Latino toddlers' cognitive and social behaviors: The contributions of fathering, mothering, and cultural factors

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Abstract

We examined associations between parents' depressive symptoms and contextual sources of stress (couple conflict, parent education, and levels of acculturation) at 9 months and parenting and children's outcomes at 24 months. We also examined the mediational effect of parenting behaviors and couple conflict on children's outcomes at 24 months of age. The study sample consisted of 500 Latino toddlers and their biological mothers and fathers who participated in the Early Childhood Longitudinal Study-Birth Cohort. SEM findings revealed fathers with high depressive symptoms were less engaged with their children and reported more couple conflict, but these effects were small and not found for mothers. Although parents' contextual sources of stress (couple conflict and parents' education) influenced parenting directly, there were few indirect effects on children's outcomes, and most of these are small. Moreover, levels of acculturation as measured in this study and ethnicity were not significantly related to parenting or children's outcomes. Parents' education was the most important predictor of mother supportiveness, which was, in turn, also strongly linked to children's social behaviors. In contrast, the most important predictor of father involvement at 24 months was his involvement early during infancy. Although the effect was small, it had a significant effect on children's cognitive scores at 24 months. Thus the most important pathway from early predictors to toddler's cognitive outcomes is father involvement during infancy because it leads to more involvement during toddlerhood and for social behaviors is parents' education because it leads to more mother supportiveness at 24 months.

KEYWORDS: Latino children, Acculturation, ECLS-B, Fathers, Mothers, Parenting

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Latino children, the largest and fastest growing ethnic group in the U.S., comprise 20% of the total population of all children in the U.S., yet account for approximately 34% of young children living in poverty (Hernandez, Denton, & Macartney, 2007). The most important environmental influence on children's outcomes is the home environment, in particular parenting behaviors and resources available to the child (Guo & Harris, 2002; von Figueroa-Moseley, Ramey, Kellner, & Lanzi, 2006). Universal parenting behaviors such as responsiveness and sensitivity affect children regardless of the family's racial or ethnic background (Cabrera, Shannon, West, & Brooks-Gunn, 2006; Grau, Azmitia, & Quattlebaum, 2009; DeWolff & Van IJzendoorm, 1997). Research examining the effects of parenting on children's functioning and the factors that explain variation within Latino families suffers from several limitations. First, it uses conceptual models that do not consider the unique and independent influence of parents' psychological functioning (e.g., mental health) as well as the unique contextual sources of stress and support such as acculturation and parents' socioeconomic status (SES) on parenting (Belsky, 1984; Grau, et al., 2009; Hernandez et al., 2007). Second, it is generally cross-sectional, lacks observational data and it is focused exclusively on mothers. Third, it does not typically disentangle the effects of parents' SES from the effects of ethnicity on parenting and children's outcomes. And, fourth, it pays limited attention to within group ethnic differences in parenting and children's wellbeing (Grau et al. 2009).

In this paper we use the Early Childhood Longitudinal Birth Cohort Study (ECLS-B) to investigate the cognitive and social behaviors of Latino children. Specifically, we examine the influence of parents' depressive symptoms, and contextual sources of stress and support such as parents' marital conflict, and SES. Furthermore, because Latinos in the U.S. are a heterogeneous

group with distinctive immigration history and cultural practices, the process of acculturation as well as parenting might vary by Latino ethnicity, resulting in distinct family processes. Thus we also examine the association between levels of acculturation and ethnicity at 9 months on parenting at 24 months of age.

Theoretical framework

Parenting that is sensitively attuned to children's capabilities and to the developmental tasks they face promotes high emotional security, social competence and intellectual achievement (Belsky, 1984). According to Belsky's (1984) parenting process model, parents' sensitivity is determined by parents' psychological well being (e.g., depressive symptoms), children's characteristics (e.g., gender, temperament), and contextual sources of stress and source (e.g., marital quality). This model is used in this study because as a general process model of parenting it taps universal dimensions of parenting such as responsiveness and engagement in cognitively stimulating activities with children (Belsky, 1984; Brooks-Gunn & Markman, 2005; Grau et al. 2009; DeWolff & Van IJzendoorm, 1997). The model has also been shown to be appropriate for ethnic minorities such as African-Americans and Latinos (Bluestone & Tamis-LeMonda, 1999; Cabrera et al., 2006; Shannon, Tamis-LeMonda, & Margolin, 2005).

Belsky's model presumes that parenting is directly linked to children's development. Indeed, this model posits that most other influences on children are mediated by parenting. Parents' psychological wellbeing (e.g., depression) and contextual sources of stress and support influence children *indirectly* through their effect on parental sensitivity and responsiveness (Belsky, 1984; Bronte-Tinkew, Moore, Matthews, and Carrano, 2007; Cabrera, Shannon, West, & Brooks-Gunn, 2006; DeKlyen, Biernbaum, & Speltz, 1998; NICHD, 1999). Parents who are

depressed are likely to be less sensitive and attuned to their children's needs, which influence children's adjustment. Mothers with chronic symptoms of depression were found to be the least sensitive when playing with their children who, in turn, exhibited poor cognitive-linguistic functioning at 36 months (NICHD Early Child Care Research Network, 1999). This association between depression and children's outcomes has also been found with Latino samples (Loukas, et al., 2008; White, Roosa, & Nair, 2009). In addition, recent research has found that parent's depression is *directly* linked to children's cognitive and social behaviors (Cabrera et al., 2006). Given this review, we hypothesize that mothers' and fathers' depressive symptoms at 9 months will be directly linked to less sensitive parenting and children's cognitive and social behaviors at 24 months. We also expect that parenting will mediate the association between parents' depressive symptoms and children's outcomes at 24 months.

It is also expected, based on Belsky's model, that parents' depression will have a negative effect on parenting through its effects on marital conflict. Research on the effects of psychological distress on the quality of marital relationship suggests that low-income mothers with high levels of psychological distress exhibit high levels of conflict (Gutman & Eccles, 1999; McLoyd et al., 2000). Little research has been done on how psychological stress among Latino families influences their relationship with their partner and, in turn, with their children.

Belksy's (1984) model also posits that contextual sources of stress such as marital conflict have a direct influence on parenting and an *indirect* influence on children's outcomes through parenting (Belsky, 1984; McKenry, Price, Fine, & Serovich, 1992). Research with White samples shows that the link between marital hostility and children's outcomes is explained by its effect on the parent-child relationship, especially father-child relationship (McKenry, et al., 1992). Parents experiencing hostility with their partners are likely to exhibit hostility with their

children as well and use harsh punishment as a disciplinary strategy, which, in turn, can adversely affect children's outcomes (Cabrera et al., 2006; Conger et al. 1994; Conger et al. 2002; Cummings & Davies, 1994; Cummings, Goeke-Morey, & Raymond, 2004, Margolin et al., 1996). More recently, research has found marital conflict *directly* linked to children's maladjustment because it creates an insecure emotional environment that affects children's functioning (Cummings, Goeke-Morey, & Raymond, 2004). Studies of the effects of marital conflict on child maladjustment in Mexican-American and European samples suggest that hostile parents have a direct effect on children's behaviors by modeling negative behaviors that children can emulate (Cummings, et al., 2004; Lindahl & Malik, 1999; Parke et al., 2004).

Another source of stress that influences the context of parent-child interactions is the availability of economic resources (i.e., parents' SES). According to parent socialization models, SES influences child outcomes *directly* by the amount and quality of resources available to the child and *indirectly* by reducing parents' responsiveness and increasing harsh discipline (Duncan & Brooks-Gunn, 1997; Guo & Harris, 2000; McLoyd et al., 1994; Sampson & Laub, 1994). Parents who have fewer material resources have children who score lower on cognitive tests and have fewer social skills (Duncan and Brooks-Gunn, 1997). The link between SES and children's outcomes, which has been found across cultural/ethnic groups, has been shown to have long-term effects on children's outcomes (Dodge, Pettit, & Bates 1994; Leventhal, Xue, & Brooks-Gunn, 2006). For example, one study found that the effect of SES when children were in preschool predicted child outcomes when children were in grades 1-3 (Conger et al., 2002). Moreover, this link is explained through SES's influence on children's socialization and social context, including parenting behaviors (Conger et al., 1997; Dodge et al., 1994; Duncan & Brooks-Gunn, 1997; Guo & Harris, 2000; Hashima & Amato, 1994; Lugo-Gil & Tamis-

LeMonda, 2008; McLeod & Shanahan, 1993; Melby & Conger, 1996). Using the NLSY79, Guo and Harris (2000) found that parental cognitive stimulation completely mediated the association between SES and middle-school children's outcomes. A limitation of the Guo and Harris study, as well as the majority of the studies in this area of research, is that it focused only on mothers and was conducted with older children; fewer studies have included fathering behaviors as a potential mediator or focused on younger children.

For Latino families, a unique source of contextual stress might be the process of acculturation, which has been linked to parenting behaviors (Berry, 1990; 2007). Acculturation theory (Berry & Sam, 1997) predicts gradual change (e.g., giving up traditional forms of behavior) in immigrant values towards adopting the values of the dominant group. Stressors associated with acculturation processes may disrupt family functioning, including parent-child interactions and the couple relationship (Contreras, Lopez, Rivera-Mosquera, Raymond-Smith, & Rothstein, 1999). On the other hand, it is possible that the process of acculturation leads to better parenting practices with potential benefits for children. Research, conducted mostly with cross-sectional samples and older children, suggests that as Latinos become acculturated, their childrearing practices (e.g., teaching and play interactions) become more similar to those of parents born in the U.S. (Perez-Febles, 1992; Phinney et al. 1995, Knight, Virdin, and Roosa, 1994). Ispa et al. (2004) found that more acculturated Mexican-American mothers exhibited more warmth toward their toddlers than less acculturated mothers. Studies of parents and infants also report a positive association between acculturation (e.g., English proficiency) and mother-infant interaction scores and paternal engagement (Cabrera et al., 2006; Richman, Miller, and LaVine, 1992; White et al., 2009). Differences in parenting between Mexican-American parents and other-Latino parents (Cuban, Puerto Rican) were accounted for by differences in levels of

maternal and paternal acculturation, after controlling for SES (Cabrera et al., 2006). However, some studies have found either no or a negative association between Latina mothers' level of acculturation (i.e., language use preference and cultural involvement) and maternal sensitivity (Buriel, 1993; Contreras, 2004; Contreras et al., 1999). One study found that more acculturated mothers were less supportive than less acculturated mothers (Buriel, 1993; Chun & Akutsu, 2003). There are several possible explanations for the inconsistent findings. Most of these studies used cross-sectional data or covered a short period of time suggesting that perhaps acculturation may have short term effects on parenting, but that over time other factors such as parents' SES might be more important. Not all studies controlled for the independent effects of SES on parenting; and finally, the findings could also reflect discrepancy in measuring acculturation.

As a source of stress on parents, acculturation can also negatively increase conflict in the family, which can result in child maladjustment (Santiesteban et al., 1996). Empirical research shows greater marital satisfaction among less acculturated couples compared with their more acculturated peers suggesting that as parents become more acculturated, satisfaction in the relationship decreases, which can lead to more conflict (Casas & Ortiz, 1985; Golding, Burman, Timbers, Excobar, & Karno, 1985; Olsen, Russell, & Sprenkle, 1980). Other studies have found greater acculturation linked with greater marital stress among Mexican American wives, but not husbands (Negy & Snyder, 1997; Parke et al., 2004). Given these findings, we expect that levels of acculturation will be linked to children's outcomes through its effects on marital quality.

Ethnic background of families is another contextual variable that might influence parenting behaviors. The literature on differences or similarities on parenting by Latino ethnicity (or country of origin) is limited. A study of three groups of mothers (Dominican Republic, Puerto Rican, and African American) with young children in New York City revealed that Puerto

Rican mothers reported more social support than Dominican Republican mothers; both Latino groups received more social support than African Americans (Wasserman, Brunelli, Rauh, & Alvarado, 1994). There were also intra- and inter-ethnic parenting differences. Latina mothers had stricter childrearing attitudes than African American mothers, and mothers from the Dominican Republic had stricter attitudes than mainland Puerto Rican mothers (Wasserman et al., 1994). In another study of Puerto Rican and Cuban mothers and their infants living in Miami, both Latina groups showed more positive mother-infant interactions than a comparable group of European Americans, while mainland Puerto Rican mothers had more positive interactions with their infants than Cuban American mothers (Field & Widmayer, 1981). Possible explanations for these differences include culture-specific patterns of pregnancy timing such as the propensity to experience a teen birth, family support, acculturation levels, and marital status (Cabrera et al., 2006; Garcia Coll, 1989). For example, one study found that the differences between teen and older mothers in levels of supportiveness and intrusiveness with toddlers were more salient for African American mothers than for European American and Latina mothers. African American teen mothers were less supportive and more intrusive than older mothers; whereas teen Latina mothers were as supportive as older Latina mothers suggesting that differences within Latino groups and across cultural groups were not explained by mothers' age alone. Unfortunately, these studies did not control for the influence of acculturation and other characteristics such as parents' mental health and marital conflict on parenting behaviors. Given this review, we expect differences in parenting across Latino groups.

Control Variables

To isolate the independent associations of mothers' and fathers' SES, depressive symptoms, ethnicity, and levels of acculturation on parenting and children's outcomes, we

control for child's cognitive ability, child gender, child age, mothers' responsiveness and fathers engagement in cognitive stimulating activities, and marital conflict at the first wave of data collection when children were approximately 9 months old. To control for potential endogeneity we control for early cognitive development because baseline cognitive ability has been linked to subsequent parenting behaviors as well as later cognitive and social outcomes (Johnson, 2005; O'Connor and McCartney, 2007) We also control for child gender because some research shows that fathers tend to be more restrictive and controlling but also spend more time and are more sensitive with their sons than their daughters (Easterbrooks & Goldberg, 1984; Kelley et al., 1998; Leaper, 2000; Maccoby, 1998; Rothbart & Maccoby, 1966), whereas mothers tend to be more sensitive with daughters but also have stronger reactions to problem behaviors in girls than in boys (Garner, Robertson, & Smith, 1997; Mills & Rubin, 1990). Moreover, there is evidence that boys tend to be more aggressive than girls (Coie & Dodge, 1998; Maccoby, 1984; Rubin & Burgess 2002) and girls show greater social competence and positive affect during peer interactions than boys (Garner, Jones, & Miner, 1994; Garner, Robertson, Smith, 1997; Hoglund & Leadbeater, 2004). We control for child's age because there was variation in the timing of the ECLS-B across different families and not every child was 9 months-old. We control for early parenting behaviors and early marital conflict because research suggests that these behaviors are correlated across time and thus it is important to hold constant baseline measures correlated with the outcome of interest (Johnson, 2005).

Current study

The current study tested a model of the effects of early parents' psychological functioning and contextual sources of stress (i.e., parents' SES, acculturation, and marital

conflict) assessed at 9 months on toddlers' outcomes at 24 months in a national sample of Latino children and their parents. We focused on universal dimensions of parenting such as responsiveness and supportiveness as these have been found to be linked to optimal child development across racial and ethnic groups (Grau et al., 2009). This study extended the current literature in several ways. First, it extended Belsky's model of parenting by examining the unique contributions of three contextual stressors (SES, marital conflict, and levels of acculturation) simultaneously. By examining and isolating three unique contextual sources of stress, the current study presents a more comprehensive view of the challenges that Latino families face in the U.S. Second, it builds upon the research on family processes or parental socialization best exemplified by the work of Guo and Harris (2002) by examining the mediating effect of parenting behaviors on the association between parents' resources and child outcomes in a national sample of Latino families. Third, it proposes a cultural extension of Belsky's parenting model by including parents' levels of acculturation (generational status and English proficiency) as a contextual and cultural stressor that may influence Latino parent's functioning. Fourth, it focuses on two-parent families and includes fathers of toddlers, a group that is underrepresented in the literature. This is one of the few studies to test an expanded model of parenting to explain variation in mothers' *and* fathers' behaviors. The importance of the role of fathers in the lives of children has been emphasized in the literature (Cabrera & Garcia-Coll, 2004; Grau et al. 2009). The influence of fathers on Latino children, especially young children, is largely unknown. This study offers evidence of their influence by testing a culturally appropriate longitudinal model.

Consistent with Belksy's model of parenting, we hypothesize that parents' depressive symptoms and contextual sources of stress, namely SES, levels of acculturation, and marital

conflict measured at 9 months contribute to mothering (i.e., maternal supportiveness and harshness) and fathering (i.e., cognitive stimulation and harshness) at 24 months, which in turn have a negative influence on children's cognitive and socio behavioral outcomes at 24 months. Further, as per the noted intra-ethnic difference in parenting, we hypothesize that the association between parenting and children's outcomes may vary by Latino ethnicity. We therefore include ethnicity as a predictor of parenting behaviors.

Method

Participants

This study uses data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), which is a nationally representative study of children born in the United States in 2001. The ECLS-B sample was designed to represent the nearly four million children born in the United States in 2001. The initial sample was selected using a clustered list frame approach and the sampling frame included registered births in the National Center for Health Statistics' vital statistics system. The primary sampling units (PSU) were counties or groups of counties. Children were sampled by occurrence of birth within these PSUs. The initial sample excluded children who had died or who had been adopted after the issuance of the birth certificate and infants whose birth mothers were younger than 15 years at the time of their child's birth (NCES, 2005a). The children in the ECLS-B are being followed longitudinally at 9-months, 24 months, 48 months, and kindergarten; the present study used data from the 9- and 24-month surveys.

The baseline year consists of 10,688 infants and includes 2,193 children whose mothers identified them as Latino (67% were identified by their mothers as Mexican American and 33% were identified as members of different Latino groups, including Puerto Rican, Central American, and Dominican). Nearly all children who participated in the ECLS-B lived with their

biological mothers at 9 months of age and most lived with their biological fathers (78%). Approximately 74 percent of all mothers and 72 percent of Latino children's mothers completed a parent computer-assisted interview. Among the total sample of children with a completed mother interview, 96 percent completed the child assessments while 95 percent of Latino children with a mother interview did so.

The 24-months data collection consists of 9,835 toddlers (Nord, Edwards, Andreassen, Green, & Wallner-Allen, 2006). Of these, 1,988 mothers identified their children as Latino; 1,328 Mexican American and 660 other Latino. The unweighted 2-year response rate for the parent interview was 93 percent (Nord et al., 2006). The unweighted response rate for resident fathers was 76 percent and it depends on the identification of a spouse or partner of the parent respondent. The response rate is equal to the number of resident father questionnaires received divided by the number of eligible resident fathers (i.e., those identified as resident fathers) (Nord et al., 2006). Results from preliminary analysis comparing respondents present at the 9-month survey (N=10,688) to those who were present at the 24 moths data collection (N=9,835) suggest that the two samples did not differ dramatically in their basic demographic characteristics measured at 9 months (see Appendix Table 1).

The final analytical sample consists of 500[1] Latino children who had at least one parent of Latino origin, who lived with both biological parents at 9-months and whose parents remained in a co-residential union by 24-months, whose mothers completed a parent interview at both waves of data collection, whose fathers completed a resident father questionnaire at baseline, and whose children completed a cognitive and social behavior assessment at approximately 24

[1] NCES policy on the use and dissemination of results requests that users report unweighted sample sizes rounded to the nearest fifty.

months of age. We did not include nonresident fathers because of their low levels of participation at 9 months and high levels of attrition at 24 months. In 99 percent of the cases at 9 months and 97 percent of the cases at 24 months, the respondent to the parent interview was the child's biological mother. The remaining parent interviews were completed by a female guardian or by the child's father. If the spouse or partner of the mother lived in the same household as the ECLS-B child, he was asked to complete a self-administered resident father questionnaire. These few cases were not included in the analytic sample. In most cases (98 percent at the 9 month data collection and 96 percent at the 24-month data collection) the respondent to the father questionnaire was the child's biological father (NCES, 2005a; Nord et al., 2006). The remaining questionnaires were completed mostly by other male household members (e.g., child's grandfather), and in a very few cases by another woman living with the child.

Procedure

The ECLS–B collected data on mothers, fathers, and children. During home visits, trained field staff conducted a computer-assisted interview with mothers, assessed infants' mental development, and videotaped mother-infant interactions. At 9 months, mother-infant interactions were videotaped for 45 seconds to five and a half minutes during a semi-structured teaching task. Following the Nursing Child Assessment Teaching Scale protocol (NCATS; Sumner & Spietz, 1994**),** mothers were asked to select and teach their infants a new activity from a list of age-appropriate activities (e.g., banging two blocks together, turning pages in a book). At 24-months, mother-child interaction was videotaped while the parent-child dyad was asked to complete the Two Bags Task.

Measures

The measures used in the ECLS-B were selected and developed in consultation with leading experts in various fields; adapted from other federal surveys of young children and their families; or, developed specifically for use in the ECLS-B (NCES, 2005a, 2005b). Both extensive field-testing and rigorous training were conducted to ensure quality control and fidelity of administration of measures. All measures for parents and infants were available in English and Spanish. A multi-step procedure was used to translate the ECLS-B instruments into Spanish: (1) Instruments were translated from English to Spanish. Translator were given copies of any previously translated items that had been used in prior national studies as a point of reference; (2) Initial Spanish and English versions were given to a second translator for review. A second draft of the Spanish instrument was created by this second translator; and, (3) A third person compared the second draft Spanish to the English version.

Toddlers' Cognitive Ability. We use the *Bayley Short Form–Research Mental Scale (BSF-R)*, which is a shortened version of the Bayley Scales of Infant Development-Second Edition (BSID-II; Bayley, 1993), a standardized assessment of mental and motor development for children from birth to 42 months of age. The BSF-R was especially designed for the ECLS-B and includes mental and motor scales, but only the mental scale was used in this analysis. The BSF-R mental scale includes items designed to assess children's cognitive and language ability such as memory, means-end behavior, problem-solving, and vocalizations and gestures through standardized tasks (e.g. naming pictures, verbalizing, compare sizes) (Flanagan & West, 2004).

Children were assessed in their homes by trained field staff. Standardized toys, verbal prompts and modeling were used to administer a range of tasks just like they are in the full BSID-II. The core set of items at 9 months included 11 items. Depending on the child's performance on this core set, he or she was administered nine basal or nine ceiling items. The

mental core item set ranged in age from 5 to 13 months, while the basal items reached down to four months and the ceiling items to 19 months. Item response theory (IRT) calibration and scoring were used to develop a mental scale score. IRT true-score equating was used to put the BSF-R results on the same 0-to-178-point scale used by the BSID-II. The BSF-R mental scale score is an estimate of the number of items a child would have answered correctly had the full BSID-II been administered. The reliability of the BSF-R mental scale score was .79. The scores for children participating in the analytic sample ranged from 95.2 to 149.1 with a mean of 124.2.

Toddlers' Social Behavior. Children's social behavior at 24 months was measured using the Two Bags children's behavior scales (e.g., joint book reading and pretend play with a set of dishes), which is a modified version of the Three Bags Tasks used in the Early Head Start Research and Evaluation Project. It is a semi-structured task that asks the mother and the child to play for 10 minutes with different sets of toys from two bags (Owen, Barfoot, Vaughn, Dominguez, & Ware, 1996). The only restriction was that they had to play with the toy in bag number 1 first. The sessions were videotaped and analyzed by trained researchers who coded the behavior of the parent and the child on global scales that range from 1 = *very low* to 7 = *very high,* which correspond to behavior domains known to be important to children's socioemotional development (Nord et al., 2006). Inter-rater reliability was established at 95% (Andreassen & Fletcher, 2007).

The videotaped data were coded on three global child behaviors (i.e., child engagement of mother, child quality of play, and child negativity toward mother). We used the three global measures of child behaviors to construct an overall measure of children's social behavior. *Children's Engagement of Parent* reflects the extent to which the child shows, initiates, and maintains interaction with the mother, and the extent to which the child communicates positive

regard or positive affect to the parent. At the higher end of the scale, the child expresses sustained positive affect toward the parent (through smiling, and laughter) and frequently looks at and attempts to interact with the mother. At the lower end of the scale, the child displays no affect with the parent or ignores or overtly rejects the parent. *Children's Quality of Play* assesses the child's ability to sustain attention to and involvement with objects. A child low on sustained attention could seem apathetic, bored, distracted, distressed, or aimless, while a child high on sustained attention is able to focus attention when playing with an object and appears involved in what he/she is doing. *Child Negativity* measures the degree to which the child shows anger, hostility, or dislike toward the parent. At the high end, the child is repeatedly and overtly angry with the parent. This scale was reverse-coded so that higher scores indicate less child negativity.

We summed each of these three scales, which we refer to as *positive affect*, *sustained attention*, and *negative affect*, to construct an overall measure of children's social behavior, which ranges from 6 to 21 with an average score of 14.9 (Cronbach alpha of .76).

Measures of Independent Variables

Parents' SES. Parents' SES includes educational levels and household income. Parents' education is measured by one latent variable using information on the mother's and father's educational attainment (years of school) and family income at baseline when children were 9 months old. Annual household income is recoded into five categories (i.e., 0 = $15,000 or less; 1 = $15,001–30,000; 2 = $30,001–50,000; 3 = $50,001–75,000; and 4 = $75,001 or more).

Acculturation. Based on a bidimensional approach to acculturation that takes into account endorsement of ethnic heritage and American cultural practices, we measure acculturation with one latent variable that includes indicators of parents' nativity, years in the U.S., and English proficiency of *both* parents (Prado et al., 2008; Schwartz & Zamboanga, 2008). The observed

indicators of the latent construct were coded so that higher scores indicate being more acculturated. The ECLS-B assessed father's country of origin at 9-months and mothers' country of origin at 24 months. We created a continuous variable combining information on the parents' nativity status and years in the U.S. where parents who were foreign born and who came to the U.S. after age 17 were coded one; parents who were foreign born and who came to the U.S. between age 0 and 17 were coded two; and parents who were native born were coded 3. The variable is ordered in terms of increasing acculturation. Mother's and father's English proficiency is based on their responses to four items assessing how well she/he speaks, reads, writes, and understands English (1 = *not very we*ll to 4 = *very well*). Mothers and fathers reporting that English was the primary language spoken in the home were assigned a 4 across all four items. The four items were recoded so that 1 = *very well* and 0 = *pretty well to not very well at all* and then summed to create an index of proficiency for each parent (a score of 0 represented low proficiency and a score of 4 represented high proficiency).

Relationship conflict 24-months. Relationship conflict is a measure based on mother's and father's reports of conflict in their partnership. Mothers and fathers were asked a series of nine questions assessing marital conflict (i.e., how often they argue about chores, money, affection, sex, religion, leisure time, drinking, other women/men, and in-laws). Response categories ranged from 1 = *often* to 4 = *never*. The variable is coded so that higher scores indicate greater relationship conflict and categories are collapsed so that 1 = *often*; 2 = *sometimes*; and 3 = *hardly ever/never*. Mean scores were computed for cases with scores on at least 8 of the 9 items. The scales for mothers and fathers at both waves of data appeared to have adequate internal consistency for the sample with an alpha of .72 and .79 for mothers and .73 and .77 for fathers at the 9-month and 24-month data collections, respectively.

Depressive Symptoms. We use a measure of maternal and paternal depressive symptoms assessed at baseline to examine the relationship between depression and children's outcomes at 24 months. Depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale—Short Form (CESD-SF) (Ross, Mirowsky, & Huber, 1983), which comprises 12 of the 20 items from the full CES-D (Radloff, 1977). The CES-D is a self-report scale that measures the absence or presence of negative thoughts, feelings, and behaviors during the prior week. The measure is based on parents' responses to question on how many days in the past week, the respondent: felt bothered, had a poor appetite, could not shake the blues, had trouble keeping focus, felt depressed, felt everything was an effort, felt fearful, had difficulty sleeping, talked less than usual, felt lonely, felt sad, could not get going. Items were rated on a 4-point Likert scale (1 = *rarely* and 4 = *most or all days*). Higher scores indicate more depressive symptoms. The scale appeared to have adequate internal consistency with a Cronbach alpha of .87 for mothers and .82 for fathers.

Mother Supportiveness at 24 months. We use the quality of the mother-child interaction observed during the Two Bags task to capture mother supportiveness at 24 months. The six parenting rating subscales of the Two Bags assess global mother behaviors: Parental Sensitivity, Parental Intrusiveness, Parental Stimulation of Cognitive Development, Parental Positive Regard, Parental Negative Regard, and Parental Detachment. Each subscale is rated on a 7-point Likert-type scale ranging from very low to very high. We include only positive dimensions of mothering because there is little variability on the negative dimensions. The scale for the overall score of mother supportiveness (weighted average of cognitive stimulation, positive regard, and sensitivity) is on a scale from 1 to 7. Mother's overall supportiveness is a latent variable which uses information obtained from the positive parenting rating subscales of the Two Bags Task.

Father Engagement in Cognitive Stimulating Activities at 24 months (Father Cognitive Stimulation). Father's engagement in cognitive stimulating activities when children were 24-months old is the sum of three items: how often in the last month he read to the child, told stories, and sang songs. Responses range from 1 = *not at all* to 4 = *every day* with higher scores indicating more involvement. The scale of the overall cognitive stimulating score ranges from 1 to 12. The Cronbach's alpha for scores on father's cognitive stimulation at 24 months was .68.

Harsh Parenting. Mother's and father's harsh parenting was based on the sum of their responses to three questions asking the mother/father about if the child got angry, would she/he respond by: hitting child back, spanking child, yelling or threatening child. The response choices for the individual were yes (1) and no (0). Higher scores indicate harsher parenting. Due to low reliability, these measures were not used.

Control Variables

The quality of mother-infant interactions was assessed at 9 months from videotape using the Nursing Child Assessment Teaching Scale (NCATS). The child is assessed for about five minutes during a semi-structured teaching task. The NCATS is a binary scale of 50 parent items assessing parent-child interaction (sensitivity to cues, response to child's distress, cognitive growth fostering, and socioemotional growth fostering) where 1 = *observed* and 0 = *not observed*. Possible scores range from 0 to 50 with higher scored indicating more positive and responsive maternal interactions. The total parent score demonstrated adequate internal consistency as measured by alpha of .67. The alpha for the full ECLS-B sample was .68 (NCES, 2005b). Father's cognitive simulation at baseline (9 months) is based on how often in the last month the father has read to the child, told stories, and sang songs. The response format was the

same as the 24-month questionnaire. The Cronbach's alpha for scores on father's cognitive stimulation at 9 months was .66.

We used the child's birth certificates for information on his/her sex, which is coded 1 for boys and 0 or girls. Child age is based on the child's age at assessment during the first wave of data collection. It is reported in months. We use the BSF-R to measure children's cognitive development at 9 months; the Cronbach's alpha at 9 months was .79. We also control for the child's temperament at 9 months, which is a summed measure based on the parent's response to 7 items assessing whether the child is fussy, goes from whimper to crying, demands attention, wakes up more than 3 times, needs help to fall asleep, is startled by loud sounds, cries for food or toys. Responses to each item range from 0 = *never* to 3 = *most times*. The overall score ranges from 0 to 18 with a Cronbach alpha of .47.

Results

Preliminary analyses

Structural equation modeling (SEM) was used to examine the hypothesized associations among parents' depressive symptoms, SES, acculturation, marital conflict, ethnicity, parenting, and children's outcomes. An advantage of SEM over more traditional multiple regression techniques is that it is confirmatory enabling researchers to specify a theoretical model *a priori,* estimate it, and evaluate how well the data fit the model (Kline, 2005). Furthermore, recent research suggests that SEM effectively controls for measurement error when estimating both direct and indirect effects and provides unbiased estimates of mediation effects (Cheung & Lau, 2008). Confirmatory factor analysis was used to construct our latent measures of socioeconomic status (i.e., mothers' and fathers' education and household income) and acculturation (i.e., mother and father English proficiency and mother and father nativity) and evaluate the fit of the

measurement model. This analysis was specified as part of the structural equation model. The root mean square error of approximation (RMSEA) and the comparative fit index (CFI) were used to evaluate goodness of fit. Fit is considered good if the CFI is greater than .95 and the RMSEA is less than or equal to .05. (The minimum threshold for acceptable fit is at .90 for the CFI and ≤ .08 for the RMSEA) (Kline 2005).

Analyses were conducted using Mplus version 5.21. In only a few cases we found measures with missing information (e.g., father's English proficiency). However, the amount of missing information was small ranging from about 5–10 percent. Full information maximum likelihood estimation in Mplus was used to handle all missing data. Research shows this method offers several advantages over more traditional approaches (Acock, 2005). All data were weighted using the appropriate 24-month longitudinal weights for analyses that utilize father information at both the 9- and 24-month surveys—either alone or in combination with data collected through the parent interview and/or birth certificate (Nord et al., 2006). Because we weighted the multivariate regressions, we used the MLR estimator in Mplus, which produces maximum likelihood parameter estimates with standard errors and a chi-square test statistic that are robust to non-normality and non-independence of observations (Muthén & Muthén, 2007).

Factor analysis on measures of SES produced a one-factor solution for both latent constructs which we refer to as *parents' education* (eigenvalue =1.55, 77.7% of variance explained). The measure of household income was not a significant predictor in the socioeconomic status latent variable, so it was dropped from the construct and only measures of mother's and father's educational attainment were retained. Factor analysis was also conducted on the acculturation variables for mothers and fathers. The analysis produced a one-factor solution for *parental acculturation* (eigenvalue =2.61, 65.3% of variance explained) which

included mother's and father's English proficiency and native-born/years in the U.S. status. Finally, factor analysis of the variables for maternal supportiveness derived from the observational two-bags task revealed an underlying single factor comprised of the three positive parenting subscales: parental stimulation of cognitive development, parental sensitivity, and parental positive regard (eigenvalue =2.10, 80.6% of variance explained). This variable was labeled *mother supportiveness*.

Because of the number of Latino ethnic groups in the ECLSB (e.g. Puerto Rican (PR), Cuban, other) we ran a series of ANOVAs on most of the variables in the models and conducted multiple comparisons to determine which groups were significantly different from each other (results not shown). These analyses revealed that (1) children from PR have higher cognition scores at 24 months than Mexican American children, (2) mothers and fathers from PR have been in the U.S. longer than mothers and fathers from Mexico, (3) Mexican mothers' and fathers' education levels are lower than all other Latino groups. Based on these findings showing differences between Mexican Americans and other Latino groups on child and family demographic variables, we included one dummy variable to denote Mexican American families versus other Latinos (PR, Cuban, other).

Descriptive and bivariate analyses

Table 1 shows means and percentages for the main variables in our analysis. Children in this sample scored between 95.2 and 149.1 on the BSF-R with an average cognitive assessment of 124.2, which was slightly lower than the average reported for all children sampled at 24 months (127.1) (Nord et al., 2006). Children's sociobehavior score based on their Two-Bags assessment ranged from 6 to 21 with an average score of 15.2, which was similar to the average score reported for all 24-month old children (15.6).

A majority (63.8 percent) of the sample had a household income between $15,001 and $50,000 while 17 percent reported incomes of above $50,000. The distribution of educational attainment for mothers appeared bimodal with about 45 percent reporting less than a high-school diploma, 19 percent reported having only a diploma, and 36 percent reporting more than high school. Less than half (about 45 percent) of the fathers reported having less than a high-school diploma, while about 20 percent had only a diploma and another 35 percent reported having at least some college. Approximately 39 percent of mothers and 41 percent of fathers were native born. Of those who were foreign born, 36.5 percent of the mothers and 40.4 percent of the fathers came to U.S. before they reached age 18. The overall nativity/years in the U.S. score for mothers and fathers were 2.0 and 2.1, respectively. Mothers' self-rated English proficiency was 2.9 and fathers' was 1.9 (range = 0-4).

At 24-months, parents' reports of relationship conflict were low averaging about 1.4 for mothers and 1.3 for fathers (range =1–3). The averages were relatively unchanged between the 9- and 24-month surveys. Mothers' overall average scores for supportiveness was 5.0 (range =1–7). Fathers averaged a cognitive stimulation score of 7.0 (range=1-12).

Table 2 shows the correlation matrix for the analysis variables. The correlations provide preliminary support for our model. Children's cognitive and social development at 24 months is correlated with both mother and father cognitive stimulation at both waves. The results also suggest a significant association between measures of SES and acculturation on children's developmental outcomes. Father's depressive symptoms is correlated with both mother's and father's perception of conflict at 24 months, although the correlation coefficients are small (.12 for mothers and .27 for fathers). However, neither mother's nor father's depressive symptoms are correlated directly with children's developmental outcomes at 24 months. Only father's

perception of conflict at 9 months is positively and significantly related to children's social behavior at 24 months, conflict.

Structural equation models

Child's Cognitive Ability. Table 3 presents unstandardized and standardized parameter estimates from the model predicting child's cognitive outcomes. Figure 2 presents all significant parameters at the $p < .05$ level. Betas with values less than .10 are considered small effects, values around .30 are medium effects, and values greater than .50 are large effects (Cohen, 1988). The hypothesized model produced a good fit with CFI = .97 and a RMSEA = .03. With approximately 90% confidence, the RMSEA was between .017 and .036. Figure 2 shows that higher levels of father involvement in cognitive activities (i.e., singing, telling stories, and reading) at 24 months were associated with higher children's cognitive scores at 24 months.

Mothers' report of depressive symptoms at 9 months was not significantly associated to the parenting variables or children's cognitive scores as hypothesized. However, fathers' depressive symptoms at 9 months were linked to the mothers' report of marital conflict and to his own reports of conflict at 24 months and to engagement in fewer cognitively stimulating activities with their children at 24 months; these effects were small.

The results in Table 3 suggest that the total indirect effect of father's depressive symptoms at 9 months on children's cognitive score at 24 months was statistically significant. When father's depressive symptoms increased by one standard deviation, child's cognitive development decreased by .03 standard deviations ($p < .05$). However, none of the specific indirect effects were significant and the total indirect effect size is small

Mother's and father's reports of marital conflict at 24 months were significantly associated with father's cognitive stimulation at 24 months. Children with mothers who reported

higher levels of marital conflict had fathers who engaged in more cognitive stimulating activities. Conversely, a higher level of marital conflict reported by fathers was associated with less cognitive stimulation on their part. The association between father reports of marital conflict at 24 months and children's cognitive scores at 24 months was mediated by a combination of several variables, including father cognitive stimulation at 24 months and mother supportiveness at 24 months. The total indirect effect was not significant; only the link through father cognitive stimulation was negatively significant but small (Beta =-.02, $p < .05$).

Parents' educational attainment was strongly and significantly and positively associated with higher levels of mother support (but not fathers' engagement in cognitively stimulating activities) and moderately with lower levels of mother's reports of marital conflict. The results indicated that parents' education was indirectly, but not directly, related to children's cognitive development at 24 months through a combination of several variables, including mother supportiveness, mother's reports of marital conflict, and father's cognitive stimulation at 24 months. The total indirect effect of parents' education on children's cognitive development at 24 months was statistically significant, albeit small. A one standard deviation increase in parents' education is associated with a .09 standard deviation increase in children's cognitive scores at 24 months ($p < .05$). However, this finding is not too meaningful given that none of the specific indirect effects were significant. Finally, the results indicated a statistically significant specific indirect effect from father's cognitive stimulation at 9 months to children's cognitive development at 24 months (a moderate effect) which is fully mediated by father's cognitive stimulation at 24 months. A one standard deviation increase in father involvement at 9 months is associated with a .07 standard deviation increase in children's cognitive development at 24

months ($p < .01$, a small effect. It is also worth noting that neither ethnicity nor acculturation was significantly related to parenting or children's cognitive outcomes.

Children's Social Behavior. The hypothesized child social behavior model produced a good fit with CFI =.97 and a RMSEA =.03. With approximately 90% confidence, the RMSEA was between .018 and .036. Figure 3 shows that higher levels of mother supportiveness (i.e., cognitive stimulation, positive regard, and sensitivity) were strongly (Beta=.74) and positively associated with children's social behavior at 24 months. As with the cognitive model, father's depression symptoms was weakly but directly related to his and his partners' perception of marital conflict and his engagement in cognitive stimulation activities at 24 months, but there were no indirect effect of depression on parenting. Moreover, ethnicity and acculturation had no direct or indirect effects on social behaviors.

The results of the association between parent's education and children's social development were inconsistent in terms of the sign of the direct and mediated effects. Parents' education had a small and negative direct effect on children's social behavior at 24 months. The total indirect effect of parents' education (through parental involvement and mother's perception of marital conflict) was positive and it was moderately mediated by mother supportiveness (B = .43, $p < .001$ level). However, the total effect of parents' education, which is the sum of both direct and indirect effects, was moderate, positive (B = .26, $p<.05$) and significant suggesting that higher levels of family education is associated with more positive social behavior outcomes in children at 24 months.

Discussion

Using Belsky's (1984) model of parenting, the current study examined associations between parents' depressive symptoms and contextual sources of stress and support such as marital conflict, parent education, and levels of acculturation at 9 months on parenting and children's outcomes at 24 months in a national sample of Latino toddlers and their mothers and fathers. We also examined the mediational effect of parenting behaviors and marital conflict on children's outcomes at 24 months of age. This is one of the few studies to simultaneously study the impact of contextual sources of stress on mothering and fathering and toddlers' cognitive and social behaviors. This study expanded Belsky's model by including culturally relevant contextual stressors (i.e., levels of acculturation) and examining the influence of ethnicity (i.e., country of origin) on family processes and child functioning. Our national sample was very diverse in terms of nativity status (almost 40 percent of mothers and fathers were foreign born) and educational attainment.

Our findings partially supported Belsky's meditational model that parents' depressive symptoms influence child functioning through its effects on parenting behaviors, but only for fathers and the effects were small. Although we found evidence of a total meditational effect of fathers' depressive symptoms at 9 months on toddlers' cognition through family functioning (father engagement in cognitively stimulating activities and couple conflict), there were no specific significant pathways. This was not the case for mothers. One explanation is that the effects of maternal depression on children may be evidenced only when depression is chronic or long-term (NICHD, 1999). In our study, mothers' (and fathers) reported relatively low levels of depression at 9 months. There was also no comparable measure of depressive symptoms at 24 months. Thus we could not determine if depressive symptoms persisted over time. It is also possible that men and women may have different ways of manifesting depression (Almeida &

Kessler, 1998). Latino women, who may be bound by traditional views and gender roles, may feel obliged to fulfill their maternal obligations even when they do not feel up to the task. Latino men, on the other hand might have more flexibility in how their psychological wellbeing interferes with their parental obligations. When feeling depressed, they may engage in less caregiving and nurturing, which may be the primary responsibility of mothers, but continue to fulfill their provider role, which might be fathers' primary role. Future research should examine the moderating effect of traditional gender roles on the association between depression and various aspects of parenting.

We also found partial support for Belsky's model that partner conflict, a source of contextual stress, influences children *indirectly* through its effects on parenting.
Fathers who perceived higher levels of marital conflict reported significantly less engagement in cognitively stimulating activities with their children, and the decrease in cognitive stimulation partially and significantly explained children's lower cognitive abilities at 24 months. Although these effects were small, they were not found for mothers. This finding supports the common view in the literature that systemic factors might have less influence on mothers' parenting than on fathers' parenting because cultural norms for parenting are stricter for mothers than for fathers (Cummings & Davies, 2002; Doherty et al., 1998).

Contrary to what we expected, we found no evidence that couple conflict was *directly* related to toddlers' cognitive and social behaviors. This finding, however, is not entirely inconsistent with past research. Despite the relatively strong nature of the association between marital conflict and children's externalizing behaviors reported in the literature, some studies have found that many children do not exhibit behavior problems and even among those who do there is great variability (Cumming & Davies, 2002). New findings suggest that individual

physiological responses to stress might function as vulnerability or protective factors in the context of family risk (El-Sheikh, Kouros, Erah, Cummings, Keller, & Staton, 2009). Thus some children may be less affected by family conflict than others. The contributions that children make to their own development should be further studied in the context of parenting.

Our hypothesis that parents' SES (parents' education in this study) influences children's outcome*s* through its effects on parenting was partially supported. Mothers and fathers with higher levels of education are more supportive of their toddlers during mother-child interactions (large effect) and report engaging in more cognitive stimulating activities (small effect), respectively. Mothers with higher levels of education also report less couple conflict. Moreover, we found a significant but small total indirect effect of parents' education on toddlers' *cognitive outcomes* through its effects on multiple mediators, especially parenting behaviors and perceptions of couple conflict. However, the test of mediation through parenting was only trending. In contrast, Guo and Harris (2000) found that the effect of SES on middle-school children's cognitive ability was completely mediated by parents' cognitive stimulation in the home. Overall there was less variability in our sample in terms of mother supportiveness and levels of parents' education, which may help to explain why mediation occurred only at the trend level. The majority of our sample had a high school diploma or less and was not very proficient in English, which may explain why parents' education was not directly related to children's cognitively ability. Although fathers' engaging in cognitively stimulating activities with their infants had the largest direct effect (Beta=.43) on children's cognition.

The meditational test for the effects of SES on children's *social behaviors* produced different results. As with the findings for cognitive ability, we found evidence of several pathways between parents' education and children's' social behaviors. As hypothesized, parents'

education was significantly and directly related to higher levels of mothers' supportiveness (large effect) and fathers' cognitive stimulation (small effect). Although the overall indirect effect of parent's education on children's social behaviors (through mother supportiveness) was moderate and positive, the direct effects of parents' education on children's social behaviors was small and negative. This finding is counterintuitive, and suggests inconsistent mediation (MacKinnon, Krull, & Lockwood, 2000; White et al., 2009). In contrast to consistent mediation, in an inconsistent mediational model the direct and indirect effects are in opposite directions. It is possible that some unmeasured variable is associated with parents' education, and this variable accounts for the negative direct effect. For example, parents with higher levels of education may place more pressure on their children to succeed and demand more of them than other parents. Alternatively, more educated parents may have more demanding jobs which increase their stress levels resulting in fewer positive children's social behaviors. We note that the direct effect of parent education on child social behavior was small, whereas the indirect effect of parent education on social behavior was more robust. That is, mothers are more supportive of their children when they have completed more formal schooling, and the higher level of supportiveness has a large and significant effect on children's social behaviors. Indeed, the total effect (i.e., direct plus indirect effect) of parent education is positive, suggesting that potential factors associated with higher levels of education such as increased stress or placing more pressure on children to succeed are weaker influences on children's social development than is mothers' supportive parenting.

We found no evidence that a cultural source of stress such as levels of family acculturation (measured as parents' nativity status and English proficiency) was related to Latino parenting and children's cognitive and social behavior outcomes over time. Bivariate correlations

showed a positive and significant association between our measures of acculturation and parenting behaviors and couple conflict at 9 and 24 months. When depressive symptoms, couple conflict, parents' education, levels of acculturation, and ethnicity were examined simultaneously, however, the unique association between levels of acculturation and parenting was not significant. This is a new finding given that extant research has not always examined acculturation simultaneously with other contextual stressors of parenting (e.g., couple conflict and education levels) as well as parents' psychological functioning. Moreover, it has not included acculturation levels of both parents (Buriel, 1993; Chun & Akutsu 2003; Richman, Miller, and LaVine 1992; Gonzalez, et al., 1997). In this study, we measured acculturation at the family level because it captures how this process, undertaken by both parents, shapes the home environment of the child and influences his/her development. Results from the current study suggest that future research should simultaneously examine multiple stressors because they maybe co-occurring and the influence of parents' acculturation on parenting may be better explained by parents' levels of education and couple conflict. For Latino parents, lack of resources due to low levels of education and its effect on earnings and on the economic well-being of the family may be more stressful on the relationship with each other and with their children than the actual process of acculturation.

Our hypothesis that ethnicity influenced parenting behaviors was not supported. This finding is consistent with past research suggesting that parent's SES is a stronger predictor of negative parenting than ethnicity (Cabrera et al., 2006). Studies that have reported ethnic differences may not have accounted for SES and other family functioning variables that have been found to be related to parenting behaviors (Wasserman, et al., 1994; Garcia Coll, 1989). We remind the reader that in this study, we focused on general-cultural behaviors of parenting

(responsiveness and sensitivity). It is possible that ethnicity may be linked to specific-culture behaviors (e.g., parenting practices that emphasize independence) that were not included in this study; whether these specific parenting behaviors have an effect on children's cognitive or social outcomes is an empirical question. Our finding suggests that future research should disentangle contextual stressors of parenting from the effects of ethnicity on parenting and consider the effects of these stressors, as well as of acculturation, on both universal and specific culture parenting behaviors.

An unexpected finding was that fathers who reported engaging in cognitively stimulating activities with their *infants* at 9 months (i.e., sang songs, read and told stories) were more likely to engage in similar type of activities with their *toddlers* at 24 months, which partially explained children's higher cognitive scores at 24 months, although the effect was small. This finding is consistent with past research that has shown a direct link between father involvement and children's cognitive and language development (Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). This direct association was not found for the effect of mother-infant interaction on children's 24 months outcomes. One explanation is that levels of mother supportiveness (which were above average in this study) were not enough to influence cognitive development; although they were effective in influencing children's social behaviors (observed measure of child showing initiative, smiling, or focusing attention in a play interaction with mother). These findings also suggest that the pathways from parenting to specific child outcomes are different for mothers and fathers. Latino mothers' parenting may be more effective at promoting their children's social behaviors, which are important skills for succeeding in school, than they are at promoting their children's cognitive skills. On the other hand, fathers' engagement in cognitive stimulating activities (especially during infancy) may be more effective at promoting their

toddlers' cognitive abilities, which are also critical to succeeding in school, than they are at promoting their social behaviors. This illustrates the need for programs and policies to build on Latino families' strengths by providing programs and services for *both* parents. Such resources would encourage and support early father involvement in cognitively stimulating activities with their infants and toddlers and would also build on and encourage mothers' supportiveness while at the same time help these families to build more human capital.

Overall, we found weak evidence in support of Belsky's meditational model and no evidence that early parent's depression and couple conflict directly affect toddlers' adjustment. Fathers with high depressive symptoms were less engaged with their children and reported more couple conflict, but these effects were small and not found for mothers. Although parents' contextual sources of stress (couple conflict and parents' education) influence parenting directly, there are few indirect effects on children's outcomes, and most of these are small. Moreover, levels of acculturation as measured in this study and ethnicity were not significantly related to parenting or children's outcomes. Parents' education is the most important predictor of mother supportiveness, which is, in turn, also strongly linked to children's social behaviors. In contrast, the most important predictor of father involvement at 24 months is his involvement early during infancy. Although the effect is small, it has a significant effect on children's cognitive scores at 24 months. This finding would support efforts to promote positive and supportive fathering behaviors during infancy. It is also noteworthy that when mothers report high levels of conflict in the home, father involvement with his children increases, which is also related to positive scores on child cognitive tests. Thus the most important pathway from early predictors to toddler's cognitive outcomes is father involvement during infancy because it leads to more involvement

during toddlerhood. The most important pathway for social behaviors is, in contrast, parents' education because it leads to more mother supportiveness at 24 months.

Limitations. The findings of this study need to be considered in the context of the following limitations. First, our measures of relationship quality are limited. Measures of relationship quality that include conflict resolution and support would have given us a better understanding of how relationship quality is linked to family processes and children's outcomes. Second, we would have liked to have examined parents' depression at 24 months; this was not possible as the ECLS-B's measure 24 months is not consistent with the measure at 9 months. Third, recent findings suggest that how acculturation is measured may matter. A study of Mexican-American fifth graders and their parents found both significant direct and indirect effects of *acculturative stress* (e.g., perception of experiencing problems due to low English proficiency) on parental warmth (White et al. 2009). Perhaps measures of acculturation that focus on perceptions of stress regarding the process rather than levels of acculturation might be a better indicator of how the process of acculturation influences family functioning. The ECLS-B does not collect these data. Fourth, we do not have comparable observational measures of mother's and father's parenting behaviors. Fathers' self-report measure of engagement with children may reflect social desirability rather than actual behaviors thus differences in parenting behaviors might reflect differences due to measurement rather than to actual parental involvement.

Despite these limitations, this study makes an important contribution to our understanding of the mechanisms by which early home environment variables influence Latino toddlers' cognitive and social behaviors. We tested and expanded Belsky's meditational model of parenting with a national sample of Latino infants by simultaneously testing multiple stressors

including levels of acculturation as a culturally relevant source of stress that might influence parenting. Furthermore, we contribute to this body of literature by examining mechanisms of influence on children's family environment and subsequent cognitive and social outcomes longitudinally thus moving us closer to understanding the causal association between children's early environments and later functioning. Another innovative aspect of this study is the inclusion of fathers and their contributions to family processes. Although there is a growing body of research on fathers, most studies of parenting do not include both parents. We need studies that include both parents and assess the simultaneous influence on family functioning. And finally, we consider these processes among a nationally representative birth cohort of Latino children—a growing population of children in the U.S. that is disproportionally in poverty and of which we know relatively little about compared to their European-American counterparts. The assumption of the extant research is that poverty equals deficits. Research that identifies strengths and moves us closer to understanding the pathways to positive child development move us toward a better understanding of what these families need and the types of policies that will have true benefits.

These findings highlight the important contribution that parent resources (levels of education) and early father involvement make to children's social and cognitive development. A central finding is that parents' education, not acculturation, is significantly predictive of children's social behaviors over time because of its strong influence on mothering. Latino toddlers are developing the necessary social skills to succeed in school. Interventions and programs need to build on this strength as they find ways to support parenting that also improves children's developing cognitive skills.

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Table 1. Descriptive Statisitics on Socioeconomic, Acculturative, Parenting, Mental Health, and Selected Demographic Characteristics

	Mean/%	(SD)
Main Dependent Variables		
Child's cognitive assessment at T2	124.2	(9.7)
Child's sociobehavioral score at T2	15.2	(2.6)
Main Independent Variables		
SES		
Income		
$15,000 or less	19.2	—
$15,001 to $30,000	37.0	—
$30,001 to $50,000	26.8	—
$50,001 to $75,000	9.3	—
$75,001 or more	7.7	—
Mother's education		
Less than high school	44.7	—
High school diploma, no more	19.4	—
More than high school	36.0	—
Father's education		
Less than high school	44.8	—
High school diploma, no more	20.2	—
More than high school	35.0	—
Acculturation		
Mother is native born	38.6	
% of foreign-born mothers who came to U.S. under age 18	36.5	
Mother nativity/years in U.S. score	2.0	(.9)
Father is native born	40.8	
% of foreign-born fathers who came to U.S. under age 18	40.4	
Father nativity/years in U.S. score	2.1	(.9)
Mother's English proficiency score	2.9	(1.8)
Father's English proficiency score	1.9	(1.9)
Mediating Variables at Time 2		
Parent's Relationship Conflict		
Mother's realtionship conflict	1.4	(.4)
Father's realtionship conflict	1.3	(.3)
Parental Involvement and Parenting Context		
Mother's overall supportiveness (Two Bags) (1-7)	4.1	(.9)
Father's cognitive stimulation (1-12)	6.9	(2.0)
Background and Contextual Characteristics at Time 1		
Child Characteristics		
Child's age (in months)	10.6	(2.0)
Child is a boy	51.8	—
Child's cognitive assessment at T1	77.2	(9.5)
Child is Mexican-American	72.5	—
Parent's Relationship Conflict		
Mother's realtionship conflict	1.2	(.3)
Father's realtionship conflict	1.3	(.3)
Parent's Mental Health		
Mother's depressive symptoms (CES-D)	15.6	(5.6)
Father's depressive symptoms (CES-D)	14.7	(4.2)
Parental Involvement		
Mother's NCATS total parent score	33.6	(4.4)
Father's cognitive stimulation	6.5	(2.1)
N	500	

Note: Means and percentages are weighted; sample sizes are not. T1 =9 months survey and T2 =24 months.

Table 2. Correlations among Background and Contextual Characterstics and Children's 24 Month Assessments

		1	2	3	4	5	6	7	8	9	10	
1.	Child's cognitive development (T2)	1.00										1.
2.	Child's sociobehavioral score (T2)	.39 ***	1.00									2.
3.	Household income (T1)	.24 ***	.13 **	1.00								3.
4.	Parents' education (T1)	.23 ***	.22 ***	.54 ***	1.00							4.
5.	Acculturation (T1)	.22 ***	.21 ***	.42 ***	.56 ***	1.00						5.
6.	Mother's conflict (T2)	-.08	-.01	-.14 **	-.16 ***	-.14 **	1.00					6.
7.	Father's conflict (T2)	.01	.06	-.06	-.01	.05	.24 ***	1.00				7.
8.	Mother supportiveness (T2)	.26 ***	.64 ***	.29 ***	.41 ***	.32 ***	-.09	-.01	1.00			8.
9.	Father's cognitive stimulation (T2)	.20 ***	.08	.08	.12 **	.16 ***	.00	-.10 *	.06	1.00		9.
10.	Child's age (T1)	-.01	.03	-.10 *	-.06	-.04	.02	.00	-.03	-.02	1.00	10.
11.	Child is boy	-.17 ***	-.06	-.07	-.05	.01	.03	-.03	-.01	-.03	.06	11.
12.	Child's cognitive development (T1)	.24 ***	.13 **	-.06	.00	.00	.00	.05	.09 *	.01	.69 ***	12.
13.	Mother's conflict (T1)	-.04	-.02	-.03	.04	.05	.35 ***	.21 ***	-.03	.03	.04	13.
14.	Father's conflict (T1)	.01	.12 **	.09	.12 **	.17 ***	.22	.38 ***	.08	-.02	.07	14.
15.	Mother's depressive symptoms (T1)	.01	.03	.03	.11 *	.16 ***	.19	.06	.02	.02	-.03	15.
16.	Father's depressive symptoms (T1)	-.05	.03	.08	.09 *	.17 ***	.12 *	.27 ***	.03	-.12 **	.01	16.
17.	Mother's NCATS score (T1)	.26 ***	.19 ***	.26 ***	.39 ***	.36 ***	-.01	.04	.29 ***	.07	.08	17.
18.	Father's cognitive stimulation (T1)	.11 *	.08	.03	.12 **	.20 ***	-.15 **	.03	.16 ***	.36 ***	-.03	18.
19.	Child is Mexican-American	-.10 *	-.07	-.21 ***	-.31 ***	-.19 ***	.03	-.16 ***	-.11 *	-.07	-.02	19.
20.	Child's Temperament (T1)	.08	.04	.02	.03	.08	.08	.09	.00	.01	.06	20.

continued

Table 2. continued

	11	12	13	14	15	16	17	18	19	20
Child's cognitive development (T2)										
Child's sociobehavioral score (T2)										
Household income (T1)										
Parents' education (T1)										
Acculturation (T1)										
Mother's conflict (T2)										
Father's conflict (T2)										
Mother supportiveness (T2)										
Father's cognitive stimulation (T2)										
Child's age (T1)										
Child is boy	1.00									
Child's cognitive development (T1)	.03	1.00								
Mother's conflict (T1)	.02	.05	1.00							
Father's conflict (T1)	.06	.09	.33 ***	1.00						
Mother's depressive symptoms (T1)	.03	.01	.30 ***	.12 **	1.00					
Father's depressive symptoms (T1)	.02	-.01	.11 *	.28 ***	.10 *	1.00				
Mother's NCATS score (T1)	-.01	.14 **	-.02	.05	.03	.05	1.00			
Father's cognitive stimulation (T1)	-.04	.06	-.01	.00	.06	.03	.15 **	1.00		
Child is Mexican-American	.03	-.08	.00	-.09 *	-.02	-.09 *	-.16 ***	-.04	1.00	
Child's Temperament (T1)	-.04	.08	.15 **	.10 *	.08	.04	-.01	.03	-.07	1.00

*p < .05 **p < .01 ***p < .001

Table 3. Unstandardized and Standardized Estimates for Direct and Indirect Associations in the Path Analysis

	Child's Cognitive Development			Child's Social Behavior		
	B	(SE)	*β*	B	(SE)	*β*
Direct Effects among Dependent Variables						
Parents' education (T1)	0.33	0.29	0.11	-0.14	0.06	-0.16 *
M support (T2)	1.42	0.78	0.12	2.28	0.18	0.74 ***
M NCATS (T1)	0.20	0.12	0.09	0.03	0.03	0.05
F cognitive stimulation (T1)	-0.29	0.23	-0.07	-0.09	0.06	-0.07
F cognitive stimulation (T2)	0.78	0.26	0.16 **	0.07	0.06	0.06
M depressive symptoms (T1)	0.09	0.08	0.05	0.02	0.03	0.03
F depressive symptoms (T1)	0.04	0.13	0.02	0.04	0.03	0.07
M conflict (T1)	-1.96	1.85	-0.06	-0.16	0.40	-0.02
F conflict (T1)	-0.84	1.71	-0.03	0.55	0.38	0.07
Child is boy	-3.40	0.96	-0.18 ***	-0.65	0.23	-0.12 **
Child's age (T1)	-1.67	0.52	-0.34 **	-0.04	0.08	-0.03
Child is Mexican	-0.22	1.26	-0.01	-0.06	0.28	-0.01
C cognitive development (T1)	0.43	0.10	0.43 ***	0.02	0.02	0.08
C temperament (T1)	0.21	0.13	0.08	0.03	0.03	0.05
Direct Effects among Endogenous Variables						
Parents' education → M support (T2)	0.15	0.04	0.58 ***	0.15	0.04	0.58 ***
Acculturation → M support (T2)	-0.04	0.12	-0.03	-0.04	0.12	-0.03
M conflict (T2) → M support (T2)	0.13	0.16	0.06	0.13	0.16	0.06
F conflict (T2) → M support (T2)	0.02	0.15	0.01	0.04	0.15	0.02
M NCATS (T1) → M support (T2)	0.02	0.01	0.09	0.02	0.01	0.09
F cog stim (T1) → M support (T2)	0.03	0.02	0.08	0.03	0.02	0.08
M dep symtoms → M support (T2)	-0.01	0.01	-0.05	-0.01	0.01	-0.05
F dep symtoms → M support (T2)	-0.02	0.01	-0.08	-0.02	0.01	-0.08
Child is boy → M support (T2)	0.12	0.09	0.07	0.12	0.10	0.07
Child is Mexican → M support (T2)	0.25	0.13	0.13	0.24	0.13	0.13
C temperament (T1) → M support (T2)	-0.01	0.01	-0.05	-0.01	0.01	-0.05
Parents' education → F cog stim (T2)	0.11	0.08	0.17	0.10	0.08	0.16 *
Acculturation → F cog stim (T2)	0.06	0.30	0.02	0.07	0.29	0.03
M conflict (T2) → F cog stim (T2)	0.68	0.30	0.13 *	0.68	0.30	0.13 *
F conflict (T2) → F cog stim (T2)	-0.74	0.32	-0.12 *	-0.73	0.32	-0.12 *
M NCATS (T1) → F cog stim (T2)	-0.04	0.03	-0.08	-0.04	0.03	-0.08
F cog stim (T1) → F cog stim (T2)	0.35	0.05	0.37 ***	0.35	0.05	0.37 ***
M dep symtoms → F cog stim (T2)	-0.01	0.02	-0.03	-0.01	0.02	-0.03
F dep symtoms → F cog stim (T2)	-0.07	0.03	-0.13 *	-0.07	0.03	-0.13 *
Child is boy → F cog stim (T2)	0.08	0.20	0.02	0.08	0.20	0.02
Child is Mexican → F cog stim (T2)	-0.11	0.25	-0.02	-0.11	0.25	-0.02
C temperament (T1) → F cog stim (T2)	0.00	0.03	0.00	0.00	0.03	0.00

continued

Table 3. Continued

	Child's Cognitive Development			Child's Social Behavior		
	B	(SE)	*β*	B	(SE)	*β*
Parents' education → M conflict (T2)	-0.03	0.01	-0.25 **	-0.03	0.01	-0.25 **
Acculturation → M conflict (T2)	-0.01	0.05	-0.02	-0.01	0.05	-0.02
M conflict (T1) → M conflict (T2)	0.38	0.10	0.28 ***	0.38	0.10	0.29 ***
M dep symtoms → M conflict (T2)	0.01	0.01	0.16	0.01	0.01	0.16
F dep symtoms → M conflict (T2)	0.01	0.01	0.11 *	0.01	0.01	0.11 *
Parents' education → F conflict (T2)	-0.01	0.01	-0.07	-0.01	0.01	-0.08
Acculturation → F conflict (T2)	0.01	0.04	0.01	0.01	0.04	0.02
F conflict (T1) → F conflict (T2)	0.31	0.10	0.29 ***	0.31	0.10	0.29 ***
M dep symtoms → F conflict (T2)	0.00	0.00	0.07	0.00	0.00	0.07
F dep symtoms → F conflict (T2)	0.02	0.01	0.22 ***	0.02	0.01	0.22 ***
Total Indirect Effects on Dependent Variables						
Parents' education	0.28	0.14	0.09 *	0.35	0.09	0.43 ***
Acculturation	-0.02	0.27	0.00	-0.09	0.26	-0.02
M marital conflict (T1)	0.27	0.15	0.01	0.13	0.14	0.01
F marital conflict (T1)	-0.17	0.12	-0.01	0.01	0.10	0.00
M depressive symptoms (T1)	-0.01	0.02	-0.01	-0.01	0.02	-0.03
F depressive symptoms (T1)	-0.08	0.04	-0.03 *	-0.04	0.03	-0.06
M NCATS (T1)	0.00	0.03	0.00	0.04	0.03	0.07
F cognitive stimulation (T1)	0.32	0.12	0.07 **	0.10	0.06	0.08
M marital conflict (T2)	0.72	0.36	0.03	0.34	0.36	0.05
F marital conflict (T2)	-0.55	0.35	-0.02	0.03	0.34	0.00

*p < .05 **p < .01 ***p < .001

Figure 1. Standardized Coefficients for the Model Predicting Child's Cognitive Development at 24 Months

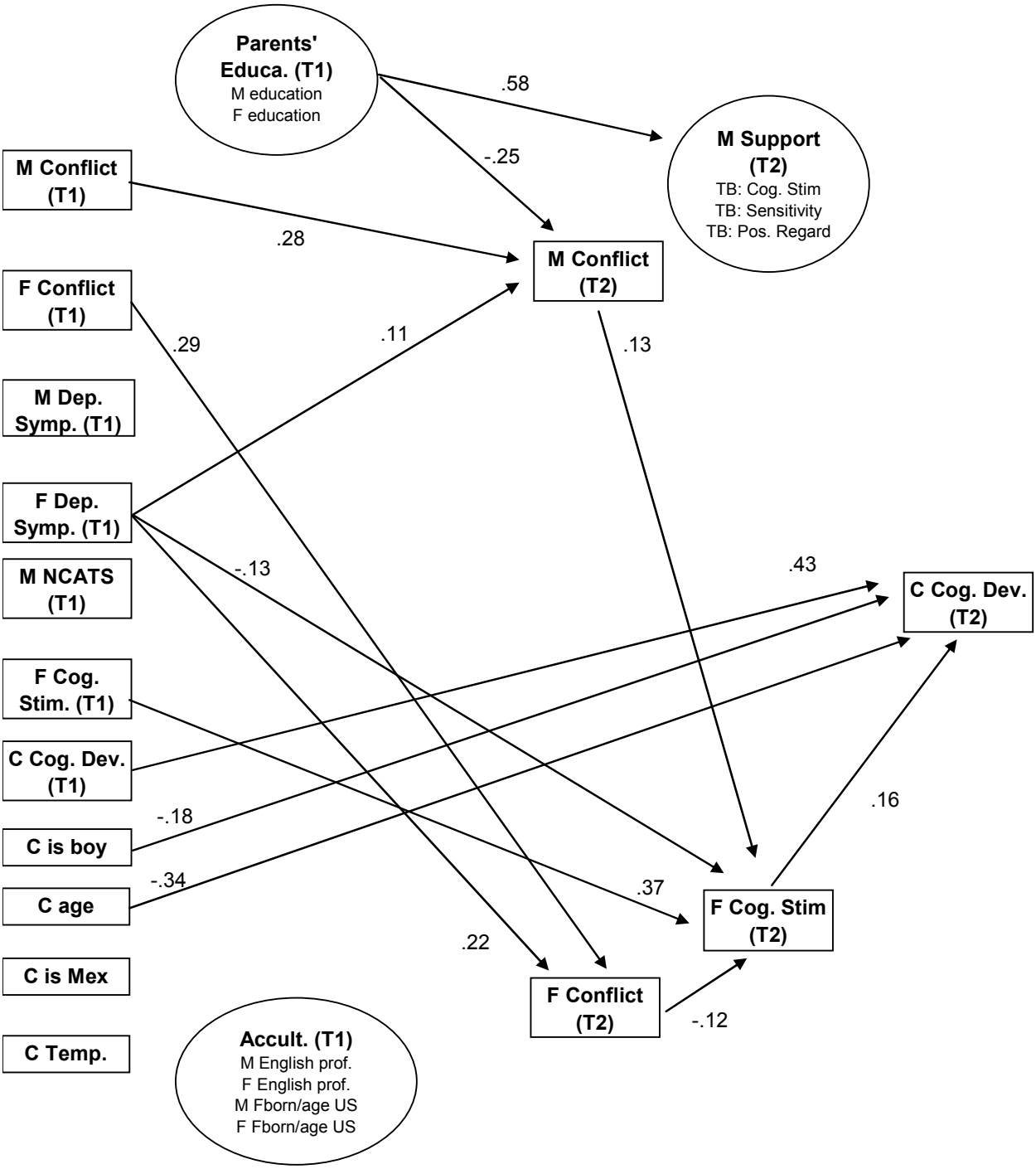
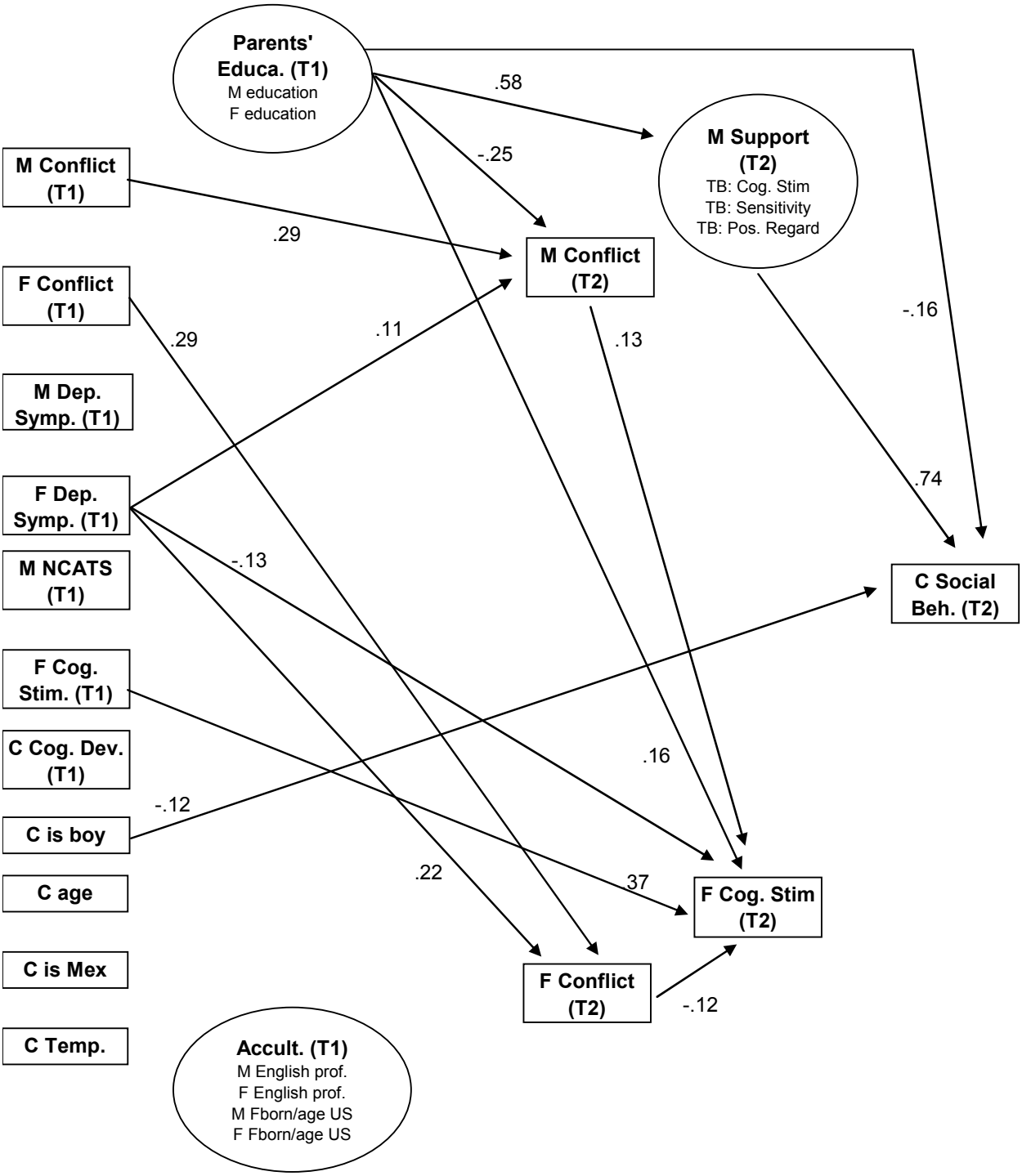


Figure 2. Standardized Coefficients for the Model Predicting Child's Social Behavior at 24 Months



Appendix Table 1. Means and Percentage Distirubtions on Selected Time 1 (T1) Demographic Charactersitics for Respondents at 9 and 24 Months

	All 9-month ECLS-B Respondents	24-month ECLS-B Respondents
Household Characterstics at T1		
Income		
$15,000 or less	19.5	19.0
$15,001 to $30,000	24.8	24.3
$30,001 to $50,000	21.0	21.2
$50,001 to $75,000	14.6	15.0
$75,001 or more	20.1	20.6
Maternal Characteristics at T1		
Mean age	28.4	28.5
Education*		
Less than high school	26.4	25.7
High school diploma, no more	20.3	19.8
More than high school	53.3	54.4
Employed	50.2	50.7
Paternal Characteristics at T1		
Mean age**	31.7	31.8
Education***		
Less than high school	11.4	11.2
High school diploma, no more	13.4	13.9
More than high school	39.9	41.2
Employed	71.1	71.8
Children's Charactersitcs at T1		
Mean age (in months)****	10.5	10.5
Percentage male	51.1	51.1
N	10688	9583