

# Patterns of Supportive Mothering with 1-, 2-, and 3-Year-Olds by Ethnicity in Early Head Start

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## SYNOPSIS

**Objective.** To examine patterns of supportive parenting during the first three years of life in low-income families from three ethnic backgrounds and document associations between these patterns and measures of children's development. **Design.** Mothers' supportiveness was longitudinally assessed from videotaped parent-child play interactions at 1, 2, and 3 years of age in 1,095 low-income European American, African American, and Latin American mothers and their children who participated in Early Head Start. Links between mothering and 5-year-olds' outcomes were examined. **Results.** Cluster analysis performed separately for the three ethnic groups identified four patterns of supportiveness over time: High Stable, Low Stable, Increasing, and Decreasing. Similar proportions of mothers in each ethnic group displayed each pattern. Ethnic differences in mean levels of supportiveness within each pattern were found, and different correlates for each group emerged. **Conclusions.** The same four patterns were identified in all three ethnic groups, but the percentages and mean levels differed, such that fewer African Americans and Latin Americans would have been designated as high stable if analyses had been done for the total sample. The benefits of the high stable pattern for 5-year-olds would have been underestimated for these two groups as well, suggesting the advisability of examining mothering by ethnicity.

## INTRODUCTION

Supportive mothering is associated with children's formation of positive relationships with them and with their cognitive, emotional, and social development (e.g., Bornstein, 2002; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Landry, Smith, Miller-Loncar, & Swank, 1997; Maccoby & Martin, 1980; Van IJzendoorn, Juffer, & Duyvesteyn, 1995). Behaviors such as maternal imitation of infant facial expressions and vocalizations, attuned responses to young children's emotional states, and joint focus of attention are considered indicators of supportive mothering (e.g., Maccoby, 1992), as are positive regard, proactive teaching, and provision of a stimulating home environment (Brooks-Gunn & Markman, 2005; Pettit, Bates, & Dodge, 1997). Studies comparing mothering across ethnic groups can be helpful in identifying developmental "universals" as well as variations in the kinds of mothering linked to children's development. Likewise, such studies provide expanded opportunity to observe how context shapes both parenting practices and relations between particular practices and children's development (Bornstein, 2002). However, such comparisons also run the risk of assuming

the universality of constructs across ethnic groups and the methods used to measure them (e.g., Berlin, Brooks-Gunn, Spiker, & Zaslow, 1995; Bradley, Mundfrom, Whiteside, Casey, & Barrett, 1994; Raver, 2004; Sugland et al., 1995; Whiteside-Mansell, Bradley, Owen, Randolph, & Cauce, 2003).

In this investigation we examine patterns of observed supportive parenting among low-income families from three ethnic groups at three different age points. This study is influenced by past research in two main areas: first, descriptive portrayals of early supportive mothering over time and across ethnicities and, second, associations between patterns of supportive mothering and children's developmental outcomes. Four research questions are asked: (1) What patterns of supportive mothering are seen across three time points in the first three years of life, and are these patterns similar in structure and sample distribution for European American, African American, and Latin American low-income mothers? (2) What are the demographic and child correlates of these supportive mothering clusters for each ethnic group? (3) Are Early Head Start (EHS) treatment effects seen in the distributions of supportive mothering clusters for each ethnic group? and (4) Are 5-year-olds' vocabulary and aggressive behavior scores associated with supportive mothering clusters in each ethnic group? In our analytic approach all analyses are conducted within ethnic groups rather than controlling for ethnicity. This procedure allows for the three ethnic groups to differ in clusters identified, in number of mothers in whatever clusters are found, and in mean levels of supportiveness within each cluster.

Although most studies of maternal supportiveness involve observations of mother-child interaction at only a single point in time, the assumption is that maternal supportiveness is relatively stable. Thus, associations between maternal supportiveness and child outcomes may in part reflect somewhat stable patterns of maternal behavior (Bradley & Corwyn, 2007), although some evidence suggests that early supportiveness is particularly salient and may have an impact net of later supportiveness (e.g., Lugo-Gil & Tamis-LeMonda, 2008). Relatively few studies have examined patterns of stability and change in parental supportiveness with infants and toddlers over time as measured either by mean levels, interage correlations, or cluster analyses (Landry, Smith, Swank, Assel, & Vellet, 2001; Pettit & Bates, 1984; Pianta, Sroufe, & Egeland, 1989).

First, based on previous evaluations with small samples (Landry et al., 2001; Pianta et al., 1989), at least four patterns of supportive mothers are likely to be seen. There are (1) supportiveness that remains above-average at each observation, indicating consistently high supportiveness (we refer to this pattern of consistency as *High Stable*); (2) consistently below-average supportiveness, *Low Stable*; (3) supportiveness that moves from below average to above average, *Increasing*; and (4) supportiveness that moves from above average to below average, *Decreasing*. It is likely that family and maternal characteristics will be associated with the four hypothesized patterns differently. Whether the correlates or antecedents will differ by ethnicity is not known. In addition, it is likely that high and consistently stable maternal supportiveness will be linked to child behavior in the first three years of life. We controlled for children's self-regulation at ages 1, 2, and 3 to account for such possible bidirectional influences (i.e., given our interest in identifying clusters, we are not examining cross-lagged structural equation models which would pinpoint bidirectional influences). Even if supportiveness is beneficial across groups, the strengths of associations with particular child outcomes might vary across ethnic groups, depending on the typical range of supportiveness displayed and the usual contexts in which it is expressed within an ethnic group.

Second, various demographic measures that might affect patterns of supportiveness were examined. We hypothesized that maternal education and age at childbearing would relate to supportiveness in similar ways across ethnic groups given that these low-income mothers face several common risks that may influence their parenting. Low levels of education and very young maternal age were expected to relate inversely to high supportiveness over children's first three years. Characteristics of children, such as behavioral self-regulation over time may be associated with supportive mothering clusters. For instance, mothers may find it difficult to maintain a high level of supportive parenting as children progress through the toddler years, especially as children's self-regulatory skills are low. We therefore explored whether early supportive parenting is associated with children's later self-regulation skills as well as whether early self-regulation skills are associated with changes in supportive mothering clusters over time.

Third, participation in the EHS treatment may be related to the supportive mothering patterns. We expected that the treatment group mothers would be more likely to be represented in the High Stable and the Increasing clusters than the control group mothers. Whether this pattern will be found for all three ethnic groups is not known.

Fourth, vocabulary and aggressive behavior assessed when the children were aged 5 are expected to be linked to supportive parenting, in that higher vocabulary and lower aggressive behavior scores will be found in the High Stable and the Increasing clusters, compared to the Low Stable and Decreasing clusters. Furthermore, having a mother in the High Stable cluster might be more beneficial than having a mother in the Increasing cluster if early supportiveness is particularly important. We hypothesize that such a link will not be found for the Decreasing cluster if stability of supportiveness over time matters as well (Landry et al., 2001).

## METHOD

### Sample

Participants were 1,094 mother-child pairs from the EHS Research and Evaluation Project with supportive mothering data at three time points (when the children were 1, 2, and 3 years of age); 485 were European American, 332 were African American, and 278 were Latin American. The sample is comprised of 52% mother-son dyads and 62% firstborn children. Fifty-three percent were in the treatment group. Twenty-eight percent of the mothers were under age 19 at the time of the focus child's birth, and 56% of the mothers were high school graduates at the time of entry into the EHS evaluation. Teenage-mother and high school graduation status varied significantly by ethnic groups, with European American mothers more likely to be high school graduates and less likely to be teenage mothers. Latin Americans were less likely to be high school graduates, and African Americans were more likely to be teenage mothers. The focus child was more likely to be the mother's first child among the African American group.

### Measures

*Maternal supportiveness.* Maternal supportiveness was a composite index of mothers' sensitivity, positive regard, and cognitive stimulation during interactions with their children during the Three Bag task observed when the children were 1, 2, and 3 years of age (see Fuligni & Brooks-Gunn, 2013).

*Child behavioral self-regulation.* The Bayley Scales of Infant Development-Second Edition (BSID; Bayley, 1993) were administered to children in their homes at 1, 2, and 3 years of age. Upon completion of the BSID, the assessor completed ratings of children's behavior during the assessment (Bayley Behavioral Rating Scale; BRS). Self-regulation is one of the composite measures derived from the BRS and measures the child's ability to change tasks and test materials, negative affect, and frustration with tasks during the assessment (see Brady-Smith et al., 2013).

*Age-5 outcomes.* Children were visited in their homes when they were 5 years of age. Receptive vocabulary was measured for English-speaking children using the Peabody Picture Vocabulary Test-Third Edition (PPVT-III; Dunn & Dunn, 1997) and for Spanish-speaking children using the Test de Vocabulario en Imagenes Peabody (TVIP; Dunn, Padilla, Lugo, & Dunn, 1986). The PPVT and TVIP are age-normed standardized tests that do not depend on verbal production skills. At age 5, children's behavior was assessed using a parent-report measure, the Achenbach Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). The CBCL aggressive behavior subscale measures the incidence of 19 child behavior problems that tend to constitute aggressive behavior problems. These items were rated by the parent during the pre-kindergarten parent interview. Mothers who preferred to be interviewed in Spanish answered the Spanish language version of this measure.

*Child covariates at 1 year of age.* In the prediction of children's 5-year outcomes, age-1 controls were included. For the PPVT at age 5, maternal reports of child vocabulary at age 1 were used, measured by the MacArthur Communicative Development Inventories Vocabulary Production scale (CDI; MacArthur Communicative Development Inventories Advisory Board, 1997). Spanish-speaking mothers reported their children's Spanish language ability in a translated version of the CDI (Pan, Rowe, Spier, & Tamis-LeMonda, 2004). For children's behavior problems at age 5, children's temperament at 1 year was entered as a control (two dimensions, sociability and emotionality, from the Emotionality, Adaptability, and Sociability Inventory; EASI-II; Buss & Plomin, 1984).

### Analytic Approach

To explore maternal supportiveness, we used a person-centered approach, *k*-means cluster analysis, to identify groups of mothers with similar patterns of supportiveness scores across the three time points. This analytic approach groups individuals with similar patterns of scores into the same cluster (Aldenderfer & Blashfield, 1984).

Supportiveness scores at each time point varied by ethnicity (see the "Total" column in Table 1). European American mothers had higher scores than African American and Latin American mothers at each of the three ages, and at 2 years Latin American mothers also had higher supportiveness scores than African American mothers (post hoc pairwise comparisons  $ps < .001$ ). The presence of mean differences in supportiveness scores across ethnic groups confirmed our decision to examine supportiveness patterns separately by ethnicity.

After identifying and interpreting clusters, we conducted Multinomial Logistic Regressions (MNL) separately for each ethnic group to determine predictors of pattern

**TABLE 1**  
Supportive Mothering Means by Cluster and Ethnicity

	Supportiveness Clusters					<i>F</i> / $\eta^2$
	High Stable	Decreasing	Increasing	Low Stable	Total	
<b>European American</b>						
<i>N</i>	148	125	122	90	485	
1 year	5.33(.60)	4.62(.49)	3.87(.52)	3.11(.62)	4.37(.98)	337.90***/.68
2 years	5.22(.56)	3.94(.69)	4.50(.61)	3.04(.70)	4.30(1.00)	238.76***/.60
3 years	4.87(.60)	3.52(.65) <sup>a</sup>	4.62(.51)	3.35(.71) <sup>a</sup>	4.18(.90)	184.66***/.54
<b>African American</b>						
<i>N</i>	79	107	76	69	331	
1 year	4.84(.53)	3.84(.55)	3.15(.53)	2.44(.63)	3.63(1.01)	254.14***/.70
2 years	4.38(.63) <sup>a</sup>	3.28(.61)	4.40(.70) <sup>a</sup>	2.35(.62)	3.60(1.03)	175.67***/.62
3 years	4.53(.70) <sup>a</sup>	3.45(.67)	4.34(.63) <sup>a</sup>	2.79(.70)	3.78(.95)	109.01***/.50
<b>Latin American</b>						
<i>N</i>	72	90	57	59	278	
1 year	4.73(.70)	4.14(.53)	3.08(.64) <sup>b</sup>	2.66(.65) <sup>b</sup>	3.76(1.01)	153.92***/.63
2 years	4.88(.56)	4.04(.71) <sup>b</sup>	3.62(.66) <sup>b</sup>	2.82(.60)	3.91(.96)	117.27***/.56
3 years	4.67(.54)	3.29(.46)	4.23(.52)	2.68(.45)	3.71(.91)	221.14***/.71

*Note.* *N* = 1,094. Means for maternal supportiveness (and standard deviations) are presented for each age and ethnicity.

<sup>a</sup>Pairwise comparisons within each age and across clusters show all pairs are significantly different at  $p < .001$ , except where noted with a superscript. These cases are discussed in the text.

<sup>b</sup>Pairwise comparisons significant at  $p < .01$ .

\*\*\* $p < .001$ .

membership using child and maternal characteristics. Finally, supportiveness pattern membership was used to predict children's language and behavioral outcomes at age 5, after controlling for children's initial status on similar measures at 1 year of age and other child and maternal characteristics.

## RESULTS

### Correlates of Supportive Mothering Clusters by Ethnicity

We hypothesized four patterns of supportiveness: High Stable, Low Stable, Increasing, and Decreasing. We therefore conducted cluster analysis on the 1-, 2-, and 3-year supportiveness scores in which we set constraints for a 4-cluster solution, examined separately for each ethnic group. The 4-cluster solution appeared to be optimal when contrasted with unrestricted analyses, 3-, and 5-cluster solutions. Specifically, it produced cluster centers that were interpretable as different patterns of supportiveness over time, the four clusters had relatively even membership distributions both within and across ethnic groups, and the solution converged for each ethnic group within a maximum of ten iterations. The alternative unrestricted solution yielded a 2-cluster solution that merely differentiated high supportiveness from low supportiveness, and other solutions required more iteration and did not yield meaningful patterns of change.

Results of the *k*-means cluster analysis, restricted to a 4-cluster solution for each ethnic group, are presented in Table 1. As hypothesized, the analysis yielded clusters that

represented two patterns indicating consistent levels of supportiveness over time (one demonstrating higher than average and consistent supportiveness over time and one demonstrating lower than average and consistent supportiveness over time—patterns we refer to throughout this article as “stable” patterns) and two patterns indicating change over time (one with supportiveness increasing from 1 to 3 years and one with supportiveness decreasing over this period). Within each ethnic group, the distribution in each of the four clusters was relatively similar, yielding patterns that could be described as High Stable, Low Stable, Increasing, or Decreasing, with the terms “high” and “low” relative to the within-group means.

For the sample of European American mothers, the High Stable pattern had the largest membership (30%) with mean scores ranging from 4.9 to 5.3. The Low Stable pattern was the least prevalent (19%), and the two groups of change fell in between (25% and 26%). Among the two changing clusters, final levels of supportiveness were similar to the consistent, or stable groups: the Decreasing group mean at 3 years (3.52) was very close to the 3-year mean for the Low Stable cluster (3.35), and the Increasing group had supportiveness scores close to the High Stable cluster by 3 years (4.62 and 4.87, respectively). Pairwise post hoc comparison of the 3-year supportiveness scores for European American mothers showed no significant difference in supportiveness between the Low Stable and the Decreasing cluster, but the one-quarter point difference in supportiveness between the High Stable and Increasing clusters was statistically significant ( $p = .001$ ).

Among African American mothers, similar clusters were identified, although the range of change in the non-stable clusters appeared somewhat less pronounced for the Decreasing cluster (decreasing from 3.84 at 1 year to 3.28 at 2 years and 3.45 at 3 years). This group had the highest membership in the Decreasing cluster (32%) and the lowest membership in the Low Stable cluster (21%; 23% and 24% in the other two clusters). Among African Americans in the Decreasing group, the change over time in mean scores was less dramatic than that for the analogous cluster in European Americans, with the overall change from 1 to 3 years for European Americans equaling 1.1 points, but only .4 points for African Americans. The mean level of supportiveness at 3 years remained in the low-moderate range across all time points. However, the Increasing cluster showed early and greater increase in supportiveness, such that by 2 years their means were indistinguishable from the High Stable cluster (see Table 1). For the African American mothers, the High Stable cluster means were in the moderate range: from 4.4 to 4.8.

For Latin American dyads, supportiveness means again showed that the High Stable supportiveness cluster represented a moderately high level of supportive mothering, with means ranging from 4.7 to 4.9. The cluster with the greatest membership for Latin Americans was the Decreasing cluster (32%; showing moderate supportiveness at 1 year, decreasing over time). The Low Stable and Increasing clusters had the lowest membership (21% and 23%, respectively; High Stable was 26%). Among Latin Americans, the Increasing group showed a somewhat different pattern than that observed for European Americans and African Americans: rather than approaching the values of the High Stable cluster by 2 years, they continued to exhibit relatively low supportiveness at 2 years (3.62), but increased to moderately high supportiveness by 3 years (4.23; see Table 1).

### Predicting Patterns of Supportiveness

We next examined the contributions of maternal and child characteristics to cluster membership in separate MNL for each ethnic group. The MNL was set up with the

high-stable supportiveness pattern as the omitted group. Dependent variables in each model included teenage mother, mother's education, child male, child firstborn, EHS treatment, and child self-regulation scores at 1, 2, and 3 years.

Results of the MNLR are presented in Table 2. The logistic regression coefficients indicate that the likelihood of being in the Low Stable cluster are predicted by maternal education for all ethnic groups, such that having a high school diploma was associated with decreased odds of being in the Low Stable group compared to the High Stable cluster. This association appeared most dramatically for Latin Americans, for whom a high school diploma made them one-tenth as likely to be in the Low Stable group. Odds of being in the Low Stable cluster rather than the High Stable cluster were associated with children's self-regulation scores primarily for European Americans: Higher self-regulation scores at both 2 and 3 years reduced the odds of being in the Low Stable group

**TABLE 2**  
Links between Supportive Mothering Clusters and Child and Maternal Characteristics by Ethnicity

	European American	African American	Latin American
<b>Low stable</b>			
Mother < 19 at child's birth	1.50	1.83	.78
High school graduate	.48*	.22**	.10**
Male child	.64	.90	1.12
Firstborn child	1.21	2.47	1.10
EHS treatment	.50*	.78	1.13
Self-regulation 1 year	.88	.71	.74
Self-regulation 2 years	.43***	.56*	.75
Self-regulation 3 years	.50**	.82	.65
<b>Decreasing</b>			
Mother < 19 at child's birth	1.70	1.34	1.48
High school graduate	.74	.30*	0.71
Male child	.66	1.07	1.94
Firstborn child	1.46	1.98	.70
EHS treatment	.79	1.02	.61
Self-regulation 1 year	1.14	1.06	.63
Self-regulation 2 years	.75	.74	.94
Self-regulation 3 years	.52**	1.02	.64
<b>Increasing</b>			
Mother < 19 at child's birth	1.22	.82	1.81
High school graduate	.75	.40	.27*
Male child	.78	.81	1.92
Firstborn child	1.42	1.80	2.19
EHS treatment	1.05	2.26*	.51
Self-regulation 1 year	1.12	.84	.56
Self-regulation 2 years	.60*	.80	.63
Self-regulation 3 years	.94	.83	.92
Cox & Snell Pseudo R <sup>2</sup>	.16	.21	.26
$\chi^2$	76.20***	66.89***	65.24***

*Note.* Exp(B), or log odds of being in each supportiveness pattern (omitted is *High Stable*); derived from MNLR models.  $N = 1,094$ ,  $n = 485$  for European American,  $n = 551$  for African American,  $n = 278$  for Latin American; see Table 1 for *ns* by cluster and ethnicity.

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

rather than the High Stable group. For African Americans, children’s self-regulation scores at 2 years were associated with decreased odds of being in the Low Stable group.

Fewer significant correlates of the odds of being in the Decreasing cluster were found. In fact, for Latin Americans, none of these variables was significantly associated with cluster patterns. For African American mothers, being a high school graduate reduced the likelihood of being in the Decreasing cluster compared to the High Stable cluster by almost one-third. Among European Americans, only 3-year self-regulation scores were associated with reduced odds of being in the Decreasing group, such that when children’s self-regulation scores were higher at 3 years, mothers were less likely to be in the group that showed decreasing supportiveness.

The pattern of increasing supportiveness over time was predicted for European Americans only by children’s 2-year self-regulation scores; children with higher self-regulation scores at 2 years were less likely to have mothers in the Increasing cluster than in the High Stable cluster. For Latin Americans, only high school graduation status, after controlling for the other child and maternal characteristics, predicted decreased odds of being in the Increasing cluster.

#### Treatment Effects for Supportive Mothering Clusters by Ethnicity

Treatment effects are presented within Table 2. Significant EHS treatment effects were seen for European Americans when comparing High Stable to Low Stable clusters, with the probability of being in the latter decreased by one-half for those in the EHS treatment group. For the African American mothers, comparing High Stable to Increasing, the probability of being in the latter was increased over two times.

Separate logistic regressions were conducted to test each possible pairing of supportiveness clusters for EHS treatment effects. For European American mothers, being in the treatment group was associated with twice the likelihood of being in the High Stable or Increasing clusters ( $Exp[B] = 2.00$  and  $2.10$ , respectively,  $ps = .025$  and  $.016$ ). For African American mothers, being in the EHS treatment group was associated with being more than twice as likely to be in the Increasing supportiveness cluster as any of the other three clusters ( $Exp[B] = 2.21-2.90$ ,  $ps = .006 - .030$ ). Figure 1 presents

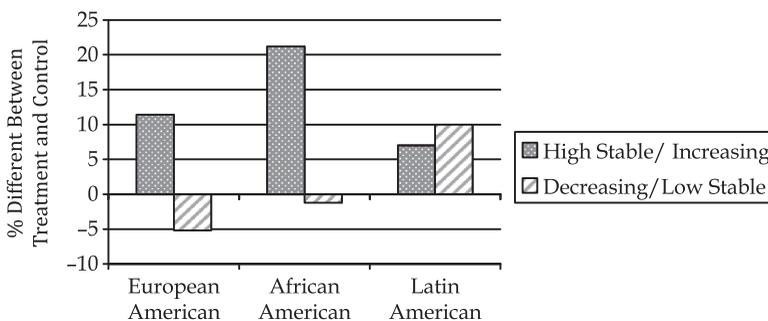


FIGURE 1

Percentage difference between numbers of mothers in EHS treatment versus control group in each supportiveness pattern by ethnicity.  $N = 1,094$ ,  $n = 485$  for European American,  $n = 551$  for African American,  $n = 278$  for Latin American. See Table 1 for  $ns$  by cluster and ethnicity. Low stable and decreasing supportive mothers’ clusters combined.

the percentage difference of mothers in treatment versus control groups, by ethnicity, in the High Stable/Increasing and Decreasing/Low Stable clusters.

### Supportive Mothering Clusters and Age-5 Outcomes

To examine whether supportive mothering clusters were associated with 5-year-olds' vocabulary or aggressive behavior, hierarchical linear regressions were used, controlling for all covariates as in the MNLs. The High Stable cluster was the omitted category, so regression results indicate the associations with being in each cluster as opposed to being in the High Stable cluster. For each child outcome, we ran Ordinary Least Squares Multiple Regression, entering blocks of covariates in a hierarchical fashion. First, the demographic and child variables were entered, then EHS treatment status, followed by children's initial status on the similar developmental outcome at 1 year. Finally, we added dummy variables coded to reflect membership in each supportiveness cluster.

After controlling for child and maternal characteristics and 1-year mother-reported child vocabulary, maternal supportiveness clusters significantly predicted children's 5-year PPVT scores (Table 3). For European American children, having experienced a Decreasing pattern of supportiveness or a Low Stable level of supportiveness were each associated with lower PPVT scores when compared with those experiencing High Stable. PPVT scores were not significantly different for European American children whose mothers increased their supportiveness over time from those who experienced stable and high supportiveness (Increasing versus High Stable). Among African Americans and Latin Americans, all three supportiveness clusters predicted lower PPVT scores when contrasted with the High Stable cluster.

**TABLE 3**  
Links between Supportive Mothering Clusters and 5-Year-Olds' Vocabulary Scores by Ethnicity

	European American	African American	Latin American
Supportiveness patterns			
Decreasing	-.20***	-.16*	-.21*
Increasing	-.10	-.19*	-.38***
Low stable	-.16**	-.26**	-.50***
Mother < 19 at child's birth	.07	.03	-.06
High school graduate	.05	.11	.17*
Male child	.04	-.00	-.07
Firstborn child	-.01	.10	.04
EHS treatment	-.02	.07	.04
Self-regulation 1 year	.10*	.04	.05
Self-regulation 2 years	.12*	.19**	.00
Self-regulation 3 years	.31***	.08	-.06
MacArthur CDI	.16***	.02	.13
Adjusted R <sup>2</sup>	.26	.12	.29
F	11.91***	3.86***	5.29***

*Note.* Standardized regression Betas are presented for each predictor and are derived from hierarchical linear regression models; High Stable is the omitted supportiveness pattern; vocabulary score is PPVT-R.  $N = 1,094$ ,  $n = 485$  for European American,  $n = 551$  for African American,  $n = 278$  for Latin American; see Table 1 for  $ns$  by cluster and ethnicity.

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

**TABLE 4**  
Links between Supportive Mothering Clusters and 5-Year-Olds' Aggressive Behaviors by Ethnicity

	European American	African American	Latin American
Supportiveness			
Decreasing	.13*	-.12**	.10
Increasing	.03	-.11	-.04
Low Stable	.19**	.03	.01
Mother < 19 at child's birth	-.03	-.01	.04
High school graduate	.00	.01	-.01
Male child	.09	.08	.04
Firstborn child	.01	-.07	-.05
EHS treatment	.00	-.04	.01
Self-regulation 1 year	-.02	.02	.09
Self-regulation 2 years	-.02	-.03	-.05
Self-regulation 3 years	-.16**	-.09	-.14
Emotionality 1 year	.08	.13	.15
Sociability 1 year	-.07	-.17*	-.04
Adjusted $R^2$	.08	.07	.02
$F$	3.88***	2.51**	1.43

*Note.* Standardized regression Betas are presented for each predictor and are derived from hierarchical linear regression models; High Stable is the omitted supportiveness pattern; aggressive behavior score is from the Achenbach CBCL.  $N = 1,094$ ,  $n = 485$  for European American,  $n = 551$  for African American,  $n = 278$  for Latin American; see Table 1 for *ns* by cluster and ethnicity.

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

Links between supportiveness patterns and children's aggressive behavior are illustrated in Table 4. For European American children, 3-year self-regulation scores were a consistent predictor of fewer behavior problems at 5 years. After controlling for maternal and child characteristics, both the Decreasing pattern and the Low Stable pattern predicted higher levels of aggressive behavior than the High Stable pattern. For African American children, membership in the Decreasing group was linked with *fewer* behavior problems, which was unexpected. Supportiveness patterns were not associated with aggressive behavior for Latin American children.

## DISCUSSION

We explored patterns of supportive parenting among low-income European American, African American, and Latin American mothers, with a specific focus on whether there were identifiable patterns in maternal supportiveness from the time children were 1 year of age to the time they were 3 years of age. We considered the role of ethnicity and other determinants (e.g., maternal education, EHS treatment status, child self-regulation) in mothers' patterns of supportiveness and examined the implications of different patterns of supportiveness for multiple outcomes in children.

Using a person-centered and within-ethnic-group analytical approach, we identified four clusters of supportiveness patterns over time. About half of the mothers in each ethnic group had patterns indicating consistent levels of supportiveness over time (Low Stable or High Stable), and about half showed demonstrable change (Increasing

or Decreasing). Across all ethnic groups, mothers showing consistently high levels of supportiveness were most likely to have at least a high school diploma, whereas those displaying consistently low levels of supportiveness had the lowest rates of high school graduation. Patterns of supportiveness were not associated with child gender or with teen mother status for any of the ethnic groups. Among the mothers whose patterns changed, a greater percentage of African American and Latin American mothers were in the Decreasing than in the Increasing cluster. Furthermore, there were ethnic group differences in mean levels of supportiveness observed in each cluster. For instance, the Increasing cluster among African American mothers resembled the High Stable cluster in all but the first time points, whereas Latin American mothers in the Increasing cluster showed lower levels of supportiveness until the third time point. These differences suggest that African American mothers whose supportiveness increases over time, relative to other African American mothers, do so when their children are younger than those Latin Americans who are in the Increasing cluster.

When mothers' ethnicity was examined in combination with EHS status and children's emotional regulation, ethnicity moderated associations between these measures and patterns of supportiveness. Treatment was associated with being in the High Stable cluster in European Americans and in the Increasing cluster for African Americans. For European American mothers, being in the EHS treatment group was associated with higher odds of being in the High Stable group than in the Low Stable group. For African American mothers, EHS status more than doubled the likelihood of being in the Increasing cluster. This finding echoes the results reported for mean supportiveness scores individually at ages 2 and 3, where the largest impacts were reported for African Americans (Administration for Children and Families, 2002).

In terms of children's emotional regulation, European American children's self-regulation scores at both 2 and 3 years were associated with decreased likelihood of mothers' being in the Low Stable group rather than the High Stable group. Higher 2-year scores were associated with decreased likelihood of being in the Increasing group and children's self-regulation at 3 years was associated with lower odds of being in the Decreasing group. In effect, when children do not show high levels of self-regulatory competence, mothers may sense the need to provide additional support to help the child meet daily challenges.

The nature of our data do not allow an unequivocal explanation for the complex set of results; but this reciprocal influence notion was also raised by Raikes and her colleagues (2006) based on their findings pertaining to children's vocabulary development and maternal book reading over this same time period among the European American families in the EHS treatment. More research is needed to confidently determine the functional relations between maternal supportiveness and children's self-regulation, particularly in view of the fact that associations between child self-regulation and cluster membership were less marked in the African American and Latin American groups.

As expected, children whose mothers displayed stable high supportiveness from 1 to 3 years of age scored best in vocabulary and behaviors at age 5. The most consistent difference in child outcomes was between children in the High Stable and Low Stable clusters, a pattern also seen when considering children's learning-related experiences more broadly rather than supportive parenting specifically (Rodriguez & Tamis-LeMonda, 2011). Lower levels of support experienced at any of the three age points observed translated into lower language scores at age 5, with the strongest

associations being seen for Latin American children's language development. Links were not so strong or consistent for aggressive behavior (i.e., only being significant for the European Americans in the expected direction). Additionally, the benefits of being in the High Stable cluster for children's outcomes were two to five times the magnitude of socioeconomic status (SES) predictors (e.g., teen parenthood and maternal education), with effect sizes being larger for cognitive than for socioemotional outcomes. In studies with low-, middle-, and high-income families, links between SES and supportiveness are often found. Also, models often portray supportiveness as one of the mediators of SES-child outcomes (Brooks-Gunn & Markman, 2005; Linver, Brooks-Gunn, & Kohen, 2002; Yeung, Linver, & Brooks-Gunn, 2002); whereas in this study the influence of supportiveness patterns was seen within a truncated range of SES.

Although the High Stable cluster was associated with more positive children's outcomes in all three ethnic groups, somewhat less strong associations were found for African Americans compared to Latin Americans. Other, unmeasured factors may be accounting for more of the variation in African American children's outcomes. These unmeasured factors could be in the realm of other parenting dimensions (such as firm control; e.g., Brooks-Gunn & Chase-Lansdale, 1995) or other aspects of their cultural context, such as neighborhood characteristics, social capital, and the like. A question remains regarding whether African American children, for instance, would exhibit stronger associations between parenting patterns and developmental outcomes if higher overall levels of supportiveness were observed in that group. What can be said is that, within the range of supportiveness existing for this group, higher and stable levels of supportiveness were not as strongly related to children's outcomes as we found in the other two groups.

The results of this investigation add to the growing body of literature cautioning against applying a European American, middle-class parenting "ideal" to different ethnic and SES groups. However, using the Three Bag task observational measurement tool, we have seen that defining parenting patterns relative to ethnic groups' own group norms allows for the identification of patterns that are culturally situated and may be valid for use in within-group explorations of mothering and child development. We found that within each group, similar patterns emerged, and that consistently high supportiveness, when defined with respect to each group's range of scores, was associated with the most positive outcomes at age 5.

### IMPLICATIONS FOR PRACTICE, APPLICATION, AND POLICY

Supportive parenting during the first three years of life is clearly linked to positive child development and also associated with mothers' education, even within a low-income sample. Programs seeking to support child development and family functioning in low-income families should continue to target supportive parenting as a program outcome. When analyzed in several ways, we found that participation in the EHS treatment was associated with more positive patterns of parenting in two ethnic groups. Efforts to improve maternal supportiveness can have benefits for young children's development, although there is more research to be done to understand the ways that contextual and ethnic differences may moderate the links between improved parenting and children's development.

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