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Correlates and Consequences of Spanking and Verbal Punishment for Low-Income White, African American, and Mexican American Toddlers

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Abstract

This study examined the prevalence, predictors, and outcomes of spanking and verbal punishment in 2,573 low-income White, African American, and Mexican American toddlers at ages 1, 2, and 3. Both spanking and verbal punishment varied by maternal race/ethnicity. Child fussiness at age 1 predicted spanking and verbal punishment at all three ages. Cross-lagged path analyses indicated that spanking (but not verbal punishment) at age 1 predicted child aggressive behavior problems at age 2 and lower Bayley mental development scores at age 3. Neither child aggressive behavior problems nor Bayley scores predicted later spanking or verbal punishment. In some instances, maternal race/ethnicity and/or emotional responsiveness moderated the effects of spanking and verbal punishment on child outcomes.

Many theories of early child development emphasize the benefits of parents' positive feedback and emotional responsiveness (Belsky, 1984; Berlin & Cassidy, 2000; Shonkoff & Phillips, 2000). There is much less agreement about parental discipline, however. Spanking, in particular, is a topic of considerable -- and often contentious -- debate among parents, practitioners, and scientists (Baumrind, 1996; Benjet & Kazdin, 2003; O'Callaghan, 2006). By "spanking," we mean "striking the child on the buttocks or extremities with an open

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hand without inflicting physical injury with the intent to modify behavior" (Baumrind, 2001, p. 1).

A recurring question about spanking concerns the extent to which it may cause aggression in children (Gershoff, 2002; Gershoff & Bitensky, 2008) (Do you mean 2007?). This question requires further research, especially with respect to spanking during toddlerhood (ages 1 to 3). This period is particularly important to study because during this time, children's mobility and autonomy-seeking increase dramatically, parental discipline also increases, and patterns of non-compliance and aggression can form (Moffitt, 1993; Sroufe, Egeland, Carlson, & Collins, 2005).

Verbal punishment, defined for the purposes of this study as scolding, yelling, or derogating, is another common type of parental discipline that requires further research with toddlers. Drawing on ecological and transactional theories of child development, in this study we examine the (a) prevalence, (b) predictors, and (c) outcomes of spanking and verbal punishment in a large sample of low-income White, African American, and Mexican American toddlers at ages 1, 2, and 3.

Prevalence of Spanking and Verbal Punishment

Studies to date have indicated that among U.S. parents of toddlers, both spanking and verbal punishment are common disciplinary practices. For example, a nationally representative phone survey of approximately 2,000 White, African American, Latino, and Asian families found that 29% of the parents of 10- to 18-month-olds, and 64% of the parents of 19- to 35-month-olds, reported using spanking to discipline their toddlers (Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004; see also Wissow, 2001). In a smaller study based on face-to-face interviews with a racially diverse group of 182 mothers of toddlers, 54% reported spanking in the past three months (Socolar, Savage, & Evans, 2007).

Verbal punishment is also quite common, although prevalence rates vary depending on whether they are based on parental reports or observation. In one large survey, 51% of the parents of 18- to 23-month-old children and 63% of the parents of 24- to 36-month-olds reported that they yell at their child sometimes or often (Wissow, 2001). Another large study indicated that 76% of the parents of 10- to 18-month-olds, and 91% of the parents of 19- to 35-month-olds, reported that they use yelling to discipline their toddlers (Regalado et al., 2004). An observational study of approximately seven hundred 3-year-olds indicated that 22% of the mothers scolded or derogated their toddlers in the presence of a researcher (Smith & Brooks-Gunn, 1997).

The extant literature also indicates racial and ethnic group differences in spanking and verbal punishment. Paralleling studies of older children (see Dodge, McLoyd, & Lansford, 2005, for a review), African American parents of toddlers have consistently been found to spank more frequently than White parents (Regalado et al., 2004; Slade & Wissow, 2004; Wissow, 2001). Findings on the spanking of Latino toddlers have been inconsistent, however. One study reported that Latino parents spank less frequently than White parents (Slade & Wissow, 2004). Two other studies of toddlers did not find such differences (Regalado et al., 2004; Wissow, 2001).

With respect to verbal punishment, when observed, scolding/derogating was more frequently used by African American mothers than White mothers (Smith & Brooks-Gunn, 1997). In another study, however, there were no racial/ethnic group differences in self-reported yelling (Regalado et al., 2004).

In sum, the literature to date has found both spanking and verbal punishment to be quite prevalent among parents of toddlers, with African American parents of toddlers spanking more than their White counterparts. Findings on the spanking of Latino toddlers are inconsistent, as are findings about racial/ethnic group differences in verbal punishment. These inconsistencies may be due in part to the fact that no study of the spanking or verbal punishment of Latino parents has examined the potentially important dimensions of country of origin or acculturation.

In the current study, we examine the prevalence of spanking and verbal punishment at ages 1, 2, and 3 in a large and exclusively low-income sample of White, African American, and Mexican American families. We examine not only overall prevalence rates but also racial/ethnic group differences in spanking and verbal punishment at each age. Mexican Americans are the sole Latino group considered. Mexican American participants are also sub-classified as "more" or "less" acculturated.

Predictors of Spanking and Verbal Punishment

According to Belsky's (1984) ecological model of parenting, parental characteristics such as maturity, support, and mental health influence childrearing. Consistent with this model, a large body of studies has indicated that spanking is more likely to be used by parents who are younger, less educated, of lower income, single, and/or are more depressed and stressed (Day, Peterson, & McCracken, 1998; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000; Regalado et al., 2004; Smith & Brooks-Gunn, 1997; Straus & Stewart, 1999; Wissow, 2001). Studies have also indicated that spanking is most commonly used by parents who were themselves spanked, who live in the South, and/or who identify themselves as conservative Christians. Spanking is also most commonly used by parents who believe in its effectiveness, and/or believe their child to be at fault in a given situation (Holden, Miller, & Harris, 1999; Straus & Stewart, 1999).

The predictors of verbal punishment appear to vary depending on whether verbal punishment is observed or self-reported. Smith and Brooks-Gunn (1997) found that observed scolding/derogating was most frequently used by mothers who gave birth as teenagers, who had not graduated from high school, who were poor, and who were heads of their households (Smith & Brooks-Gunn, 1997). When examining self-reported yelling, Regalado et al. (2004) found that teenage mothers were more likely to yell at their toddlers than non-teenage mothers, but also that the likelihood of yelling was not associated with maternal education, household income, or marital status.

Belsky's (1984) model specifies that parenting is also influenced by children's characteristics. In keeping with this model, spanking has been shown to be more common among parents of boys and among parents who perceive their child as fussy (i.e., temperamentally irritable or difficult); (Day et al., 1998; Smith & Brooks-Gunn, 1997). With respect to verbal punishment, observed scolding/derogating has been found to be more frequent among mothers of boys than mothers of girls (Smith & Brooks-Gunn, 1997). Although Regalado and colleagues (2004) did not find an association between self-reported yelling and child sex, they found a greater likelihood of yelling among parents with children classified as developmentally higher-risk. No known study has examined child fussiness as a predictor of verbal punishment.

In sum, the literature to date portrays spanking as a product of family risk characteristics, parental values, and child characteristics. The predictors of verbal punishment are less clear. In the current study, with maternal race/ethnicity controlled, we examine maternal age, education, and depression; family income and structure; and child sex and fussiness as predictors of spanking and verbal punishment at ages 1, 2, and 3.

Outcomes of Spanking and Verbal Punishment

Gershoff (2002) meta-analyzed data from 88 studies on corporal punishment and concluded that it is associated with a broad range of negative outcomes in children (see also Gershoff & Bitensky, 2007). Although Gershoff's findings are compelling in many regards, the extent to which the literature speaks to the effects of spanking, per se, is limited. Specifically, as several scholars have noted (Baumrind, Larzelere, & Cowan, 2002; Ispa & Halgunseth, 2004; Larzelere & Kuhn, 2005; Socolar, 1997), many studies have investigated spanking without defining the term, nor asked for parents' own definitions. In addition, many studies have examined spanking as only one component of corporal punishment. For example, Gershoff's (2002) analysis of corporal punishment examined spanking *and/or* hitting with an object. Moreover, only one study has documented associations between "verbal aggression" (insulting, provoking, and threatening) and child outcomes (Vissing, Straus, Gelles, & Harrop, 1991). There are no known studies of the associations between more mildly-defined verbal punishment and child outcomes.

In keeping with transactional theories of child development (Bell & Chapman, 1986; Sameroff & Feise, 2000), another question requiring further study concerns the direction of effects. In particular, to what extent do parental discipline strategies drive child outcomes, to what extent are these parenting strategies elicited by particular child behaviors, and to what extent are both causal mechanisms operative? This question is especially relevant to understanding the effects of spanking on child aggression, because, as discussed by Gershoff and Bitensky (2007), parents are more likely to use corporal punishment in response to child misbehaviors perceived as aggressive. As recommended by Gershoff and Bitensky, cross-lagged path models that simultaneously estimate effects from parental discipline strategies to child behaviors and vice versa are critical to disentangling such issues. Yet such path models have not been used to analyze spanking or verbal punishment of toddlers. In the present study, we use a series of four cross-lagged path models to examine the reciprocal effects of spanking and verbal punishment at ages 1, 2, and 3 on child aggressive behavior problems and cognitive development at ages 2 and 3.

In addition to testing the main effects of spanking and verbal punishment, we use rigorous path models to test moderated effects. Specifically, in keeping with ecological theories of child development (Bronfenbrenner, 1979; Parke, 2002), a growing number of studies of corporal punishment (including though not limited to spanking) have demonstrated the importance of examining individual and contextual factors that moderate the associations between parental discipline and child outcomes. These studies have highlighted two moderators: race/ethnicity and maternal emotional responsiveness (for reviews, see Deater-Deckard, Dodge, & Sorbring, 2005; Dodge, et al., 2005). For example, several studies of older children have found that corporal punishment predicts aggression and externalizing behavior problems for White, but not African American children (Deater-Deckard et al., 2005; Dodge et al., 2005). The one study of toddlers to examine race/ethnicity as a moderator similarly found that spanking between birth and age 2 predicted early childhood behavior problems for White children, but not for African American or Latino children (Slade & Wissow, 2004). This study did not examine maternal emotional responsiveness as a moderator, however.

Evidence of maternal emotional responsiveness as a moderator of the associations between parental discipline and early childhood outcomes has come from two studies. The first of these studies included over 1,000 White, African American, and Latino 4- and 5-year-olds (McLoyd & Smith, 2002). In all three racial/ethnic groups, spanking predicted increases in children's behavior problems when maternal emotional responsiveness was low, but not when maternal emotional responsiveness was high (see also Deater-Deckard, Ivy, & Petrill, 2006, for similar findings). In another study, Smith and Brooks-Gunn (1997) examined

"harsh discipline" (mother-reported spanking, observed hitting, and/or observed verbal punishment) and observed maternal emotional responsiveness at ages 1 and 3. At age 3, White and African American girls (but not boys) who had experienced higher levels of harsh discipline *and* higher levels of maternal emotional responsiveness had higher IQ scores than those who had experienced higher levels of harsh discipline and lower levels of maternal responsiveness.

These studies suggest that spanking may have negative effects for White children that do not necessarily apply to racial or ethnic minority children, and that parents' emotional responsiveness can buffer or even trump the potentially negative effects of their disciplinary practices. These provocative suggestions require further research, especially with regard to spanking and verbal punishment per se, and especially with toddlers. In the present study, we examine whether maternal race/ethnicity and observed maternal emotional responsiveness moderate the effects of spanking and verbal punishment at ages 1 and 2 on child aggression and cognitive development at ages 2 and 3.

Method

Participants and Procedures

Participants came from the Early Head Start (EHS) National Research and Evaluation Project (N = 3,001), a 17-site, longitudinal evaluation of some of the first federally funded EHS programs for low-income infants, toddlers, and their families (Administration for Children and Families, 2002; Love et al., 2005). In accordance with EHS program eligibility rules, all participants' family incomes were at or below the federal poverty level. Half of the participants were randomly assigned to receive EHS child and family services that began between the third trimester of pregnancy and the child's 12^{th} month of age, continued through the child's third year, and consisted of home-based, center-based, or mixed (home- and center-based) services. The control group did not receive EHS services but could receive any other services.

The sample for the present study consisted of 2,573 program and control target children and their primary caregivers (99% of whom were biological mothers). We selected these 2,573 participants from the original 3,001 on the basis of mothers' self-reported race/ethnicity and acculturation. Specifically, to facilitate our ability to examine (a) racial/ethnic group differences in spanking and verbal punishment and (b) maternal race/ethnicity as a moderator of the associations between spanking and verbal punishment and child outcomes, we first selected participants according to mothers' forced-choice responses at enrollment to the question, "what race/ethnicity do you consider yourself to be?" We selected mothers who identified themselves as White (non-Hispanic), Black (non-Hispanic), or Hispanic. We excluded the 135 mothers who identified themselves as American Indian or Alaskan, Asian or Pacific Islander, or Other because there were too few to analyze as a separate group. Mothers who identified themselves as Hispanic also subclassified themselves as Mexican, Puerto Rican, Cuban, Central American, or Other Hispanic.

Due to the considerable heterogeneity among Hispanics as a function of country of origin and acculturation (e.g., Harwood, Leyendecker, Carlson, Ascencio, & Miller, 2002), we then restricted our sample of Hispanic participants to their largest subgroup in the Early Head Start sample, those who identified themselves as Mexican (63% of all Hispanics). Finally, following Ispa et al. (2004), who found meaningful differences in the parenting behaviors of Mexican American Early Head Start mothers classified as more or less acculturated (based on mothers' responses to a series of questions from the Multicultural Acculturation Scale: Wong-Rieger & Quintana, 1987; described below), we examined more and less acculturated Mexican Americans separately. We also restricted our sample of Black participants to those

born in the U.S. Our resulting sample consisted of 1,101 (43%) White, 1,020 (40%) African American, and 452 (18%) Mexican American participants, of which 174 (7%) were more acculturated and 278 (11%) were less acculturated.

Centrally trained and certified staff collected all data at the 17 research sites. Baseline demographic data came from enrollment interviews conducted between July, 1996, and September, 1998, at which point the target children were approximately 3 months old (M = 3.23, SD = 4.61). In-depth data on child and family development came from two-hour, home-based interviews that included observations and direct child assessments conducted when the target children were approximately 1, 2, and 3 years old. All assessments were conducted in English or Spanish, according to the mother's preference.

At age 1, 78% of the 3,001 mothers were interviewed and 63% of the children were assessed; at age 2, these participation rates were 70% and 58%, respectively; at age 3, the rates were 70% and 55%, respectively (Administration for Children and Families, 2002; Love et al., 2005). Retention rates, which are fairly typical for longitudinal studies of high-risk families, did not differ significantly for program and control participants, and there were no systematic patterns of attrition (Administration for Children and Families, 2002; Love et al., 2005). In the present study, program and control participants were combined for all analyses, with program participation covaried as appropriate. Following Schafer and Graham (2002)'s widely adopted approach to handling missing data, except for descriptive analyses, all analyses were conducted using full information maximum likelihood (FIML) estimation to accommodate missing data.

Table 1 illustrates the baseline characteristics of the sample as a whole and for each racial/ethnic group. As indicated in the table, although all participants were low-income, African American participants reported significantly less family income than Whites, more acculturated Mexican Americans, and less acculturated Mexican Americans.

Measures

Maternal and Child Psychosocial Characteristics

Acculturation: At the age 2 assessment, mothers completed a set of items from the Multicultural Assessment Scale (MAS; Wong, Reider, & Quintana, 1987), a measure of generational status and language use. There was too little variability in acculturation among the White and African American participants to support analysis of acculturation in either of these groups. For the Mexican Americans, following Ispa et al. (2004), we classified mothers as more or less acculturated according to an index created by summing five MAS items: generational status (1 = *born in Mexico*, 1.5 = *born in the U.S. of Mexican-born parents*, 2 = *born in the U.S. of U.S.-born parents*); language spoken at home (1 = *Spanish*, 2 = *English*); extent to which mothers spoke English during childhood, currently speak English, and currently read English (1 = *about half the time or less*, 2 = *most or all of the time*). Mexican mothers' acculturation scores ranged from 5 to 10 (α = 0.87; M = 6.92, SD = 2.04). Mothers who scored 5 or 6 were classified as less acculturated; mothers who scored between 7 and 10 were classified as more acculturated.

Maternal depression: During the age 1 assessment, mothers completed the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) to assess the frequency of 20 depressive symptoms such as sadness, lethargy, and appetite loss during the week prior to the interview. Mothers responded on a 4-point scale (0 = *rarely/never*; 1 = *some/a little*; 2 = *occasionally/moderately*; 3 = *most/all days*). Responses were summed and scores ranged from 0 to 56 (α = 0.77; see Table 1).

Child fussiness: During the age 1 assessment, to describe their child's temperament, mothers completed an abbreviated version of the Emotionality, Activity, Sociability, and Impulsivity Temperament Scale (EASI II; Buss & Plomin, 1984). We focused on the 5-item emotionality subscale, assessing reactivity, irritability, and fussiness. Fussiness is a relatively stable dimension of temperament found to relate to later behavior problems (e.g., Aguilar, Sroufe, Egeland, & Carlson, 2000). Mothers responded according to a 5-point scale (1 = *not at all like my child*, 5 = *very much like my child*). Mean scores ranged from 1 to 5 (α = 0.72; see Table 1 for descriptive statistics for the full sample and for each racial/ethnic group).

Spanking, Verbal Punishment, and Emotional Responsiveness—During each assessment, mothers reported if they or anyone in the household had spanked the target child in the past week, and, if so, how often (see Table 1).

Measures of observed verbal punishment at ages 1, 2, and 3 came from the widely-used Home Observation for Measure of the Environment (HOME; Bradley & Caldwell, 1984). For the age 1 and age 2 observations, we focused on 3 items tapping whether the mother ever (a) shouted at the target child, (b) expressed annoyance with or hostility toward the child, and/or (c) made negative comments directly to the child in the presence of the researcher. Responses were summed to create 4-point scales 0 (no verbal punishment observed) to 3 (3 types of verbal punishment observed). At age 3, the observer coded one item tapping whether the mother scolded, yelled at, or directly derogated the target child more than once during the home observation (1 = *more than one instance of verbal punishment observed*) (see Table 1).

To examine emotional responsiveness as a moderator of the longitudinal associations between spanking and verbal punishment and child outcomes, we examined observed maternal emotional responsiveness at ages 1 and 2. Our assessment of mothers' emotional responsiveness came from the HOME emotional responsiveness subscale (Fuligni, Han, & Brooks-Gunn, 2004; Linver, Brooks-Gunn, & Cabrera, 2004). This subscale reflects the observer's coding of seven warm and responsive behaviors towards the target child (e.g., caressing or kissing, spontaneously praising, responding verbally to child). Responses were summed and, at age 1 and age 2, scores ranged from 0 to 7 (α's = 0.71 and 0.73, respectively; see Table 1).

Child Outcomes at Ages 2 and 3

Child aggressive behavior problems: As part of the age 2 and age 3 interviews, mothers completed the aggressive behavior subscale of the Child Behavior Checklist (CBCL), based on the Achenbach System of Empirically-Based Assessment (ASEBA; Achenbach & Rescorla, 2000). This subscale asks about the frequency of 19 child behaviors within the past 2 months that often co-occur to create behavior problems (e.g., easily frustrated, hits others, defiant). Mothers responded to each item on a 3-point scale (0 = *never*, 1 = *sometimes*, 2 = *often*). Responses were summed to create a 38-point scale. In the present sample, at age 2, scores ranged from 0 to 36 (α = 0.87); at age 3, scores ranged from 0 to 37 (α = 0.88; see Table 1).

Child cognitive development: At ages 2 and 3, each child was administered the Mental Development Index (MDI) from the Bayley Scales of Infant Development (Bayley, 1993). In the present sample, at both ages 2 and 3, scores ranged from 49 to 134 (see Table 1).

Results

Overall Prevalence of Spanking and Verbal Punishment

At age 1, frequency of spanking in the past week ranged from 0 to 14 instances (M = 0.87, SD = 1.72); 34% of all mothers reported that they or "anyone in the household" had spanked the target child in the past week (i.e., 66% of the target children had received no spankings). Of those who were spanked, the mean number of spankings in the past week was 2.58 (SD = 2.10). At age 2, frequency of spanking ranged from 0 to 28 (M = 1.52, SD = 2.59); 49% of all mothers reported that the target child had been spanked in the past week. Of those who were spanked, the mean number of spankings in the past week was 2.97 (SD = 2.97). At age 3, frequency of reported spanking ranged from 0 to 28 (M = 1.34, SD = 2.31); 49% of all mothers reported that the target child had been spanked in the past week. Of those who were spanked, the mean number of reported spankings in the past week was 2.62 (SD = 2.65).

When target children were 1 year old, verbal punishment scores ranged from 0 to 3 (M = 0.28, SD = 0.71); 17% of the mothers were observed to verbally punish the child. At age 2, verbal punishment scores ranged from 0 to 3 (M = 0.43, SD = 0.88); 24% of the mothers were observed to verbally punish the child. At age 3, the mean for the binary verbal punishment score was 0.16 (16% of the mothers were observed to verbally punish the child; SD = 0.37).

Racial/Ethnic Group Differences in Spanking and Verbal Punishment

We used one-way analyses of variance (ANOVA) with follow-up Bonferroni-corrected comparisons to examine racial/ethnic group differences in spanking and verbal punishment at each age. At all three ages, African American children were spanked significantly more frequently than all other children. Also at all three ages, frequency of reported spanking did not differ between the White and more acculturated Mexican Americans, or between the two subgroups of Mexican Americans (more and less acculturated). At ages 2 and 3, however, the less acculturated Mexican American mothers reported significantly less frequent spanking than did White mothers (see Table 1).

At age 1, African American mothers verbally punished their children significantly more frequently than White or less acculturated Mexican American mothers. At ages 2 and 3, African American mothers verbally punished their children significantly more frequently than all other mothers. At all three ages, there were no differences in observed verbal punishment between the White and more acculturated Mexican American mothers, or between the two groups of Mexican American mothers (more and less acculturated). At age 2, the less acculturated Mexican American mothers verbally punished their children significantly less frequently than White or African American mothers (see Table 1).

Because of the significantly lower family income reported by African American participants, we further scrutinized these racial/ethnic group differences by repeating these ANOVA's while adding family income as a covariate. The findings were found to be robust: all racial/ethnic group differences just reported remained statistically significant with family income controlled.

Predictors of Spanking and Verbal Punishment

We conducted multiple regressions to analyze whether maternal age, education, and depression, family income and structure, and child sex and fussiness predicted spanking and verbal punishment at ages 1, 2, and 3. All regressions included EHS program participation and maternal race/ethnicity as covariates. Estimation was conducted by FIML to accommodate missing data.

Numerous significant associations emerged (see Tables 2 and 3). Effects were modest to moderate in magnitude. Not all associations were significant at all three ages, but all of the associations that did emerge were consistent with prior research. Specifically, younger maternal age predicted more frequent spanking and verbal punishment. Maternal depression at age 1 predicted more frequent spanking at ages 1 and 2 and more frequent verbal punishment at all three ages. Lower family income predicted more frequent spanking at all three ages and verbal punishment at age 1. Living alone predicted more frequent verbal punishment at age 2 only and did not predict spanking at any age. Having a male child predicted more frequent spanking at all three ages, and more frequent verbal punishment at ages 2 and 3. Child fussiness at age 1 predicted spanking and verbal punishment at ages 1 and 2. Unlike in prior research, maternal education did not relate to spanking or verbal punishment.

Associations between Spanking and Verbal Punishment and Child Outcomes

Table 4 illustrates the bivariate correlations among spanking, verbal punishment, maternal emotional responsiveness, child fussiness, child aggressive behavior problems, and child cognitive development.

For our principal analyses of the associations between spanking and verbal punishment and child outcomes, we employed a series of four cross-lagged path models. These models examined the reciprocal effects of spanking and verbal punishment at ages 1, 2, and 3 on child aggressive behavior problems and cognitive development at ages 2 and 3. Such path models offer the most rigorous approach to analyzing the effects of spanking and verbal punishment on child outcomes not only because they allow for the testing of reciprocal effects but also because they allow for the simultaneous consideration of multiple assessment points.

Figure 1 depicts a generic version of the fully saturated, cross-lagged path model that was tested. Using MPlus software (L. K. Muthén & B. O. Muthén, 2007, version 5) with FIML estimation to accommodate missing data, we estimated simultaneously (a) the effects of spanking or verbal punishment at ages 1, 2, and 3 on child outcomes at ages 2 and 3, and (b) the effects of child behavior (aggressive behavior problems or cognitive development) at age 2 on spanking and verbal punishment at age 3. Because child fussiness predicted both spanking and verbal punishment at all three ages, and in order to examine fully child effects on mothers' discipline strategies, each model also included child fussiness at age 1.

Four specific models were tested. Model 1 tested the reciprocal effects of spanking and child aggressive behavior problems. Model 2 tested the reciprocal effects of spanking and child cognitive development (Bayley MDI scores). Model 3 tested the reciprocal effects of verbal punishment and child aggressive behavior problems. Model 4 tested the reciprocal effects of verbal punishment and child cognitive development. As noted, each model included child fussiness at age 1. In addition, each model covaried EHS program participation; maternal race/ethnicity, age, and education; maternal depression at age 1; family income and structure; and child sex (see Tables 5 and 6). Because all of the models were fully saturated, fit indices were always perfect (i.e., $\chi^2 = 0$). Of interest to our research questions are the individual path estimates of the longitudinal associations.

Results are depicted in Tables 5 and 6, with bold indicating the paths most relevant to our research questions (i.e., longitudinal associations between spanking or verbal punishment and child outcomes). As indicated in Table 5, spanking at age 1 predicted child aggressive behavior problems at age 2 and lower Bayley scores at age 3. Spanking at age 1 or age 2 did not predict child aggressive behavior problems at age 3 or Bayley scores at age 2, however.

We also note that child fussiness at age 1 predicted spanking at age 2. Neither child aggressive behavior problems nor Bayley scores at age 2 predicted spanking at age 3, however. Thus, whereas spanking predicted later child outcomes, the reciprocal paths from age 2 child outcomes to later spanking were not significant.

As indicated in Table 6, verbal punishment at age 1 or age 2 did not predict child aggressive behavior problems or child cognitive development at age 2 or age 3. We also note that child fussiness at age 1 predicted verbal punishment at age 2. Neither child aggressive behavior problems nor Bayley scores at age 2 predicted verbal punishment at age 3, however.

Robustness of the associations between spanking and child outcomes—To examine the robustness of the associations between spanking and child outcomes, two additional series of path models were tested. First, we note that the EHS program significantly reduced the frequency of spanking (Love et al., 2005). It is possible, thus, that the reduction in spanking in the EHS program group may also have reduced the magnitude of the associations between spanking and child outcomes among program participants, and therefore altered our findings. To explore this possibility, we estimated the same models separately for program and control participants. Although there were some differences in the magnitude of the significance levels for individual parameter estimates, the findings for each group were very similar to each other and to those for the program and control groups combined. For example, among program participants (n = 1,290), spanking at age 1 predicted child aggressive behavior problems at age 2 (β = 0.07, SE = 0.03, p = .05) and among control participants (n = 1,269), spanking at age 1 also predicted child aggressive behavior problems at age 2 (β = 0.10, SE = 0.04, p < .01).

Second, some scholars (e.g., Larzelere & Kuhn, 2005) have argued that prior research indicating negative effects of spanking is distorted by the inclusion of participants who spank overly severely (as opposed to "customarily"). To explore this possibility in the current study, we estimated the same path models, excluding participants whose children had been spanked "severely," which we defined as daily or more often at age 1, age 2, or both (n = 2,177). Again, although there were some differences in the individual parameter estimates, the findings as a whole appeared very similar. For example, fussiness at age 1 predicted spanking at age 2 (β = 0.06, SE = 0.02, p < .01), and spanking at age 1 predicted child aggressive behavior problems at age 2, and lower Bayley scores at age 3 (β = 0.06, SE = 0.02, and β = -0.06, SE = 0.02, respectively, ps < .05). Thus, our findings do not appear to be driven by mothers' severe behaviors.

Moderated associations between spanking and verbal punishment and child outcomes—To examine whether maternal race/ethnicity and observed maternal emotional responsiveness moderated the effects of spanking and verbal punishment, we analyzed eight additional models (Models 1 through 4 testing race/ethnicity moderators, and Models 1 through 4 testing emotional responsiveness moderators). First, we created eight interaction terms, with spanking and verbal punishment at ages 1 and 2 mean-centered and multiplied by maternal race/ethnicity and by maternal emotional responsiveness at ages 1 and 2, respectively. Then, Models 1 through 4 were re-estimated twice, first with the three interaction terms testing the race/ethnicity moderators (e.g., spanking at age 1 X race/ethnicity → age 2 child outcome, spanking at age 1 X race/ethnicity → age 3 child outcome, and spanking at age 2 X race/ethnicity → age 3 child outcome), and second with the three interaction terms testing the emotional responsiveness moderators. Each of the moderated effects was tested by examining the significance of each interaction term added to each main effect model. Missing data were handled through FIML estimation.

There was one significant moderated effect involving spanking. For the prediction of cognitive development at age 2, there was a significant interaction between spanking at age 1 and maternal race/ethnicity, involving the contrast between the more acculturated Mexican American group and the White group ($\beta = 0.17$, $SE = 0.08$, $p < .05$). This interaction term contributed to a significant change in the prediction of cognitive development at age 2 (change $R^2 = 0.002$, $p < .05$). Following Aiken and West (1991), predicted values for age 2 Bayley MDI scores at 1 *SD* above and below the mean were plotted (see Figure 2). Follow-up tests of the simple slopes indicated that, for more acculturated Mexican Americans, spanking at age 1 predicted higher Bayley scores at age 2 (t [2554] = 2.22, $p < .05$). For Whites, there was not a significant association between spanking at age 1 and Bayley scores at age 2.

There were four significant moderated effects involving verbal punishment. For the prediction of cognitive development at age 3, there was a significant interaction between verbal punishment at age 2 and maternal race/ethnicity, involving the contrast between the less acculturated Mexican American group and the White group ($\beta = .07$, $SE = .03$, $p < .05$). This interaction term contributed to a significant change in the prediction of Bayley scores at age 3 (change $R^2 = 0.01$, $p < .05$). As indicated in Figure 3, for less acculturated Mexican Americans, verbal punishment at age 2 predicted higher Bayley scores at age 3 (t [2556] = 2.35, $p < .05$). For Whites, there was not a significant association between verbal punishment at age 2 and Bayley scores at age 3.

For the prediction of aggressive behavior problems at age 3, there was a significant interaction between verbal punishment at age 2 and maternal emotional responsiveness (also at age 2) ($\beta = -0.07$, $SE = 0.03$, $p < .01$). The interaction term contributed to a significant change in the prediction of aggressive behavior problems at age 3 (change $R^2 = .004$, $p < .001$). Neither simple slope was significant, however. The pattern of associations, shown in Figure 4, suggests (albeit speculatively), that when maternal emotional responsiveness was relatively high, as verbal punishment at age 2 increased, child aggressive behavior problems at age 3 decreased, whereas when maternal emotional responsiveness was relatively low, as verbal punishment increased, child behavior problems also increased.

A similar pattern of positive effects of verbal punishment in the context of higher emotional responsiveness emerged for the prediction of cognitive development at age 3. Specifically, a significant interaction between verbal punishment at age 2 and maternal emotional responsiveness at age 2 contributed to a significant change in the prediction of age 3 Bayley scores ($\beta = 0.09$, $SE = 0.03$, $p < .001$; change $R^2 = .004$, $p < .01$). As shown in Figure 5, when maternal emotional responsiveness was relatively high, as verbal punishment at age 2 increased, age 3 Bayley scores increased (t [2556] = 3.19, $p < .01$). There was not a significant association between verbal punishment at age 2 and age 3 Bayley scores when maternal emotional responsiveness was relatively low.

An anomalous pattern (of positive effects of verbal punishment in the context of *lower* emotional responsiveness) emerged for the prediction of cognitive development at age 2. Specifically, a significant interaction between verbal punishment at age 1 and maternal emotional responsiveness at age 1 contributed to a significant change in the prediction of age 2 Bayley scores ($\beta = -0.07$, $SE = 0.03$, $p < .05$; change $R^2 = .004$, $p < .05$). As shown in Figure 6, when maternal emotional responsiveness was relatively low, as verbal punishment at age 1 increased, age 2 Bayley scores increased (t [2556] = 2.20, $p < .05$). There was not a significant association between verbal punishment at age 1 and Bayley scores at age 2 when maternal emotional responsiveness was relatively high.

Discussion

In the present study, we drew on ecological and transactional theories of child development to further the understanding of the controversial topic of early parental discipline. We find a considerable amount of spanking among this study's participants. We also find racial/ethnic group differences in both spanking and verbal punishment. Consistent with transactional models of development, we found main effects of spanking (though not verbal punishment) on child outcomes, as well as main effects of children's fussiness at age 1 on both spanking and verbal punishment. In some instances, maternal race/ethnicity and/or emotional responsiveness moderated the effects of spanking and verbal punishment on child outcomes. Consistent with ecological models of development, these findings highlight the value of examining parental discipline in context.

Prevalence of Spanking and Verbal Punishment

Our finding that about one third of the 1-year-olds, and about half of the 2- and 3-year-olds had been spanked in the last week indicates a substantial amount of spanking among the study's low-income families. These rates are comparable to the 29% rate of spanking of 10- to 18-month-olds reported by Regalado and colleagues (2004), yet lower than the 64% rate of spanking of 19- to 35-month-olds reported in the same study. We suspect that this discrepancy reflects a difference in methodology. The current study used face-to-face interviews, whereas the Regalado study drew on phone interview data. Our findings are more similar to those of Socolar and colleagues (2007), who also used face-to-face interviews and found that 54% of the mothers of 12- to 19-year-olds had spanked their child in the past three months. Interestingly, our reported mean numbers of spankings per week (2.97 at age 2 and 2.62 at age 3) are quite comparable to the mean of 3 spankings per week for 1- to 23-month-olds reported by Slade and Wissow (2004).

Observed verbal punishment peaked at age 2, at 24%, compared to 17% at age 1 and 16% at age 3. The increase in verbal punishment at age 2 may reflect mothers' frustration with the autonomy-seeking behavior typical of 2-year-olds, while the decline in verbal punishment at age 3 may reflect these mothers' responses to their children's increasing verbal comprehension, self-regulation, and compliance.

Racial/Ethnic Group Differences in Spanking and Verbal Punishment

We find that, at all three ages, African American children were spanked significantly more frequently than all other children. We also find that, at age 1, African American children were verbally punished significantly more frequently than White and less acculturated Mexican American children, and that, at ages 2 and 3, African American children were verbally punished significantly more frequently than all other children. These findings extend those of prior studies that have indicated more frequent spanking in African American families. First, the current study finds greater prevalence of verbal punishment, as well as spanking. Second, most prior studies that have indicated greater prevalence of spanking in African American families have confounded race with family income. Although race/ethnicity and family income are related in the current study (with African American family income significant lower than that of Whites or more or less acculturated Mexican Americans), the finding of African Americans' greater use of spanking and verbal punishment held with family income covaried.

There are several thoughtful discussions in the literature of African American parents' relatively greater use of spanking (e.g., Dodge et al., 2005; Ispa & Halgunseth, 2004). These discussions highlight cultural factors such as a long-standing belief in the importance of children's respect for elders, and in the value of physical discipline to inculcate that respect.

These discussions also highlight African American parents' concerns about preparing their children for such challenges as racial discrimination and physical danger. In a qualitative study, Ispa and Halgunseth (2004) note that the mothers they interviewed "saw little room for error" (p. 479) in their childrearing.

We also find that, at ages 2 and 3, the children of less acculturated Mexican American mothers were spanked significantly less frequently than the children of both White and African American mothers, though as frequently as the children of more acculturated Mexican American mothers. Similarly, at age 2, when verbal punishment peaked in all groups, less acculturated Mexican American mothers verbally punished their children significantly less frequently than White and African American mothers. Previous studies have reported relatively less spanking among Latino parents (Hashima & Amato, 1984; Wissow, 2001). When factoring in acculturation, however, one might expect lower levels of acculturation to be associated with more psychological distress and, thus, greater use of both physical and verbal discipline, which is *not* what we find. Instead, what may be at work among the less acculturated mothers in this study are Latino cultural beliefs in young children's inability to "know better" and resulting lenience (Halgunseth, Ispa, & Rudy, 2006). These issues merit further study in toddlers.

Predictors of Spanking and Verbal Punishment

Consistent with previous studies and with ecological theory (Bronfenbrenner, 1979), younger maternal age predicted both spanking and verbal punishment, and lower family income predicted more frequent spanking at all three ages and verbal punishment at age 1. Maternal depression at age 1 predicted more frequent spanking at ages 1 and 2 and more frequent verbal punishment at all three ages. Living alone predicted more frequent verbal punishment. In keeping with transactional models (e.g., Sameroff & Feise, 2000), child fussiness also predicted more frequent spanking and verbal punishment. In addition, having a male child predicted more frequent spanking and verbal punishment. Unlike in previous studies, maternal education did not predict spanking or verbal punishment, perhaps due to the relatively restricted range in maternal education in the current sample.

Taken as a whole, it is notable that these associations emerge in an exclusively low-income sample, even while covarying race/ethnicity. Consistent with many prior studies and with Belsky's (1984) model of the determinants of parenting, they paint a picture of spanking and verbal punishment as products of parental challenges (e.g., the many difficulties associated with being a young parent, and/or living in poverty), and may also reflect a goal of preparing a child for a life characterized by these and other challenges.

Associations between Spanking and Verbal Punishment and Child Outcomes

Rigorous cross-lagged path analyses revealed that spanking at age 1 predicted child aggressive behavior problems at age 2 and lower Bayley scores at age 3. These findings hold (a) above and beyond a comprehensive set of covariates, (b) for EHS program as well as control groups alone, and (c) when "severely" (daily or more frequently) spanked participants are excluded. Together they are consistent with the work of Gershoff (Gershoff, 2002; Gershoff & Bitensky, 2007) and they support the conclusion that spanking during toddlerhood can have negative consequences for toddlers' cognitive as well as socioemotional functioning.

At the same time, it is important to note that spanking at age 1 or age 2 did not predict child aggressive behavior problems at age 3 or Bayley scores at age 2. In addition, the effects of spanking were small. It has been argued that spanking may not be detrimental if it is culturally normative (Dodge et al., 2005). To the extent that spanking is more common and

more culturally normative in poor families, the fact that the current sample is exclusively low-income makes the apparent negative effects of spanking that did emerge especially notable. It may also help explain the small effect sizes.

It is also important to discuss the effects of child behaviors on parenting. Child fussiness at age 1 predicted both spanking and verbal punishment. Thus, child behavior affected and was affected by parental discipline strategies. Interestingly, the effects of spanking on child outcomes and the effects of child behaviors on mothers' disciplinary strategies both originated in age 1 assessments. Consistent with attachment theory and research (Cassidy, 2008), these findings highlight children's first year as the time of establishing lasting patterns of parent-child interaction.

At the same time, it was children's fussiness at age 1-- not aggression or misbehavior – that elicited more spanking and verbal punishment. Moreover, neither child aggressive behavior problems nor Bayley scores at age 2 predicted spanking or verbal punishment at age 3. Thus, mothers' spanking and verbal punishment may have arisen more from frustration with their one-year-old's fussiness than from the perception of child misbehaviors and the need to correct them (it is also possible that fussiness itself was perceived as misbehaving). The use of frustrated spanking has been discussed as more detrimental than the use of reasoned spanking (Dodge et al., 2005), and may help explain the negative effects of spanking that we found.

Our analyses of the moderated effects of both spanking and verbal punishment add nuance to our findings. First, for more acculturated Mexican Americans compared to Whites, spanking at age 1 predicted higher Bayley scores. This finding is consistent with prior research suggesting that spanking may not affect racial/ethnic minorities in the same ways that it affects Whites. Several prior studies have shown an absence of negative effects of spanking for African American children (Dodge et al., 2005), or, in one study, for Latino children (Slade & Wissow, 2004), compared to Whites. Our findings extend this literature by indicating *positive* effects of spanking in the more acculturated Mexican American group.

Interestingly, in contrast to some previous studies (e.g., Smith & Brooks-Gunn, 1997), maternal emotional responsiveness did *not* moderate the effects of spanking. During toddlerhood, children may simply be too immature to make meaning of the experience of being spanked beyond its immediate negativity, regardless of mothers' responsiveness.

There were four moderated effects of verbal punishment. For less acculturated Mexican Americans compared to Whites, verbal punishment at age 2 predicted higher Bayley scores at age 3. This finding is again reminiscent of prior research indicating differential effects of parental discipline (spanking) in different racial/ethnic groups. With this finding we extend the literature to the effects of verbal punishment. Similar to the moderated effect of spanking just discussed, we show positive effects of verbal punishment in one of the Mexican American groups. It was somewhat surprising that there were positive effects of verbal punishment in the less acculturated Mexican American group, however, given that, at age 2, these mothers verbally punished their children significantly less frequently than White mothers. Thus, the cultural normativeness of verbal punishment does not seem to explain this finding. It may be that, compared to White mothers, the verbal punishment of the less acculturated Mexican American mothers is quite mild and an indication of maternal involvement and commitment.

We also found the effects of verbal punishment to be moderated by maternal emotional responsiveness. In two out of three of these findings, there seemed to be positive effects of verbal punishment in the context of higher maternal emotional responsiveness. Specifically, at age 2, when maternal emotional responsiveness was relatively high, as verbal punishment

increased, age 3 Bayley scores increased, and age 3 aggressive behavior problems appeared to decline.

In highlighting the potential buffering influence of mothers' emotional responsiveness, these findings both extend and build on prior studies suggesting that emotional responsiveness can negate or positively condition the effects of physical punishment (Deater-Deckard et al., 2006; McLoyd & Smith, 2002; Smith & Brooks-Gunn, 1997). The strong, positive contributions of parental emotional support to healthy child outcomes are well documented (e.g., Berlin & Cassidy, 2000; Shonkoff & Phillips, 2000). Moreover, parental emotional support may be especially important to low-income children (de Wolff & van IJzendoorn, 1997; Hill, 2001). Rohner and his colleagues have illustrated that children are more likely to perceive parental rejection when physical punishment is carried out in the context of a less warm and accepting parent-child relationship (Rohner & Britner, 2002; Rohner, Bourque, & Elordi, 1996). In the context of mothers' emotional responsiveness, verbal punishment may be less likely to be perceived by the child as negative or rejecting, and, may in fact be experienced as an indication of investment and support. Maternal emotional supportiveness may also increase the effectiveness of verbal punishment. For example, in an early study of the development of prosocial behavior, in the context of empathic caregiving, mothers' intense, affectively charged explanations regarding children's wrongdoings toward others predicted children's prosocial behaviors (Zahn-Waxler, Radke-Yarrow, & King, 1979). When combined with emotional responsiveness, mothers' yelling or scolding may not only get young children's attention but also convey commitment and concern.

In one inconsistent finding, at age 1, when maternal emotional responsiveness was relatively low, as verbal punishment increased, age 2 Bayley scores actually increased. This finding was surprising and is difficult to interpret in light of the other moderated effects of verbal punishment that we found. It suggests the possibility of differential processes at age 1 compared to age 2 that, if replicated, will require further research to address.

Suggestions for Future Research

Our study raises some methodological issues that should be addressed in future research. We recommend that in future studies of physical and verbal discipline, individual caregivers are given specific behavioral descriptions to which to respond. As in other studies, we did not provide mothers with a specific definition of spanking. Rather, the meaning of spanking was left to mothers' interpretations, which likely varied in ways that we cannot determine. Moreover, our findings of moderated effects of spanking and verbal punishment highlight the importance of understanding the cultural and psychological contexts of parental discipline. More data on the full range of precisely-defined discipline strategies, the severity of each, and the cultural and emotional context surrounding each are required.

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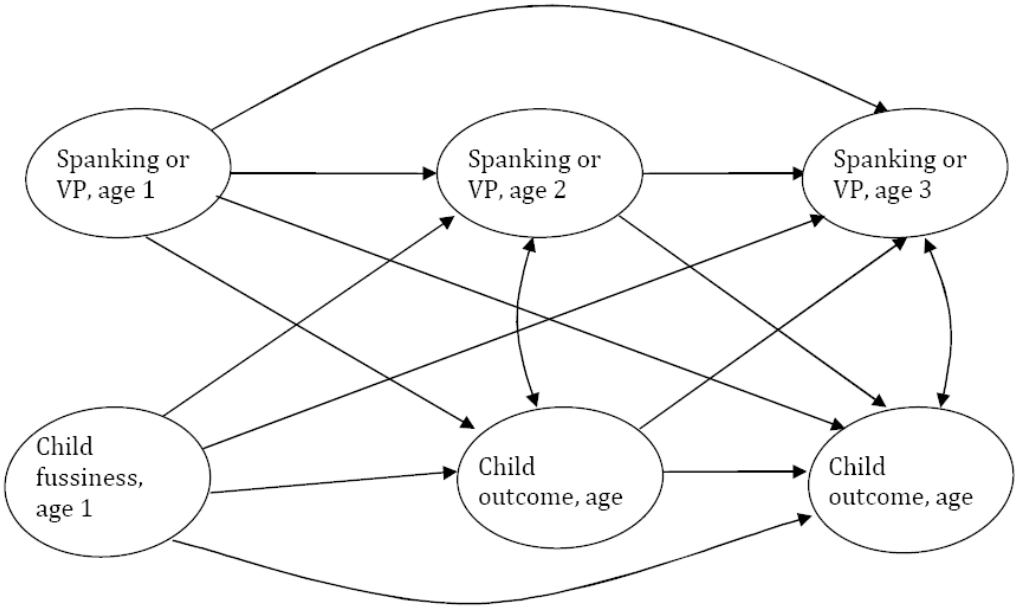

Figure 1.
Generic cross-lagged path model used to analyze the reciprocal effects of spanking and verbal punishment at ages 1, 2, and 3 on child aggressive behavior problems and cognitive development at ages 2 and 3.
Note. VP = Verbal Punishment

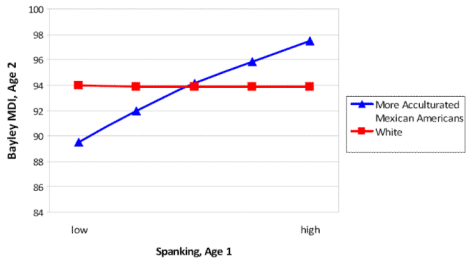

Figure 2.
Associations between spanking at age 1 and child cognitive development at age 2, moderated by maternal race/ethnicity (More Acculturated Mexican American compared to White).

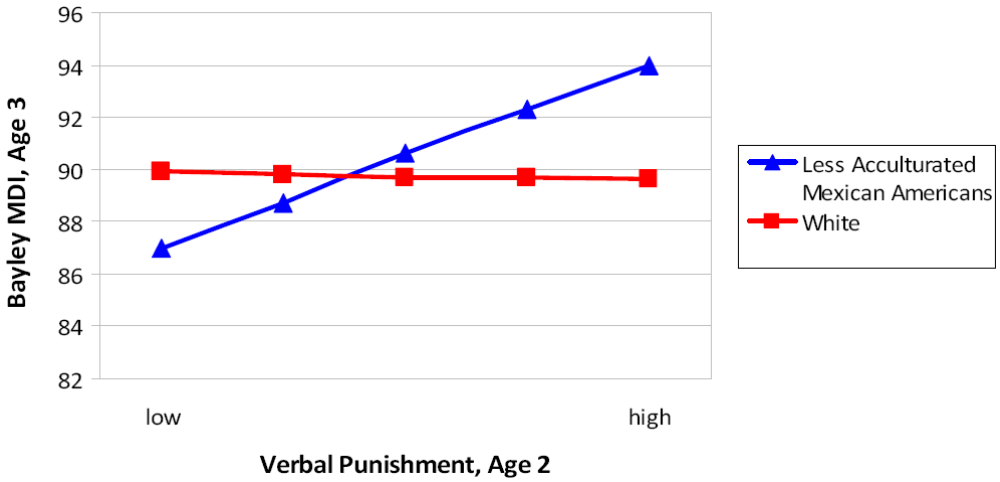

Figure 3.
Associations between verbal punishment at age 2 and child cognitive development at age 3, moderated by maternal race/ethnicity (Less Acculturated Mexican American compared to White).

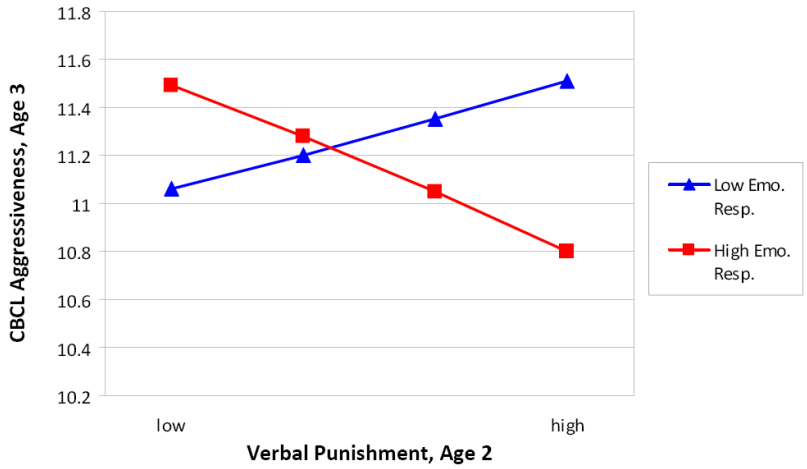

Figure 4.
Associations between verbal punishment at age 2 and child aggressive behavior problems at age 3, moderated by maternal emotional responsiveness at age 2.

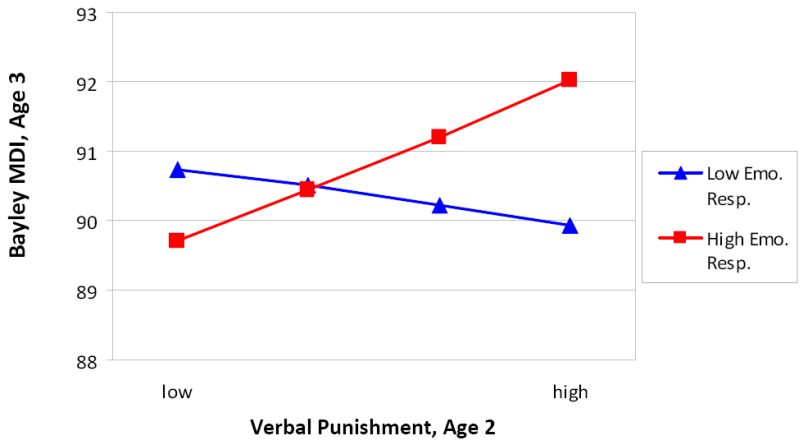

Figure 5.
Associations between verbal punishment at age 2 and child cognitive development at age 3, moderated by maternal emotional responsiveness at age 2.

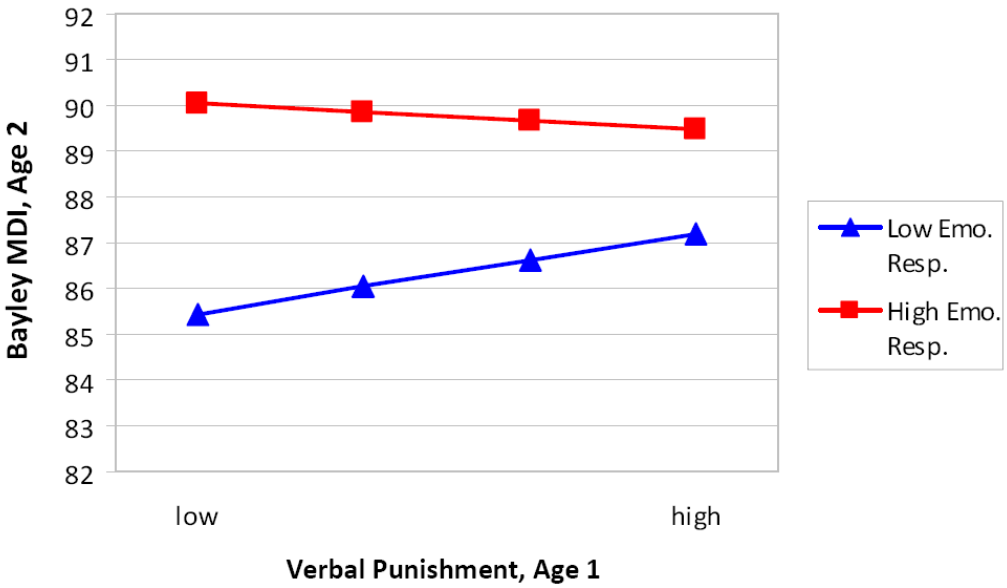

Figure 6.
Associations between verbal punishment at age 1 and child cognitive development at age 2, moderated by maternal emotional responsiveness at age 1.

Table 1

Descriptive Statistics for All Variables by Maternal Race/Ethnicity

	Full Sample (N = 2573)†	White (n = 1101)	African American (n = 1020)	More Acculturated Mexican American (n = 174)	Less Acculturated Mexican American (n = 278)	F (3, 2570)
EHS program participant (1 = yes)	0.50 (.50)	0.51 (.50)	0.50 (.50)	0.53 (.50)	0.48 (.50)	0.45
Maternal age	22.42 (5.47)	22.93^{abc} (5.29)	21.14^{ad} (5.08)	20.39^{be} (4.71)	26.32^{cde} (5.74)	84.15***
Maternal education††	8.84 (2.20)	9.43^{abc} (1.89)	8.93^{ade} (1.95)	8.13^{bdf} (2.13)	6.52^{cef} (2.61)	151.67***
Maternal depression (age 1, 0-60 scale)	13.26 (9.84)	13.62^{a} (9.99)	13.58^{b} (9.47)	12.05 (9.99)	11.54^{ab} (10.23)	3.70**
Family income (% FPL)†††	59.63 (52.89)	66.29^{a} (48.91)	49.47^{abc} (55.99)	67.34^{b} (75.50)	61.73^{c} (33.66)	16.21***
Family structure (1 = mother lives alone)	0.37 (0.48)	0.33^{ab} (0.47)	0.49^{acd} (0.50)	0.27^{c} (0.45)	0.17^{bd} (0.38)	42.53***
Child sex (1 = male)	0.51 (0.50)	0.50 (0.50)	0.51 (0.50)	0.53 (0.50)	0.55 (0.50)	0.62
Child fussiness (age 1, 1-5 scale)	2.98 (0.95)	2.86^{ab} (0.88)	3.09^{a} (0.99)	2.94 (0.95)	3.05^{b} (1.00)	8.26***
Frequency of spanking, age 1 (number per week)	0.87 (1.72)	0.68^{a} (1.55)	1.27^{abc} (2.04)	0.61^{b} (1.08)	0.41^{c} (1.12)	24.65***
Frequency of spanking, age 2 (number per week)	1.52 (2.59)	1.23^{ab} (2.23)	2.23^{acd} (3.16)	1.19^{c} (2.46)	0.68^{bd} (1.05)	31.23***
Frequency of spanking, age 3 (number per week)	1.34 (2.31)	1.25^{ab} (2.37)	1.76^{acd} (2.49)	0.99^{c} (2.02)	0.64^{bd} (1.09)	15.32***
Verbal punishment, age 1 (0-3 scale)	0.28 (0.71)	0.25^{a} (0.70)	0.36^{ab} (0.77)	0.23 (0.58)	0.19^{b} (0.57)	5.13***
Verbal punishment, age 2 (0-3 scale)	0.43 (0.88)	0.37^{ab} (0.81)	0.62^{acd} (1.02)	0.37^{c} (0.82)	0.16^{bd} (0.51)	18.50***
Verbal punishment, age 3 (1 = yes)	0.16 (0.37)	0.14^{a} (0.36)	0.23^{abc} (0.42)	0.13^{b} (0.34)	0.07^{c} (0.25)	12.32***
Maternal emotional responsiveness, age 1 (0-7 scale)	5.98 (1.48)	6.17^{a} (1.34)	5.67^{abc} (1.69)	6.12^{b} (1.27)	6.22^{c} (1.12)	17.57***
Maternal emotional responsiveness, age 2 (0-7 scale)	6.12 (1.37)	6.18 ^{a} (1.33)	5.96^{ab} (1.49)	6.33^{b} (1.04)	6.23 (1.31)	4.88***
Child aggressive behavior problems (CBCL 0-38 subscale), age 2	12.78 (6.8)	12.50 (6.32)	12.95 (6.91)	13.11 (7.60)	13.02 (7.50)	0.82
Child aggressive behavior problems (CBCL 0-38 subscale), age 3	11.29 (6.52)	11.81^{a} (6.37)	10.73^{a} (6.41)	11.14 (7.05)	11.24 (6.92)	3.34*
Child cognitive development, age 2 (Bayley MDI)	89.04 (13.75)	92.21^{ab} (14.20)	86.62^{a} (12.53)	89.64^{c} (12.42)	84.18^{bc} (13.72)	27.67***
Child cognitive development, age 3 (Bayley MDI)	90.83 (12.60)	94.12^{abc} (12.51)	87.27^{ad} (12.01)	91.00^{bd} (11.36)	88.77^{c} (12.47)	32.07***

Note. Means with the same superscript are significantly different from each other (p < .05). Standard deviations are in parentheses.

† N's for full sample variables ranged from 1862 to 2568.

†† Maternal education was rated on a scale of 1 (no school completed) to 16 (doctorate), 10 = high school graduate/GED.

†††In 1998, the federal poverty level (FPL) for a family of 4 was $16,450.

*$p < .05$;

**$p < .01$;

***$p < .001$.

Table 2

Predictors of Spanking at Ages 1, 2, and 3

	Age 1		Age 2		Age 3	
	Unstandardized (b)	**Standardized (β)**	**Unstandardized (b)**	**Standardized (β)**	**Unstandardized (b)**	**Standardized (β)**
Maternal age	-0.05*** (0.01)	-0.15*** (0.02)	-0.07*** (0.01)	-0.15*** (0.02)	-0.05*** (0.01)	-0.11*** (0.02)
Maternal education	0.04 (0.02)	0.05 (0.03)	0.04 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)
Maternal depression (age 1)	0.02*** (0.004)	0.08*** (0.02)	0.02* (0.01)	0.06* (0.03)	0.01 (0.01)	0.05 (0.03)
Family income (% FPL)	-0.06* (0.03)	-0.06* (0.03)	-0.10* (0.04)	-0.07* (0.03)	-0.08* (0.04)	-0.06* (0.03)
Family structure (1 = mother lives alone)	0.08 (0.08)	0.02 (0.02)	0.04 (0.13)	0.01 (0.02)	-0.13 (0.12)	-0.03 (0.03)
Child sex (1 = male)	0.30*** (0.08)	0.09*** (0.02)	0.25* (0.12)	0.05* (0.02)	0.34** (0.11)	0.07** (0.02)
Child fussiness (1-5 scale)	0.15*** (0.04)	0.08*** (0.02)	0.26*** (0.07)	0.10*** (0.03)	0.11 (0.06)	0.05 (0.02)

Note. Results of multiple regressions (FIML estimation) covarying EHS program participation and maternal race/ethnicity. Standard errors are in parentheses.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 3

Predictors of Verbal Punishment at Ages 1, 2, and 3

	Age 1		Age 2		Age 3	
	Unstandardized (b)	**Standardized (β)**	**Unstandardized (b)**	**Standardized (β)**	**Unstandardized (b)**	**Standardized (β)**
Maternal age	-0.01 (0.003)	-0.04 (0.02)	-0.02*** (0.004)	-0.10*** (0.02)	-0.01*** (0.002)	-0.11*** (0.03)
Maternal education	0.01 (0.01)	0.02 (0.03)	0.002 (0.01)	0.01 (0.03)	0.003 (0.01)	0.02 (0.03)
Maternal depression (age 1)	0.01*** (0.002)	0.13*** (0.02)	0.01** (0.002)	0.07** (0.03)	0.003** (0.001)	0.09** (0.03)
Family income (% FPL)	-0.02* (0.01)	-0.06* (0.03)	-0.02 (0.01)	-0.03 (0.03)	-0.01 (0.01)	-0.03 (0.03)
Family structure (1 = mother lives alone)	0.02 (0.04)	0.02 (0.02)	0.15** (0.05)	0.08** (0.03)	0.02 (0.02)	0.03 (0.03)
Child sex (1 = male)	0.03 (0.03)	0.02 (0.02)	0.11** (0.04)	0.06** (0.02)	0.05* (0.02)	0.06* (0.02)
Child fussiness (1-5 scale)	0.04* (0.02)	0.05* (0.02)	0.09*** (0.02)	0.10*** (0.03)	0.01 (0.01)	0.03 (0.03)

Note. Results of multiple regressions (FIML estimation) covarying EHS program participation and maternal race/ethnicity. Standard errors are in parentheses.

* p < .05;

** p < .01;

*** p < .001.

Table 4

Bivariate Correlations Among Spanking, Verbal Punishment, Maternal Emotional Responsiveness, Child Fussiness, and Child Outcomes

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Freq. of spanking, age 1	-												
2. Freq. of spanking, age 2	0.33***	-											
3. Freq. of spanking, age 3	0.22***	0.33***	-										
4. Verbal punishment, age 1	0.14***	0.06*	0.09***	-									
5. Verbal punishment, age 2	0.09***	0.15***	0.08**	0.28***	-								
6. Verbal punishment, age 3	0.11***	0.12***	0.15***	0.15***	0.24***	-							
7. Emotional responsiveness, age 1	-0.04	-0.11***	-0.08	-0.21***	-0.11***	-0.11***	-						
8. Emotional responsiveness, age 2	-0.07**	-0.12***	-0.09***	-0.10***	-0.22***	-0.10***	0.41***	-					
9. Child fussiness, age 1	0.11***	0.11***	0.05***	0.08***	0.12***	0.06*	-0.08***	-0.07**	-				
10. CBCL aggression, age 2	0.12***	0.15***	0.09***	0.05	0.18***	0.09***	-0.07	-0.13***	0.27***	-			
11. CBCL aggression, age 3	0.07**	0.12***	0.15*	0.09***	0.12***	0.12***	-0.07	-0.10***	0.21***	0.52***	-		
12. Bayley MDI, age 2	-0.02	-0.08**	-0.06*	-0.06*	-0.14***	-0.09***	0.25	0.26***	-0.08**	-0.12***	-0.05	-	
13. Bayley MDI, age 3	-0.08**	-0.07*	-0.08**	-0.08**	-0.10***	-0.11***	0.24	0.23***	-0.10***	-0.12***	-0.08**	0.58***	-

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 5

Reciprocal Effects of Spanking on Child Aggressive Behavior Problems and Cognitive Development

	Model 1: Spanking→CBCL Aggression		Model 2: Spanking→Bayley MDI	
	Unstandardized (b)	Standardized (β)	Unstandardized (b)	Standardized (β)
Age 1 spanking→Age 2 child outcome	**0.32** ** **(0.10)**	**0.08** ** **(0.02)**	**0.26 (0.21)**	**0.03 (0.03)**
Age 1 spanking→Age 3 child outcome	**-0.05 (0.09)**	**-0.01 (0.02)**	**-0.43** * **(0.19)**	**-0.06** * **(0.03)**
Age 2 spanking→Age 2 child outcome	1.59*** (0.36)	0.11*** (0.02)	-1.43 (0.77)	-0.05 (0.03)
Age 2 spanking→Age 3 child outcome	**0.11 (0.06)**	**0.04 (0.02)**	**0.01 (0.12)**	**0.002 (0.03)**
Age 3 spanking→Age 3 child outcome	1.39*** (0.28)	0.12*** (0.02)	-0.38 (0.56)	-0.02 (0.03)
Age 2 child outcome→Age 3 spanking	**0.01 (0.01)**	**0.02 (0.03)**	**-0.01 (0.004)**	**-0.04 (0.03)**
Age 1 fussiness→Age 2 spanking	0.15* (0.07)	0.06* (0.02)	0.16* (0.07)	0.06* 0.02
Age 1 fussiness→Age 3 spanking	-0.001 (0.06)	0.000 (0.02)	0.003 (0.06)	0.001 0.02
Age 1 fussiness→Age 2 child outcome	1.69*** (0.17)	0.24*** (0.02)	-0.56 (0.37)	-0.04 (0.03)
Age 1 fussiness→Age 3 child outcome	0.48** (0.15)	0.07** (0.02)	0.01 (0.31)	0.001 (0.02)
Age 2 child outcome→Age 3 child outcome	0.46*** (0.02)	0.48*** (0.02)	0.51*** (0.02)	0.55*** (0.02)
Age 1 spanking→Age 2 spanking	0.45*** (0.04)	0.30*** (0.02)	0.45*** (0.04)	0.30*** (0.02)
Age 1 spanking→Age 3 spanking	0.15*** (0.04)	0.11*** (0.03)	0.15*** (0.04)	0.11*** (0.03)
Age 2 spanking→Age 3 spanking	0.26*** (0.03)	0.29*** (0.03)	0.26*** (0.03)	0.29*** (0.03)

Note. Coefficients from cross-lagged path models (FIML estimation) covarying EHS program participation, maternal race/ethnicity, age, and education, maternal depression at age 1, family income and structure, and child sex. Bold indicates the associations most relevant to our research questions (longitudinal associations between spanking and child behaviors).

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 6

Reciprocal Effects of Verbal Punishment on Child Aggressive Behavior Problems and Cognitive Development

	Model 3: Verbal Punishment →CBCL Aggression		Model 4: Verbal Punishment →Bayley MDI	
	Unstandardized (b)	Standardized (β)	Unstandardized (b)	Standardized (β)
Age 1 verbal punishment→Age 2 child outcome	**0.05 (0.24)**	**0.01 (0.02)**	**-0.32 (0.51)**	**-0.02 (0.03)**
Age 1 verbal punishment→Age 3 child outcome	**0.37 (0.21)**	**0.04 (0.02)**	**-0.58 (0.45)**	**-0.03 (0.03)**
Age 2 verbal punishment→Age 2 child outcome	0.76*** (0.13)	0.15*** (0.02)	-1.32*** (0.28)	-0.12*** (0.03)
Age 2 verbal punishment→Age 3 child outcome	**0.02 (0.17)**	**0.003 (0.02)**	**0.15 (0.35)**	**0.01 (0.02)**
Age 3 verbal punishment→Age 3 child outcome	0.15** (0.05)	0.08** (0.03)	-0.16 (0.10)	-0.04 (0.03)
Age 2 child outcome→Age 3 verbal punishment	**0.002 (0.001)**	**0.03 (0.03)**	**-0.001 (0.001)**	**-0.04 (0.03)**
Age 1 fussiness→Age 2 verbal punishment	0.07** (0.02)	0.08** (0.02)	0.07** (0.02)	0.08** (0.02)
Age 1 fussiness→Age 3 verbal punishment	-0.001 (0.01)	-0.003 (0.03)	0.001 (0.01)	0.003 (0.03)
Age 1 fussiness→Age 2 child outcome	1.71*** (0.17)	0.24*** (0.02)	-0.56 (0.37)	-0.04 (0.03)
Age 1 fussiness→Age 3 child outcome	0.47** (0.15)	0.07** (0.02)	0.01 (0.32)	0.001 (0.02)
Age 2 child outcome→Age 3 child outcome	0.46*** (0.02)	0.49*** (0.02)	0.51*** (0.02)	0.55*** (0.02)
Age 1 verbal punishment→Age 2 verbal punishment	0.30*** (0.03)	0.24*** (0.02)	0.30*** (0.03)	0.24*** (0.02)
Age 1 verbal punishment→Age 3 verbal punishment	0.04** (0.01)	0.08** (0.03)	0.04** (0.01)	0.08** (0.03)
Age 2 verbal punishment→Age 3 verbal punishment	0.07*** (0.01)	0.18*** (0.03)	0.07*** (0.01)	0.17*** (0.03)

Note. Coefficients from cross-lagged path models (FIML estimation) covarying EHS program participation, maternal race/ethnicity, age, and education, maternal depression at age 1, family income and structure, and child sex. Bold indicates the associations most relevant to our research questions (longitudinal associations between verbal punishment and child behaviors).

* $p < .05$;

** $p < .01$;

*** $p < .001$.