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Ethnic Differences in Mothering Qualities and Relations to Academic Achievement

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Abstract

Although qualities of mothering behavior have been consistently linked with children's academic outcomes, mothers from different ethnic groups may emphasize different dimensions with their children. The present investigation aims to evaluate and compare the dimensionality of mothering in low-income African American ($n = 151$) and Mexican American ($n = 182$) mothers during early childhood and its predictive utility for children's academic achievement. Video-recorded mother-child interactions with children at 2½ and 3½ years of age were rated using six mothering quality items from a widely used global rating system. A bifactor measurement model of these six items yielded a general sensitive support factor and a specific intrusive-insensitive factor. The bifactor model fit the data significantly better at both time points than either a single factor or a two factor model. Invariance testing supported the stability of the measurement model across the two time points. Invariance testing by ethnicity indicated differences in factor loadings as well as mean levels of the specific factor of intrusive-insensitivity. The specific factor reflecting intrusive-insensitive mothering at age 2½ years was associated with poorer subsequent reading achievement for African American but not Mexican American children, suggesting the specific factor reflected qualitatively different parenting constructs for the two ethnic groups. Critical examination of what constitutes more optimal parenting yielded both similar and dissimilar characteristics and their relations across culturally different groups of families. Such knowledge should contribute to the development of more effective interventions for ethnically diverse families.

Keywords

parenting; cultural differences; academic outcomes; measurement issues

Parent-child interactions characterized by sensitive responsiveness and cognitive stimulation are associated with better child behavioral and academic outcomes (Mistry, Brenner, Biesanz, Clark, & Howes, 2010; NICHD Early Child Care Research Network [ECCRN], 2004, 2008). Parenting behavioral qualities important for supporting children's readiness for school include not only explicit specific instructional content such as number concepts and early literacy experiences but also general warmth and responsiveness. For example, Mistry et al. (2010), utilizing data from the National Early Head Start Research and Evaluation study, demonstrated that both responsive parenting and language/literacy stimulation independently contributed to pre-kindergarten children's school readiness in both academic and behavioral domains.

Studies on the linkages between individual differences in parenting qualities to variations in child development outcomes have provided the foundation for many intervention programs targeting children at risk for poor developmental outcomes (Dishion et al., 2014; Mihalopoulos, Sanders, Turner, Murphy-Brennan, & Carter, 2007). Many of these interventions largely serve ethnic minority families due to their higher prevalence among low-income families and heightened risk for compromised developmental outcomes. However, the validity of conclusions regarding associations between parenting qualities and child outcomes largely depend on how well we have operationalized parenting and how accurately that operational definition reflects dimensions of parenting across different ethnic groups. Families from different cultures may prioritize different parenting approaches, and this would have significant implications for child outcomes and related interventions.

Evidence-based approaches to early intervention should be based on the research literature on how parenting is related to developing child competence. Accordingly, issues of measurement validity are especially important when studying links between parenting and child outcomes in diverse populations. A growing body of research suggests that constructs commonly used to capture differences in parenting such as warmth, harshness, and intrusiveness may not apply universally across ethnic groups in terms of the relation of the parenting construct to child outcomes (Halgunseth, Ispa, & Rudy, 2006; Ispa et al., 2013).

One of the more widely used approaches to measuring parenting qualities for research involves a semi-structured videotaped observation of the parent and child engaging with a standard set of toys, books, or puzzles contained in a series of two or three bags or boxes (NICHD ECCRN, 1999). This approach requires observers to make qualitative ratings of both positive and negative features of parenting behavior during the interaction episode and typically includes ratings of parental warmth, responsiveness, harshness, intrusiveness, and cognitive stimulation. These ratings are combined to create one or two composite indicators of parenting quality, which are, in turn, used to examine relations between parenting and child outcomes. Studies vary in how rating items from this widely used protocol are aggregated into composite measures for use in subsequent analyses with child outcomes (Barnett, Shanahan, Deng, Haskett, & Cox, 2010; Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009; Towe-Goodman et al., 2014). The creation of composites is based on certain *a priori* assumptions regarding how parenting qualities co-vary as well as what those dimensions mean in the context of the group being studied. As has been noted, there is

evidence that parenting dimensions differ across cultural groups in terms of their interrelationships and their associations with child outcomes. For example, Deater-Deckard et al. (2011) found that measures of parental warmth and control correlated differently among three different cultural groups. Likewise, Ispa and colleagues report that the parenting domain of intrusiveness or directiveness is normative among Latino families and relates differently to child outcomes compared with other race-ethnic groups (Halgunseth et al., 2006; Ispa et al., 2013). Therefore, it is important that we critically examine the assumptions we apply to standard assessments of parenting quality collected in research settings.

In this paper, we compare parenting quality ratings commonly used in early childhood parenting research in a sample of low-income African American and Mexican American mothers and their preschool-aged children observed at two ages. We view the determinants of parenting behavior through the contextual framework laid out by Garcia-Coll et al. (1996) in which parenting is identified as a proximal determinant of child outcomes that is shaped by a family's adaptive culture. Garcia Coll et al. (1996) define adaptive culture as a "product of the group's collective history (cultural, political, and economic) and current contextual demands posed by the promoting and inhibiting environments" in which the family lives (p. 1904). Although both African Americans and Latinos experience higher rates of poverty and its associated risks, the contexts shaping parents' socialization priorities differ significantly between these two groups. Predominate patterns of parenting among African American families in the U.S. are influenced by both the legacy of this population's involuntary migration to the U.S. and the impact of slavery as well as present day social stratification processes and experiences of discrimination. Parenting among African Americans has been characterized as "no-nonsense" but warm and including a greater reliance on physical discipline (Garcia Coll, Meyer, & Brillon, 1995; Hill & Bush, 2001).

In contrast, Latino parenting is shaped by a different set of contextual demands including not only differences in culture but also differences in the forces that brought Latino families to the U.S., the communities where Latino families reside, and the impact of language barriers/discrimination. Halgunseth, Ispa, and Rudy (2006) describe Latino parenting as more directive and that Latina mothers of young children are more likely to provide physical guidance during feeding, play, and teaching activities. Although Latino parenting behavior has been referred to as authoritarian, this firmness is coupled with high levels of warmth and sensitivity (Livas-Dlott et al., 2010).

The data for the present study are drawn from a larger study of parenting influences on self-regulation development and early academic achievement among low-income African American and Latino children. The intent of this study was not to investigate cultural determinants of parenting, and parenting measures for the study were drawn from the protocols initially put forth as part of the NICHD Study of Early Childcare and Youth Development (NICHD ECCRN, 1999). However, initial attempts at data reduction of these parenting ratings in the present study using standard configural representations reported in the literature were fraught with poor model fit. Consequently, we explored more novel approaches to summarizing these parenting ratings with the hopes we might better capture the specific interrelations of these ratings in this population of parents.

Specifically, we use a confirmatory factor analytic approach to compare several plausible dimensional structures that have been commonly used in the literature (a single factor model and a two factor model). We also test the fit of the data with a bifactor model, which affords an alternative multidimensional structure of parenting (Reise, 2012). The key difference between a bifactor approach and conventional factor analytic templates is that the former allows for complex factor structure; that is, measures are allowed to cross-load on more than one factor. Conversely, in multidimensional solutions with *simple structure* (Thurstone, 1940), a 1:1 correspondence between measures and factors is emphasized, either by employing rotation algorithms that minimize cross-loadings, by dropping items that cross-load, or by forcing cross-loadings to values of zero in confirmatory models. In a bifactor structure, all items typically load on one general factor representing what all items have in common. In addition, one or more distinct subsets of items will additionally load on corresponding specific factors that represent residual clusters of common variance not captured by the general factor. Thus, a bifactor model allows one to retain fidelity to a unitary construct with a single dimension, while at the same time to uncover evidence of multidimensionality (Reise, Moore, & Haviland, 2010).

The bifactor approach has several strengths. One is its psychological plausibility: Few if any measures of psychological constructs are truly unidimensional, and this is particularly true of measures that assess broadly defined constructs such as parenting quality. A bifactor model allows one to explicitly account for multifaceted influences on a given item, allowing the researcher to “purify” the general factor of contamination from specific factors. Likewise, specific factors – which may represent a source of nuisance method variance, or something more theoretically substantive – are purified of variance shared with other domains of items. In either case, associations with theoretical covariates of interest can, in turn, be estimated more reliably. Another advantage is the resulting factors in the bifactor approach are orthogonal. As a result, observed differences in factors reflect something unique to each factor. These theoretical strengths are, however, accompanied by at least one practical weakness: Given a bifactor structure, no simple aggregation algorithm can be used to compute manifest composite measures for use outside of a structural equation modeling (SEM) context.

In this paper, we compare more common measurement approaches for capturing mothering qualities with a bifactor approach in terms of global measurement model fit as well as how this configural representation does or does not differ by maternal ethnicity. Second, we examine how the parenting qualities observed when the target children were 2½ captured by this model relate to early academic achievement in kindergarten. Low-income African American and Latino children experience significantly higher rates of early academic failure than non-Latino white children, and this early academic failure is believed to set the stage for lower rates of high school completion down the road (Kena et al., 2015; Lee & Burkham, 2002; Lewitt & Baker, 1995). Parenting has been identified as a major contributor to differences in readiness for school, explaining almost half of the gap between African American and Latino children and their non-Latino white peers (Brooks-Gunn & Markman, 2005). In the present study, we examine how differences in parenting during early childhood predict early academic achievement in mathematics and reading/literacy similarly or differently for these two ethnic groups.

Method

Participants

Study participants were from a larger longitudinal study of self-regulation development and school readiness among low-income African American and Latino preschoolers living in a large urban area in the southwest United States. Participants were recruited through the distribution of study information to organizations such as WIC clinics, Head Start programs, recreational centers, and churches as well as through word of mouth. To be eligible, the target child had to be between 29 and 31 months of age; the target child had at least one parent who self-identified as African American or Latino; family income was below 200% of the federal poverty level; the target child was not hospitalized for more than 7 days after birth; and the family intended to remain in the area for at least one year. Data collection has been completed at four time points, age 2½, age 3½, kindergarten, and first grade. The protocol for the study was reviewed and approved by the institutional review boards of the University of Texas Health Science Center Houston (Protocol #HSC-SPH-08-0016) and the University of Texas at Dallas (Protocol #08-01). The present study focuses on parenting data from Time 1 (age 2½) and Time 2 (age 3½) and school outcome data from Time 3 (kindergarten).

A total of 407 families were enrolled, and of these, four were excluded because they were subsequently diagnosed with autism or other significant developmental disability. Of the remaining 403 families, 362 (89.8%) completed the Time 2 home visit. Because of our interest in examining the stability of the measurement model for the parenting assessments across time, we limited our analysis to participants who completed both the Time 1 and Time 2 home visit. Families lost to follow-up did not differ significantly from families who completed the Time 2 visit in terms of child gender, maternal education, or family income. The follow-up rate was significantly higher among Latino families (92.9%) compared with African American families (86.5%), $\chi^2(1) = 4.55, p < .05$. In addition, mothers who were lost to follow-up scored significantly lower on the mother-child interaction rating of positive regard, $t(395) = -2.28, p < .05$, and significantly higher in their ratings of detachment, $t(395) = 3.42, p < .01$.

Of these 362 families, 347 had mother-child interaction data available at both time points. Three cases were missing Time 1 mother-child interaction data and six cases were missing Time 2 data due to camera/experimenter failure. An additional six families were excluded because there was no mother-figure in the child's home at Time 2. Of these 347 families, 339 children interacted with the same female relative at both time points. Latina mothers in the sample were further limited to those of Mexican origin, leaving an analytic sample of 333. The demographic characteristics of this sample are displayed in Table 1. A higher proportion of primary caregivers in African American families (6%) were female relatives other than the mother compared with Mexican American families (.5%). African American families were more likely to be living below 50% of the federal poverty level, and Mexican American mothers had lower levels of education. African American families were more likely to be absent a father or father-figure in the home. Almost 80% of the Mexican

American mothers were born outside of the United States. Most of the Mexican American mothers spoke predominantly Spanish (61%) or were bilingual (30%).

Of the 333 families in the sample, 297 (89.2%) completed the kindergarten visit. Those who did not complete the kindergarten visit did not differ in terms of child gender or maternal education. However, African American families were more likely to not complete the kindergarten visit compared to Mexican American families, 17.0% versus 6.3%, $\chi^2(1) = 9.78, p < .01$. In addition, families that did not complete the kindergarten visit had significantly lower average family income-to-needs ratio, .66 versus .87, $t(329) = -2.04, p < .05$. Finally, mothers lost to follow-up for the kindergarten visit had significantly lower scores on cognitive stimulation at Time 1 (age 2½ years), mean = 2.13 ($sd = .80$) versus mean = 3.32 ($sd = .94$), $t(331) = -2.11, p < .05$. Mothers lost to follow-up also had higher scores on negative regard at Time 2 (age 3½ years), mean = 1.69 ($sd = .95$) versus mean = 1.34 ($sd = .67$), $t(331) = 2.19, p < .05$.

Data Collection Procedures

Families were visited in their home at each time point for approximately 1.5–2 hours. The visit was comprised of an interview with the primary caregiver, assessments of the child, and a semi-structured video-recorded parent-child interaction. Each visit was conducted by a team of two visitors, one who interviewed the mother and the other who administered the child assessments. For Spanish-speaking families, both home visitors were fully bilingual. All measures not available in Spanish were forward translated by a bilingual team member and back translated by two different bilingual team members. Differences were resolved by consensus.

Measures

Mother-child interactions—Mother-child interaction was video-recorded during each home visit using a semi-structured task modeled after the procedures used in the NICHD Study of Early Child Care at this age (NICHD ECCRN, 1999). At Time 1 (age 2½), three numbered bags, each containing a different toy/book were used for a 15-minute interaction. The bag contents were: (1) a wordless picture book (“Good Dog Carl”, Day, 1996); (2) “First Kitchen” by Early Learning Centre; and (3) “Discovery Cottage” by Fisher Price. At Time 2 (age 3½), the interaction lasted 12 minutes, and the bag contents were: (1) “Poppa’s Pizza Pile-Up” by International Playthings in which the challenge was to load plastic toppings atop a pizza crust balanced on a plastic chef’s finger; and (2) a set of 11 Duplo blocks with a picture of a bug that could be constructed from the blocks. The Time 1 toys were chosen because they were gender neutral, encouraged interactive, imaginative play, and mirrored those used in the NICHD Study. The Time 2 toys were chosen because they required slightly more advanced skills than most 3½ year olds possess and, therefore, provided an opportunity for the mother to assist the child in completing the task. The mother and child were instructed to spend time with the contents of each bag, starting with the first bag and proceeding in numerical order.

The interactions were independently rated using 5-point global rating scales (1 = *not at all characteristic*; 5 = *highly characteristic*) adapted from the 4-point scales at age 24 months in

the NICHD Study of Early Child Care (Owen, Vaughn, Barfoot, & Ware, 1996) to assess the qualities of maternal sensitivity, intrusiveness, detachment, cognitive stimulation, positive regard, and negative regard (Owen et al., 2010). Video-recordings in Spanish were rated by bilingual coders. Inter-rater reliability was determined by a second coding of 29% of the interactions. To ensure reliability between the English and Spanish coding teams, both groups met together at least biweekly to code an English-speaking dyad. Interrater reliability was calculated using an intraclass correlation coefficient (O'Brien, 1990) and ranged from .81 to .87. Interrater reliability did not differ between African American and Latino dyads.

Child early academic achievement—The child's achievement in kindergarten was assessed using two measures administered at Time 3: academic achievement in reading and academic achievement in mathematics. Child academic achievement in reading was assessed by compositing scores on the Letter-Word Recognition and Word Attack subscales of the Woodcock-Johnson Revised (Woodcock, 1990) and the Bateria Woodcock-Muñoz (Woodcock & Munoz-Sandoval, 1996) for Spanish-speaking children. Mathematics achievement was assessed by the Applied Problems subtest of the WJR. For bilingual children, the achievement tests were administered in the child's dominant language as reported by the primary caregiver.

Covariates—Family income was used as a covariate. Family income-to-needs ratio was calculated for each time point by dividing family income by the federal poverty level for a family of similar size. The income-to-needs ratios calculated for the three time points were averaged.

Analysis methods—After conducting descriptive analyses of all variables, we fit confirmatory factor models for single factor, two factor, and bifactor models at both Time 1 and Time 2 in accordance with the theoretical distinction between sensitive and harsh/intrusive parenting. Although straightforward for a two factor model with simple structure, the mapping between theoretical factors and items is less clear for a complex structure. Consequently, we first compared two preliminary bifactor models approximating this distinction, one in which the "positive items" (sensitivity, cognitive stimulation, and positive regard) loaded on a specific factor and one in which the "negative items" (negative regard, detachment and intrusiveness) did so. In the positive version of the bifactor model, none of factor loadings for the specific factor were significant. In contrast, in the negative version, all of the factor loadings for the specific factor were significant. Two respecifications were made at this point based on empirical and logical considerations. First, in bifactor model runs with a specific factor defined by detachment, intrusiveness, and negative regard, the modification index (MI) for the sensitivity loading on the specific factor was consistently extreme (e.g., MI = 110.8). Consequently, we freed this parameter in subsequent models. Second, at Time 2 (age 3½), the estimated residual variance for intrusiveness was negative in both two dimensional models. Because a variance cannot be negative, we constrained this parameter to zero in subsequent runs for Time 2. In line with this decision, the same parameter at Time 1 (age 2½ years) was the only residual variance to not significantly differ from zero, and imposing the constraint had no substantive impact on subsequent models.

The best fitting and most parsimonious bifactor structure was one with a general factor and a single specific factor (corresponding roughly to intrusive-insensitive parenting). Models were compared using standard fit indices including the χ^2 , the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean squared error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Criteria for a good model fit were a non-significant χ^2 , CFI > .90, TLI > .90, RMSEA < .08, and SRMR < .08. Longitudinal invariance testing examined the stability of the measurement model over time. Next, a series of nested models for the bifactor structure were estimated to examine measurement invariance by mother's ethnicity. Finally, the predictive validity of the best fit model was examined by relating Time 1 (age 2½ years) parenting qualities to child school outcomes at Time 3 (kindergarten).

RESULTS

Descriptive statistics for all study variables for both the sample as a whole as well as stratified by ethnic group are displayed in Table 2. Maternal behavior ratings differed by ethnicity on all variables at both time points except intrusiveness. Compared to African American mothers, Mexican American mothers displayed higher levels of sensitivity, cognitive stimulation, and positive regard as well as lower levels of negative regard and detachment at both ages. In terms of academic outcomes, African American children scored lower on measures of reading and mathematics achievement compared to Mexican American children.

Model Fit for Bifactor, Two factor, and Single Factor Models of Parenting Behavior

Table 3 reports the factor loadings and fit indices for the three models at ages 2½ and 3½ years. The single factor model, labeled *Sensitivity Composite*, was characterized by high levels of sensitivity, cognitive stimulation, and positive regard coupled with low levels of detachment, intrusiveness, and negative regard ratings. We labeled the factors resulting from the two factor model as *Positive Sensitivity* (high sensitivity, cognitive stimulation, and positive regard) and *Detached-Intrusiveness* (high levels of detachment, intrusiveness and negative regard). For the bifactor model, we labeled the general factor as *Sensitive Support* (high levels of sensitivity, cognitive stimulation, and positive regard coupled with low levels of detachment, intrusiveness, and negative regard), and we labeled the specific factor *Intrusive-Insensitivity* (low levels of sensitivity and detachment coupled with high levels of intrusiveness and negative regard).

The bifactor model fit the data significantly better than either the single factor or the two factor models according to all of the fit indices examined. For the Time 1 data, the chi-square difference tests compared to the bifactor model were $\chi^2(4) = 171.44, p < .001$ and $\chi^2(3) = 165.82, p < .001$ for the single factor and two factor models, respectively. For the Time 2 data, the chi-square difference tests compared to the bifactor model were $\chi^2(3) = 178.86, p < .001$ and $\chi^2(2) = 123.02, p < .001$ for the single factor and two factor models, respectively.

Longitudinal Measurement Invariance

Measurement invariance testing of the bifactor model across the two assessment points utilized standard methods (Vandenberg & Lance, 2000). Specifically, we systematically assessed configural invariance (whether the overall factor structure differed across time), metric invariance (whether the factor loadings differed across time), scalar invariance (whether the indicator intercepts differed across time), and strict factorial invariance (whether the residual variances of the indicators differed across time) in a series of nested model comparisons. We also examined structural invariance, that is, whether means and variances of the latent factors differed across time. The results supported stability of the factor structure over time.

Model Invariance Testing by Ethnicity

Our next step was to conduct model invariance testing of the bifactor measurement model by ethnicity. We utilized the Time 1 parenting data to conduct measurement invariance tests by ethnicity, and results indicated that a partially invariant model fit the Time 1 data best, $\chi^2(26) = 29.97, p = .27, CFI = .99, TLI = .99, RMSEA = .03$. The specific ethnic differences centered around intrusiveness, negative regard, and detachment. Intrusiveness loaded more negatively on the general factor of maternal sensitive support for Mexican American mothers, $b = -.41, se(b) = .07, p < .001$, compared to African American mothers, $b = -.16, se(b) = .07, p < .001$. Negative regard loaded more positively on the specific factor of intrusive-insensitivity for African American mothers, $b = .36, se(b) = .07, p < .001$, versus Mexican American mothers, $b = .16, se(b) = .04, p < .001$. In addition, the item intercept for negative regard for African American mothers, $b = 1.59, se(b) = .07, p < .001$, was higher than the item intercept for Mexican American mothers, $b = 1.36, se(b) = .07, p < .001$. Finally, the residual variances for detachment and negative regard were higher for African American mothers relative to Mexican American mothers, indicating that the bifactor model explained variance in the detachment and negative regard ratings for Mexican American mothers better than it did for African American mothers. In subsequent structural invariance tests, the means of both the general factor of maternal sensitive support as well as the intrusive-insensitive specific factor were higher for Mexican American mothers, although the factor variances did not differ by ethnicity.

Academic Adjustment Outcome Predictions from Parenting Qualities by Ethnicity

Finally, we fit a multiple group structural model in which a bifactor model of mothering qualities at Time 1 (age 2½ years) predicted child academic outcomes at Time 3 (kindergarten) taking into account differences in the measurement model in the general and specific factors by ethnicity. The results are displayed in the Figure. A number of the relations appeared to differ by ethnicity. We conducted follow-up testing for any pair of coefficients that was significant in one group but not the other. Specifically, models were estimated in which the coefficient in question was constrained to be the same across groups, and the chi-square of this restricted model was compared to the chi-square of the unrestricted model. If the fit of the model degraded significantly as indicated by a significant change in the chi-square, this was evidence the coefficients for the effect under consideration differed significantly by ethnicity. Of the two coefficients that appeared to differ (the effect

of the maternal sensitive support on math performance and the effect of maternal intrusive-insensitivity on reading performance), only one coefficient was identified as significantly different by ethnicity according to significant change in the chi-square between the restricted and unrestricted models: The specific factor of intrusive-insensitive parenting at Time 1 (age 2½ years) was associated with significantly lower WJR reading scores at Time 3 (kindergarten) for African American children but was unrelated to the reading performance of Mexican American children, $\chi^2(1) = 5.59, p = .018$.

Discussion

Parenting is a universal practice across ethnicities and serves as a central component in preparing children for their adult life roles (Harkness & Super, 2002). The central importance of parents for children's well-being is widely recognized in the research literature. Indeed, the study of parenting in relation to children's development has been one of the central themes of developmental science since the field's inception. The research literature also recognizes that the parenting approaches of different ethnic groups are shaped by each group's unique history and culture as well as current contextual demands.

Approaches to assessing this important construct have encompassed a range of parenting domains including attitudes, beliefs, and behavior and have utilized parent self-report (and child self-report at older ages), as well as observational methods. Although observational methods are believed to yield the most objective and unbiased measures of observable parenting behavior, thorough psychometric analyses of parenting data derived from observational protocols are seldom reported in the literature. Likewise, there has been scarce empirical research on intercultural group differences in measurement of parenting behavior.

In this paper, we examined how alternative dimensional representations of parenting ratings from observations of a semi-structured parent-child interaction protocol might capture important differences in parenting behavior among low-income African American and Mexican American mothers. We also considered how these differences predicted academic achievement of their children. Observed qualities of mothering were rated at two time points (age 2½ and age 3½) and included sensitivity, cognitive stimulation, positive regard, detachment, intrusiveness, and negative regard. A two-dimensional model that allowed for complex factor structure provided the best account of the rating intercorrelations. In this bifactor model, a *sensitive support* general factor underlying all six observed qualities reflected higher degrees of sensitivity, cognitive stimulation, and positive regard in combination with lower levels of detachment, intrusiveness, and negative regard. Over and above this general factor, a single specific factor explained variance common to four qualities: intrusiveness and negative regard (loading positively) and detachment and sensitivity (loading negatively). We referred to the specific factor as *intrusive-insensitivity*. We compared the fit of this bifactor model with the fit of a single factor composite (with indicators identical to the general factor of the bifactor model) and with fit of a two factor model in which the positive items (sensitivity, cognitive stimulation, and positive regard) and negative items (detachment, intrusiveness, and negative regard) loaded on separate factors. Model fit indices clearly favored the bifactor model over the single factor and two factor models in accounting for variability in the ratings in our sample of low-income African

American and Mexican American families. Longitudinal invariance testing indicated that the bifactor model fit the data equally well at both time points, age 2½ and age 3½.

Invariance testing of the bifactor model by ethnicity revealed interesting differences between African American and Mexican American mothers. When children were 2½ years old, Mexican American mothers exhibited higher average levels of both the general factor (sensitive support) as well as the specific factor (intrusive-insensitivity) than African American mothers. However, there were ethnic differences in the component variables of these factors that are important to consider when interpreting both the ethnic differences in the mean levels of the factors as well as the relation of these factors to child outcomes. Most of these mean level factor differences centered around the mothering quality of negative regard. The intercept for negative regard was significantly higher for African American mothers relative to Mexican American mothers. In addition, the loading of negative regard on the intrusive-insensitive specific factor was significantly higher for African American mothers relative to Mexican American mothers. What this means is that at similar levels of the specific factor of intrusive-insensitivity, African American mothers displayed significantly more negative regard than did Mexican American mothers, which has implications for interpreting the intrusive-insensitive specific factor for the two ethnic groups. Mexican American mothers may have been more intrusive, as indicated by their mean level on the specific factor score relative to African American mothers, but, at the same time, they were not significantly more negative. Hence, despite the finding that both ratings loaded on the specific factor, the interpretation of the factor as “intrusive-insensitive” may be more applicable to the African American mothers, and “highly directive” may be a more appropriate characterization of the specific factor for Mexican American mothers.

This distinction may shed some light on the ethnic differences found for the specific factor of maternal intrusive-insensitivity when study children were 2½ years old in relation to school outcomes in kindergarten. Although the general factor of maternal sensitive support was associated with better academic adjustment for both ethnic groups, higher levels of the specific maternal intrusive-insensitive factor was associated with poorer reading skills for African American children only. This may be because the specific factor of maternal intrusive-insensitivity reflected greater levels of negativity among African American mothers but not among Mexican American mothers.

These findings echo those of others who have reported the association between maternal intrusiveness with child outcomes differs by ethnicity. Intrusiveness has been defined as “parental behavior that disregards or interferes with children’s autonomous activity and/or that is overwhelming and not contingent on children’s behaviors” (Ispe et al., 2013). Although a significant body of research has supported a link between higher levels of maternal intrusiveness during early childhood and poorer developmental outcomes for children, most of that research has been with predominantly European American samples (Gartstein & Fagot, 2003; Keown, Woodward, & Field, 2001) or European and African American samples (Pungello et al., 2009; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004; Vernon-Feagans, Garrett-Peters, Willoughby, & Mills-Koonce, 2012). Although a negative association between maternal intrusiveness and positive features of child functioning has been reported using samples comprised solely of African American families

(Clincy & Mills-Koonce, 2013; Tamis-LeMonda, Briggs, McClowry, & Snow, 2009), Pungello et al. (2009) found that this negative association was weaker for African American families relative to European American families.

Studies that have examined relations between maternal intrusiveness and child functioning using ethnically diverse samples have not always examined subgroup differences. For example, Tamis-LeMonda, Shannon, Cabrera and Lamb (2004), using a sample of 290 families from the Early Head Start study that was 60% European American, 22% African American, and 15% Latino, found that higher levels of intrusiveness at age 2 were associated with children's poorer cognitive and language outcomes one year later. However, possible moderation of this association by ethnicity was not examined. Results from studies of wholly ethnic minority samples indicate the association between maternal control strategies and child outcomes may be complex. For example, McFadden and Tamis-LeMonda (2013) assessed maternal intrusive behavior in 160 mother-child dyads when the infant was 15 months old in relation to cognitive outcomes 10 months later. With their sample that was 42% Latino, 41% African American, and 8% biracial, they found higher levels of intrusiveness were associated with better cognitive outcomes in the presence of low levels of maternal responsive/didactic behavior. Higher levels of intrusiveness were only associated with negative outcomes when coupled with high levels of negativity, similar to the findings for the African American children in our sample; however, they did not examine differences by ethnic group.

Studies focused more explicitly on Latino families have found the association between maternal intrusiveness and child outcomes is either weaker than seen in other groups or unrelated (Berlin et al., 2009; Carlson & Harwood, 2003; Ispa et al., 2004; Whiteside-Mansell, Bradley, & McKelvey, 2009), similar to the findings from the present sample. As a result, Ispa et al. (2013) have called for replacing the term *intrusiveness* with a less negatively charged term such as *directiveness* or *anticipatory instruction*. They hypothesized that maternal directive behavior in Latino families is rooted in a cultural orientation of collectivism and cultural values (Halgunseth et al., 2006). As such, parental behaviors characterized by observers as "intrusive" or "directive" may be more normative in these cultural groups and thereby experienced differently by children. Ispa et al. (2004) argue that directive parental behaviors in these cultural groups are less likely to be accompanied by low levels of parental warmth.

The results of a bifactor approach to modeling parent behavior in our sample of low-income African American and Mexican American mothers provides some quantitative support for the hypotheses of Ispa and her colleagues. On the one hand, while the suggestion that intrusive behavior is more normative among Latina mothers than other ethnicities would lead to expectations of higher levels of such behavior, we did not find that the Mexican American and African American mothers in our sample differed on average in their scores for the single rating item of intrusiveness at either Time 1 or Time 2. Rather, it was the *constellation* of behaviors defining the specific factor from the bifactor analysis, defined as intrusive-insensitivity and orthogonal to the general factor defined as sensitive support, that differed by ethnicity in that intrusiveness ratings for African American mothers were more likely to be coupled with negativity in this factor than were intrusiveness ratings for Mexican

American mothers. Mexican American mothers in our sample also displayed higher levels of sensitive support than the African American mothers, which is consistent with Ispa et al.'s hypothesis that high levels of directiveness among Latino parents is often coupled with high levels of sensitive responsiveness. As suggested by Ispa et al. (2013), a more nuanced approach involving rating of maternal affect during controlling behavior might shed better light on the role of maternal directive behavior in these populations. The data from the present study are limited in this regard, given that the parenting ratings represent global indicators assigned to the entire interaction episode. Despite our inability to take the specific approach suggested by Ispa et al. (2013) using these observation ratings, we believe our findings add to continuing cautions regarding the cultural appropriateness of these widely used observational measures of parenting qualities. The findings provide additional evidence for both similarities and differences in the meaning of these measures.

We also note the paper's limitation in its singular focus on mother-child interactions and absence of consideration and analysis of the children's experiences with their fathers or other close family relationships in early childhood. Although father-child observational data have been collected for residential fathers in this study, they are not entirely comparable to the interaction data collected with mothers. Because securing the participation of fathers can be challenging, and particularly so in this sample that includes a substantial number of fathers who often worked on job sites out of town, we maintained maximum flexibility regarding when father-child interaction data were collected. Most of the father-child data were collected when study children were 2½ years old, but approximately 13% were collected when study children were 3½ years old. These differences would have complicated comparisons that might be drawn with the mother-child data analyzed in the current study.

For African Americans, the findings of this study support the importance of reducing negativity and increasing sensitivity among parents to better support school readiness of African American children. However, although African American mothers in this study were rated higher in negative regard relative to the Mexican American mothers in the sample, it would be inaccurate to characterize this sample of mothers as overly negative or harsh. The mean rating for negative regard among African American mothers was 1.57, corresponding to a midpoint between a rating of "not at all characteristic" (a rating of 1) and "minimally characteristic" (a rating of 2). Indeed, the results of person-oriented analyses of these data reported elsewhere demonstrated that only one in five African American mothers in this study fit a profile of maternal behavior that could be characterized as harsh and intrusive, with the majority displaying patterns of behavior characterized a child-oriented or directive, both of which include high levels of sensitivity (Dyer, Owen, & Caughy, 2014). It is important to recognize the prevalence of positive parenting even among economically disadvantaged parents because these strengths can be built upon in early intervention programs targeting school readiness.

The present study is also limited by the fact that the Latina mothers in the sample were Mexican-origin and primarily foreign-born, thereby limiting the generalizability of findings to the broader population of Latino families. Research indicates that parenting behavior as well as relations between parenting and child outcomes differs by level of acculturation as well as by country of origin (Calzada, Barajas-Gonzalez, Huang, & Brotman, 2015; Ispa et

al., 2004). Likewise, another limitation of the current investigation is that we did not include culture-specific measures such as familism that have important implications for parenting in Latino families. The limited range of variability in acculturation levels for the present study precluded examining this question within these data. As such, the findings of this study cannot necessarily be generalized to Latina mothers from other countries of origin or who were born in the U.S.

The findings presented here have implications not only for parenting research but also for the application of research to the development of effective interventions for children and their families. For example, parenting education that emphasizes child-centered interactions may conflict with the more directive orientations of Latino parents. Culturally sensitive interventions should recognize the unique parenting approaches of different ethnic groups, such as directiveness among Latinos, and aim to complement these strategies.

Parenting research has been used as the foundation for developing family-based interventions with the intent of improving young children's well-being. As ethnic diversity of young families increases, it is important to critically examine our assumptions regarding what constitutes optimal parenting and how it may be characterized across culturally different groups of families. Research based primarily on European American families may not be generalizable to the ethnic minority families included in and served by such programs. Better informed knowledge of what aspects of parenting support healthy child development and school readiness will contribute to the development of more effective interventions for ethnically diverse families.

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Figure.

Longitudinal relations between mothering qualities at child age 2½ years and academic achievement in kindergarten in two ethnic groups. All coefficients are standardized. Abbreviations: STIM = cognitive stimulation; PRG = positive regard; SENS = sensitivity; DET = detachment; INT = intrusiveness; NRG = negative regard. All models are adjusted for average family income-to-needs ratio over the three waves of data collection.

Table 1

Characteristic of study sample (N = 333)

	<u>Mother's race/ethnicity</u>		χ^2
	<u>African American (N = 151)</u>	<u>Mexican (N = 182)</u>	
	N (%)	N (%)	
<u>Child's race/ethnicity</u>			
Black, non-Latino	130 (86.1)	0 (0.0)	286.13 ***
Latino	0 (0.0)	156 (85.7%)	
Multiracial/multiethnic	21 (13.9)	26 (14.3%)	
<u>Child gender</u>			
Boy	85 (56.3)	96 (52.7)	.32
Girl	66 (43.7)	86 (47.3)	
<u>Caregiver's relationship to child</u>			
Mother	142 (94.0)	181 (99.5)	8.34 *
Grandmother	8 (5.3)	1 (.5)	
Aunt	1 (.7)	0 (0.0)	
<u>Family Income</u>			
< 50% federal poverty level	72 (48.3)	18 (9.9)	72.23 ***
50–99% federal poverty level	42 (28.2)	101 (55.5)	
100–149% federal poverty level	13 (8.7)	45 (24.7)	
150%+ federal poverty level	22 (14.8)	18 (9.9)	
<u>Mother's level of education</u>			
8 years or less	2 (1.3)	36 (19.8)	50.00 ***
9–12 years, no diploma	20 (13.2)	49 (26.9)	
High school/GED	61 (40.4)	61 (33.5)	
More than high school	68 (45.0)	36 (19.8)	
<u>Father/father-figure in household</u>			
No	62 (41.1)	15 (8.2)	50.01 ***
Yes	89 (58.9)	167 (91.8)	
<i>Latino families only</i>			
<u>Mother's language status</u>			
English-dominant		9 (4.9)	
Spanish-dominant		111 (61.0)	
Bilingual		55 (30.2)	
Missing		7 (3.8)	
<u>Preferred language (child)</u>			
English		30 (16.5)	
Spanish		152 (83.5)	
<u>Nativity (caregiver)</u>			
U.S. born		39 (21.4)	

	<u>Mother's race/ethnicity</u>		χ^2
	African American (N = 151)	Mexican (N = 182)	
	N (%)	N (%)	
Foreign born		143 (78.6)	

*
 $p < .05$;

 $p < .001$

Table 2

Descriptives of study variables.

	Full Sample					African American					Latino					AA vs. L <i>t</i>
	<i>n</i>	% missing	<i>M</i>	<i>SD</i>	Range	<i>n</i>	% missing	<i>M</i>	<i>SD</i>	Range	<i>n</i>	% missing	<i>M</i>	<i>SD</i>	Range	
Mother-child interaction																
30 months:																
Sensitivity	333	0.0	3.15	.96	1-5	151	0.0	2.93	1.00	1-5	182	0.0	3.34	.88	1-5	-3.96***
Cognitive stimulation	333	0.0	3.30	.92	1-5	151	0.0	3.09	.94	1-5	182	0.0	3.48	.87	2-5	-3.88***
Positive regard	333	0.0	3.38	1.01	1-5	151	0.0	3.07	1.10	1-5	182	0.0	3.65	.84	1-5	-5.31***
Negative regard	333	0.0	1.40	.81	1-5	151	0.0	1.6	.92	1-5	182	0.0	1.25	.67	1-5	3.88***
Detachment	333	0.0	1.51	.83	1-5	151	0.0	1.70	.99	1-5	182	0.0	1.34	.64	1-4	3.81***
Intrusiveness	333	0.0	2.61	1.09	1-5	151	0.0	2.54	1.09	1-5	182	0.0	2.66	1.10	1-5	-1.01
42 months:																
Sensitivity	333	0.0	3.20	1.04	1-5	151	0.0	2.91	1.07	1-5	182	0.0	3.43	.96	1-5	-4.74***
Cognitive stimulation	333	0.0	3.13	.99	1-5	151	0.0	2.82	1.03	1-5	182	0.0	3.39	.87	1-5	-5.45***
Positive regard	333	0.0	3.22	.97	1-5	151	0.0	2.94	1.03	1-5	182	0.0	3.46	.84	1-5	-5.02***
Negative regard	333	0.0	1.38	.72	1-5	151	0.0	1.57	.84	1-5	182	0.0	1.21	.54	1-4	4.47***
Detachment	333	0.0	1.61	.95	1-5	151	0.0	1.81	1.08	1-5	182	0.0	1.44	.78	1-4	3.50**
Intrusiveness	333	0.0	2.47	1.03	1-5	151	0.0	2.53	1.02	1-5	182	0.0	2.42	1.05	1-5	.99
Child outcomes (kindergarten)																
WJR Reading	265	11.2	438.97	43.12	339-550	124	1.6	422.26	29.64	342-507	141	19.8	453.67	47.64	339-550	-6.52***
WJR Applied Problems	275	7.6	440.39	19.66	350-497	123	2.4	436.33	18.31	366-476	152	11.3	443.68	20.14	350-497	-3.13**

* $p < .05$;

** $p < .01$;

*** $p < .001$

Note. A higher proportion of Latino children were missing the WJR Reading composite because if the two subtests were administered in different languages, they could not be composited.

Table 3

Standardized and unstandardized factor loadings and model fit for single factor, two factor, and bifactor models of mother-child interaction data at two time points (N = 333)

	Time 1: Age 2½									
	Single Factor Model			Two-Factor Model			Bi-Factor Model			
	Sensitivity Composite	Positive Sensitivity	Detached-Intrusive	Intrusive-Insensitivity	Sensitive Support	Intrusive-Insensitivity	b (β)	[95% CI]	b (β)	[95% CI]
Dimensions of maternal behavior										
Sensitivity	.84 (.94)	[.75, .93]	.83 (.92)	[.76, .90]	.72 (.80)	[.65, .78]	-.36 (-.40)	[-.45, -.27]		
Cognitive stimulation	.60 (.67)	[.48, .72]	.61 (.68)	[.52, .70]	.69 (.77)	[.62, .77]				
Positive regard	.62 (.66)	[.51, .74]	.63 (.67)	[.54, .72]	.70 (.75)	[.63, .78]				
Detachment	-.42 (-.52)	[-.54, -.30]			.39 (.48)	[.29, .48]	-.52 (-.64)	[-.62, -.42]	-.10 (-.12)	[-.18, -.01]
Intrusiveness	-.56 (-.54)	[-.70, -.41]			.47 (.46)	[.32, .61]	-.26 (-.25)	[-.38, -.14]	.95 (.93)	[.79, 1.12]
Negative regard	-.38 (-.48)	[-.48, -.29]			.29 (.36)	[.15, .43]	-.32 (-.40)	[-.42, -.22]	.25 (.31)	[.14, .36]
Model fit										
χ ²	176.58			170.96			5.14			
df	9			8			5			
p-value	<.001			<.001			.40			
CFI	.78			.78			1.00			
TLI	.62			.59			1.00			
RMSEA	.24			.25			.01			
SRMR	.09			.08			.01			
Time 2: Age 3½										
	Single Factor Model			Two-Factor Model			Bi-Factor Model			
	Sensitivity Composite	Positive Sensitivity	Detached-Intrusive	Intrusive-Insensitivity	Sensitive Support	Intrusive-Insensitivity	b (β)	[95% CI]	b (β)	[95% CI]
	b (β)	[95% CI]	b (β)	[95% CI]	b (β)	[95% CI]	b (β)	[95% CI]	b (β)	[95% CI]
Dimensions of maternal behavior										
Sensitivity	.85 (.88)	[.77, .93]	.85 (.88)	[.78, .92]	.80 (.83)	[.73, .87]	-.31 (-.32)	[-.39, -.22]		
Cognitive stimulation	.67 (.74)	[.59, .75]	.66 (.72)	[.59, .73]	.70 (.77)	[.63, .77]				
Positive regard	.73 (.81)	[.65, .80]	.72 (.80)	[.65, .78]	.74 (.82)	[.67, .80]				

Time 2: Age 3½

	Single Factor Model			Two-Factor Model			Bi-Factor Model		
	Sensitivity Composite	Positive Sensitivity	Detached-Intrusive	Sensitive Support	Intrusive-Insensitivity				
	b (β)	b (β)	b (β)	b (β)	b (β)				
	[95% CI]	[95% CI]	[95% CI]	[95% CI]	[95% CI]				
Detachment	-.59 (-.64)		.47 (.52)	-.66 (-.73)	-.19 (-.21)				
Intrusiveness	-.51 (-.51)		.40 (.40)	-.37 (-.37)	.93 (.93)				
Negative regard	-.32 (-.45)		.19 (.27)	-.28 (-.40)	.19 (.27)				
	[-.70, -.48]		[.37, .57]	[-.48, -.25]	[-.27, -.12]				
	[-.65, -.37]		[.28, .53]	[-.36, -.19]	[.87, 1.0]				
	[-.41, -.23]		[.09, .29]		[.12, .26]				
Model fit									
χ ²	193.51		137.67		14.65				
df	9		8		6				
p-value	<.001		<.001		.02				
CFI	.78		.84		.99				
TLI	.63		.71		.97				
RMSEA	.25		.22		.07				
SRMR	.08		.08		.02				

Note. CI = confidence interval; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual