's employment status			
Unemployed	39 (42.4)	23 (12.5)	31.46 ***
Employed	53 (57.6)	161 (87.5)	
Father's educational attainment			
Less than 7 years of school	1 (1.3)	45 (24.7)	53.37 ***
7-12 years of school	15 (20.0)	81 (44.5)	
High school degree/GED	49 (65.3)	42 (23.1)	
More than high school	10 (13.3)	14 (7.7)	

 $p < .001$

Table 2

Characteristic of fathers who participated in father-child interactions (N = 224)

	N	%
<u>Race/ethnicity</u>		
African American, non-Latino	91	40.6
Latino	118	52.7
White, non-Latino	3	1.3
Native American	1	0.4
Multi-ethnic	11	4.9
<u>Child ethnicity</u>		
African American, non-Latino	81	36.2
Latino	114	50.9
Multi-ethnic	29	12.9
<u>Child gender</u>		
Boy	120	53.6
Girl	104	46.4
<u>Father-figure's relationship to child</u>		
Father	191	85.3
Mother's partner	12	5.4
Grandfather	10	4.5
Other adult relative	9	4.0
Sibling	2	0.9
<u>Father's employment status</u>		
Unemployed	50	22.3
Employed	147	65.6
Missing information	27	12.1
<u>Father's educational attainment</u>		
Less than 7 years of school	34	15.2
7-12 years of school	62	27.7
High school degree/GED	70	31.3
More than high school	19	8.5
Missing information	39	17.4

Table 3

Differences in quality of fathering by father and family characteristics

	Directive	Hostile	Child-Oriented	
	N (%)	N (%)	N (%)	χ^2
<u>Child gender</u>				
Boy	57 (47.5)	11 (9.2)	52 (43.3)	3.19
Girl	41 (39.4)	6 (5.8)	57 (54.8)	
<u>Child ethnicity</u>				
African American	45 (52.3)	11 (12.8)	30 (34.9)	12.77 **
Latino	53 (38.4)	6 (4.3)	79 (57.2)	
<u>Father ethnicity</u>				
African American	52 (52.5)	13 (13.1)	34 (34.3)	17.78 ***
Latino	46 (36.8)	4 (3.2)	75 (60.0)	
<u>Family income</u>				
<50% FPL	28 (43.8)	12 (18.8)	24 (37.5)	22.69 **
50-99% FPL	28 (37.3)	3 (4.0)	44 (58.7)	
100-149% FPL	24 (51.1)	2 (4.3)	21 (44.7)	
150-199% FPL	4 (22.2)	0 (.0)	14 (77.8)	
200-299% FPL	2 (66.7)	0 (.0)	1 (33.3)	
<u>Father's employment status</u>				
Unemployed	21 (42.0)	8 (16.0)	21 (42.0)	6.85 *
Employed	65 (44.5)	7 (4.8)	75 (51.0)	
<u>Father education</u>				
Less than HS	45 (46.4)	6 (6.2)	46 (47.4)	11.31 *
HS	30 (42.9)	10 (14.3)	30 (42.9)	
More than HS	13 (33.3)	0 (.0)	26 (66.7)	

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

Table 4

Differences in child self regulation skills associated with presence and quality of fathering, child and family characteristics

	<u>Simple Inhibition</u>		<u>Complex Inhibition</u>	
	<u>Mean (SD)</u>	<u>F</u>	<u>Mean (SD)</u>	<u>F</u>
<u>Father in household</u>				
No	-.10 (.72)	.76	2.85 (1.10)	.83
Yes	-.02 (.77)		2.72 (1.29)	
<u>Quality of fathering</u>				
Directive	-.07 (.73)	.84	2.63 (1.40)	.55 ^a
Hostile	-.02 (.80)		2.56 (1.41)	
Child-oriented	.07 (.84)		2.79 (1.01)	
<u>Child gender</u>				
Boy	-.10 (.72)	3.29 ⁺	2.59 (1.35)	8.36 ^{**}
Girl	.04 (.79)		2.95 (1.09)	
<u>Child ethnicity</u>				
African American	-.04 (.80)	.00	2.78 (1.21)	.11
Latino	-.04 (.72)		2.73 (1.28)	
<u>Family income</u>				
< 50% FPL	-.14 (.79)	1.38	2.72 (1.24)	.30
50-99% FPL	-.02 (.72)		2.68 (1.33)	
100-149% FPL	.06 (.77)		2.76 (1.42)	
150-199% FPL	.10 (.60)		2.93 (.77)	
200-299% FPL	.18 (.28)		3.00 (1.60)	

⁺ $p < .10$;

^{**} $p < .01$

^a Note. The effect of fathering profiles on complex response inhibition was significant for African American children but not for Latino children, as described in the text.

Table 5

Regression of simple response inhibition skills on quality of fathering, controlling for child gender, family income, and quality of mothering

	Model 1		Model 2		Model 3		Model 4	
	b (se)	t	b (se)	t	b (se)	t	b (se)	t
Constant	-.22 (.09)	-2.38 *	-.26 (.13)	-2.01 *	-.22 (.14)	-1.58	-.24 (.23)	-1.05
Child gender (1=girls)	.14 (.10)	1.34	.14 (.10)	1.34	.15 (.10)	1.43	.15 (.11)	1.38
Family income-to-needs (ctrd)	.15 (.10)	1.56	.19 (.10)	1.83 +	.14 (.11)	1.23	.15 (.11)	1.30
Child-oriented mothering	.22 (.11)	2.04 *	.23 (.11)	2.13 *	.26 (.11)	2.34 *	.26 (.11)	2.29 *
Child-oriented fathering	.06 (.11)	.55	.27 (.20)	1.40	.27 (.20)	1.40	.28 (.20)	1.43
Latino child ethnicity	---	---	.02 (.17)	.14	.16 (.19)	.83	.17 (.19)	.88
Latino × child-oriented fathering	---	---	-.35 (.29)	-1.19	-.40 (.29)	-1.36	-.40 (.30)	-1.35
Father employed	---	---	---	---	-.02 (.11)	-.17	-.02 (.11)	-.20
Father education <HS	---	---	---	---	-.21 (.12)	1.66	-.20 (.13)	-1.51
F involvement (care/affection)	---	---	---	---	---	---	-.00 (.04)	-.13
F involvement (cog stimulation)	---	---	---	---	---	---	-.02 (.04)	.41

+ $p < .10$;

* $p < .05$

Table 6

Regression of complex response inhibition skills on quality of fathering, controlling for child gender, family income, and quality of mothering

	Model 1		Model 2		Model 3		Model 4	
	b (se)	t	b (se)	t	b (se)	t	b (se)	t
Constant	2.44 (.15)	16.05***	2.23 (.21)	10.64***	2.21 (.23)	9.76***	1.68 (.38)	4.40***
Child gender (1=girls)	.35 (.18)	2.01*	.34 (.17)	1.98*	.34 (.17)	1.97*	.34 (.18)	1.96*
Family income-to-needs (ctrd)	.08 (.16)	.48	.13 (.17)	.76	.10 (.18)	.55	.14 (.19)	.72
Child-oriented mothering	.29 (.18)	1.59	.30 (.18)	1.63	.30 (.18)	1.64	.31 (.18)	1.68 ⁺
Child-oriented fathering	.08 (.18)	.45	.72 (.32)	2.23*	.72 (.32)	2.22*	.77 (.32)	2.37*
Latino ethnicity	---	---	.31 (.28)	1.09	.36 (.32)	1.12	.41 (.32)	1.28
Latino × fathering	---	---	-1.09 (.48)	-2.26*	-1.10 (.48)	-2.27*	-1.20 (.49)	-2.47*
Father employed	---	---	---	---	.06 (.18)	.34	.02 (.18)	.10
Father education <HS	---	---	---	---	.06 (.21)	-.27	.02 (.21)	.10
F involvement (care/affection)	---	---	---	---	---	---	.08 (.06)	1.20
F involvement (cog. stimulation)	---	---	---	---	---	---	.03 (.06)	.52

⁺ $p < .10$;

* $p < .05$;

*** $p < .001$