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Who Spanks Infants and Toddlers? Evidence from the Fragile Families and Child Well-Being Study

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Abstract

We use data from the Fragile Families and Child Well-Being Study (FFCW), a birth cohort study of children in 18 medium to large U.S. cities, to examine the prevalence and determinants of spanking among infants and toddlers (at mean age 14 months). Taking advantage of the large and diverse sample in FFCW, we conduct separate analyses for children of African American (N=1,710), Hispanic (N=853), and white non-Hispanic (N=812) mothers. Overall, about 15% of children are spanked at 12 months, with this share rising to 40% by 18 months and nearly 50% for children age 20 months or older. We find that there are marked differences in the use of spanking across the three racial/ethnic groups, with children of African American mothers more likely to be spanked and at a younger age. Moreover, while some predictors of spanking are seen across all three groups, others vary. Mothers who are young, who report more parental stress, or report their child has a more difficult temperament are more likely to spank across all three groups. However, being a boy increases the risk of spanking only within African American families. First-born children are at elevated risk of spanking to at least some extent in all groups, but much more so within Hispanic families. In addition, maternal employment is associated with a greater likelihood of spanking in Hispanic families.

Although spanking at these young ages is not necessarily indicative of maltreatment, it may be a marker for families who are at elevated risk of maltreatment. As such, our findings, by highlighting some risk factors that are common across groups as well as some that are more important for particular groups, may have implications for child abuse prevention.

The United States is unique among peer industrialized countries in the extent to which parents use spanking. While 25 countries have followed Sweden's lead and banned corporal punishment (EPOCH-USA, 2010), its use remains very widespread in the United States, with close to 100% of parents reporting using some form of corporal punishment on at least some occasions (Straus & Stewart, 1999). Moreover, while spanking is often thought of as a disciplinary practice used for preschoolers and school-age children, it is in fact fairly widely applied to much younger children. Our own estimates for infants and toddlers from the Fragile Families and Child Well-Being Study, a large birth cohort study of children from 18 medium to large U.S. cities, indicate that 15% of 12-month olds are spanked, with this share rising to 40% by 18 months and nearly 50% by 20 or more months.

While spanking at these young ages is not necessarily indicative of maltreatment, it may be a marker for families who are at elevated risk of maltreatment. If this is the case, it is important to know not just how many families are spanking, but also who is spanking. For this reason, we focus in this paper on examining both the prevalence of spanking of infants and toddlers and the determinants of spanking among that population. Identifying factors that increase the risk of spanking among families with young children may shed light not

only on the role that spanking plays within such families but also on the factors that preventive programs might usefully target.

In contrast with prior research, we focus exclusively on very young children and carry out all our analyses separately by race/ethnic group. While previous research has found large racial/ethnic differences in the prevalence of spanking, we are not aware of any study that has examined the determinants of spanking of infants and toddlers separately by race/ethnic group as we do here. Our results point to some common risk factors, but also some distinctive ones, underscoring the usefulness of our approach. Another point of difference is that previous work has not examined as rich an array of controls as we are able to include here. In addition, we are able to draw on longitudinal data collected at birth as well as one year post-birth, whereas most previous studies have been cross-sectional (although see Berlin et al., 2009).

We begin with a brief review of prior research on the prevalence, determinants, and consequences of spanking of young children in the United States. We then describe our empirical strategy, data, and methods. We then present results and conclusions.

Background

Prior research suggests that spanking is indeed prevalent in the United States, even when children are very young. A national survey conducted by the Gallup Organization in 1995 finds that nearly all (94%) parents report having ever used some form of corporal punishment by the time their child is age 3 or 4, with 72% reporting using spanking sometime in the past year (Strauss & Stewart, 1999).

An extensive body of research on spanking (reviewed in Gershoff, 2002) has examined the role of child and family factors in predicting the likelihood of spanking, although again few studies have focused specifically on very young children. Many studies, but not all, report that boys are more likely to be spanked than girls. Findings are also mixed with regard to child temperament, with some but not all studies finding that young children who are more irritable are more likely to be spanked. Other factors associated with greater use of spanking include the mother being young or inexperienced, having a more aggressive or impulsive temperament, having symptoms of depression or anxiety, experiencing more parental stress or life stress, growing up in a family that endorsed spanking, growing up or living in the South, having more children in the home, being a relationship that is conflictual or unhappy, or being a single parent. While studies generally find that socioeconomic status (SES) is negatively associated with spanking, such that rates of spanking decrease as family income or parental education increases, not all do (perhaps because studies differ in the distributions of SES they study). With regard to race, most (but not all) studies find that rates of spanking are higher in African American families than in non-Hispanic white families, but since such studies often conflate SES and race, it is not clear to what extent these differences reflect race/ethnicity versus SES (Horn, Cheng, & Joseph, 2004). With regard to ethnicity, evidence on Hispanic families is also mixed, with studies reporting that Hispanic families are more likely, less likely, or as likely as non-Hispanic white families to use spanking. These discrepant results may in part be due to different samples being examined, as the Hispanic population is very diverse in terms of country of origin and immigration and acculturation status, and also has changed over time (Ispa et al., 2004). Both these challenges are addressed in the recent Berlin et al. (2009) study, discussed below.

Studies focusing on infants and toddlers are more rare. Four studies have used national data to examine spanking of infants and toddlers. Each used a slightly different measure of spanking, and so the rates they produce are not strictly comparable.¹

Wissow (2001) examined the share of parents ever using spanking in the Commonwealth Fund Survey of Parents with Young Children, a national survey of approximately 2,000 parents with children under the age of 3. He finds that overall 40% of parents of children in this age range have ever used spanking, with rates of spanking rising from 11% when children are 6 to 11 months old, to 36% when children are 12 to 17 months old, to 59% when children are 18 to 23 months old, to 67% when children are 24 to 36 months old. Boys are more likely than girls to be spanked. And African American children are more likely to be spanked than white, Hispanic, or Asian children. Rates of spanking are also higher when parents are younger, report having been physically abused in childhood, report more depressive symptoms, or report more frustration with the child. Slade and Wissow (2004) built on this work using the National Longitudinal Survey of Youth and found evidence that close to 40% of parents of children from birth to 2 years of age had utilized corporal punishment in the past week.

Regalado et al. (2004) examined current use of spanking and other disciplinary practices in a nationally representative sample of approximately 2,000 parents of children age 4 to 35 months from the 2000 National Survey of Early Childhood Health. They found that overall 26% of parents with children in this age range reported currently using spanking. Holding constant other factors, African American parents were twice as likely as non-Hispanic white parents to spank, while rates of spanking among Hispanic parents varied depending on whether they were English-speaking (lower rates) or Spanish-speaking (higher rates). Spanking rates were also higher if parents were younger or unmarried, or reported frustration with parenting or poor emotional well-being.

Most recently, Berlin et al. (2009) examined spanking in the past week at age 1, 2, and 3 in a large sample of more than 2,500 low-income African American, non-Hispanic white, and Mexican American families from the Early Head Start Study. Overall, 34% of 1-year olds had been spanked in the past week (by the mother or someone else in the household); this percentage rose to 49% at both age 2 and age 3. At all ages, African American children were more likely than other children to be spanked. This result is consistent with prior research but is important given that prior studies, as discussed above, have typically conflated race/ethnicity with SES, whereas in this study, all the families (regardless of race/ethnicity) had incomes below the poverty line. The authors also carried out a more nuanced analysis of Hispanic families than is usually the case, examining only Mexican Americans and distinguishing between those who were more or less acculturated. The results revealed that rates of spanking among Mexican American families varied by acculturation: more acculturated Mexican American parents spanked at about the same rate as non-Hispanic white parents, while those who were less acculturated spanked significantly less frequently at both age 2 and age 3. In addition, spanking rates were higher if mothers were younger, were depressed, or had lower family incomes, and if the child was a boy or was reported to have a fussy temperament.

Consequences of spanking

An important focus of research in this area has been to understand the consequences of spanking for child development. An extensive body of research has examined this question, focusing in particular on the effects of spanking on children's later behavior and mental health. This research was reviewed in a meta-analysis by Gershoff (2002), who concluded that spanking was adversely associated with 10 or the 11 child outcomes she examined,

¹There have also been two small community-based studies. One study of 204 urban and suburban mothers in the New York City area found that rates of reported spanking increased with child age, with 30% of mothers of 1 year olds, and 56% of mothers of 2 year olds, reporting spanking their child in the past week (Socolar & Stein, 1995). A study of 132 families with young children in the Southwest found lower rates of spanking, 14% at age 12 months and 48% at 24 months (Vittrup, Holden, & Buck, 2006).

including aggressive behavior and child mental health (spanking was positively associated with immediate compliance, considered to be a positive outcome). She was not able to test whether these negative associations were present regardless of the child's race/ethnicity, but other studies have found that the effects of spanking on child behavior may be less negative for African American children, for whom spanking may be more normative and/or used in the context of different parenting styles (see e.g. Baumrind, 1996; Deater-Deckard et al., 1996; Deater-Deckard & Dodge, 1997; and Deater-Deckard, Dodge, & Sorbring, 2005).

In her meta-analysis, Gershoff (2002) examined whether the effects of spanking on later behavior and mental health were moderated by child age, but she did not examine infants and toddlers separately because so few studies had focused on this age group. Three recent studies have done so. The study of low-income families from the Early Head Start study (Berlin et al., 2009) found that spanking at age 1 is associated with more child aggressive behavior problems at age 2 as well as lower Bayley mental development scores at age 3 (neither of these effects was moderated by race or ethnicity). Slade and Wissow (2004) analyzed the effects of spanking before the age of 2 on behavior problems after school entry, using data from the National Longitudinal Survey of Youth, and found that frequent spanking before age 2 leads to more behavior problems for non-Hispanic white children, but not for African American or Hispanic children. In addition, recent analyses from the Fragile Families and Child Well-Being Study (the same dataset we use here) found that children who were spanked more frequently at age 3 have more behavior problems at age 5 (the study did not examine whether these associations were moderated by race/ethnicity) (Taylor et al., 2010).

Spanking and child maltreatment

The high rates of spanking in the United States, particularly as applied to infants and toddlers, also raise the question of the extent to which spanking children at such a young age is a marker for families where children may be at risk of maltreatment. While spanking per se does not necessarily constitute child abuse, there is a risk that spanking can escalate into physical child abuse in at least some situations (see, e.g., Bugental & Happaney, 2004; Gelles & Strauss, 1998; Gil, 1973). Spanking has been correlated with being a victim of physical child abuse, suggesting that spanking indeed is such a marker (Gershoff, 2002). Even short of traditional definitions of maltreatment, spanking in infancy has also been linked to child stress reactivity (Bugental, Martorell, & Barraza, 2003), suggesting physiological organization patterns that may underlie downstream behavioral and emotional consequences. In addition, spanking experiences in childhood have been associated with a greater likelihood of the person being a perpetrator of child abuse or interpersonal violence as an adult (Gershoff, 2002). Finally, women who were physically abused as children have been shown to be more likely to spank their children in infancy (Chung et al., 2009).

Infants may be particularly vulnerable to child maltreatment, both because of the overrepresentation of this age range in prevalence reports (Wu et al., 2004) and because of the disturbed transactional relationship trajectories that, once established in families, may be resistant to change (MacKenzie & McDonough, 2009). Efforts to improve services for families with young children necessitate a broadening of our lens beyond the mere presence or absence of a maltreatment report to include a fuller understanding of the family caregiving processes that may fall short of maltreatment, but nonetheless have impacts on child outcomes and may signal risk of downstream maltreatment.

Empirical Strategy

The main objective of our study is to identify factors that influence the likelihood of spanking among parents of infants and toddlers. We estimate all our models separately by

race/ethnicity, because the prevalence of spanking varies substantially by race/ethnic group and because the determinants of spanking might vary as well. While we could test for differential effects of factors using race/ethnicity interactions, estimating a full set of interactions would be very cumbersome and would make the results difficult to interpret. We therefore estimate the models separately by race/ethnic group.

Because our outcome variable – spanking – is dichotomous, we estimate logistic regression (logit) models. These models estimate the effect of child and family factors on the likelihood of spanking, holding other factors constant. We report odds ratios, which indicate whether a given factor increases or decreases the odds for likelihood of spanking.

We estimate a set of four increasingly controlled models. Model 1 includes controls only for the child's current age (in months) and characteristics of the child at birth. Controlling for child age is important, because our sample includes children ranging in age from 9 months up to 36 months (with a mean age of 14 months), and as we have seen, spanking increases with child age. Controlling for characteristics of the child at birth allows us to control for a set of factors that are permanent attributes of the child and present from birth.

Model 2 adds controls for characteristics of the mother and family. This set of characteristics captures the level of resources available to the family as well as some factors that may be operating as current stressors or buffers. Model 3 adds controls for experiences during pregnancy, prenatal factors, which may help identify mothers who were stressed prenatally or who experienced problems that may presage harsher treatment of their children post-birth. Finally, model 4 adds controls for the mother's current report about her level of parental stress, mental health problems, and whether the child has a difficult temperament. Each of these factors, measured at the same time as the spanking behavior, would be expected to be linked to spanking (little work has looked at these maternal and child characteristics prior to the measurement of maternal spanking).

We detail the models and control variables below as well as how we measure each of these variables, and show means (by racial/ethnic group) for all the variables in Table 1.

Data and Measures

Data

We use data from the Fragile Families and Child Well-Being Study (FFCW) (see Reichman, Teitler, Garfinkel, & McLanahan, 2001, for a complete description of the sample and study design). FFCW is a longitudinal birth cohort study of approximately 4,800 children born between 1998 and 2000 in 18 medium to large U.S. cities.² The study over-sampled children born to unmarried parents but also includes children with married parents.

Baseline in-person interviews in FFCW took place in the hospital shortly after the focal child was born. Year 1 follow-up interviews were conducted by telephone when the focal child was approximately 12-months of age. Our analysis sample is limited to families in which the mother was interviewed at both baseline and year 1 follow-up. We further limit our sample to families for whom we have non-missing data on key variables included in our analyses. Our resulting sample is large and very diverse with 1,710 children of African American mothers, 853 children of Hispanic mothers, and 812 children of non-Hispanic white mothers.

²An additional two cities, Oakland and Austin, provided pilot data, which we do not use here.

Outcome Variable

Spanking is measured by a question asked of the mother in the year 1 telephone interview. Specifically, the mother is asked "... (i)n the past month, have you spanked (CHILD) because (HE/SHE) was misbehaving or acting up?" (Fragile Families, 2003). The mother's yes or no response is the basis for the dichotomous outcome variable used, where 1 is yes she reported spanking the child in the past month and 0 is no reported spanking in the past month.³ As shown in Table 1, approximately 18% of both Hispanic and non-Hispanic white mothers reported spanking. The rate was about twice as high – 36% -- for African American mothers.

Control Variables

As discussed, we estimate a set of four increasingly controlled models. We detail below how we define each of the variables included in these models. Means for all variables, by race/ethnic group, are shown in Table 1.

Variables included in Model 1—Our most basic model includes a continuous variable for child age (in months) at the time of the year 1 follow-up interview (mean of 14 months, range from 9 months to 36 months) as well as controls for a set of child characteristics at birth: a dummy variable for whether the child is a girl; a dummy variable for whether the child was low birth weight (less than 2500 grams at birth), and a dummy variable for whether the child is the first-born to this mother. The range in age seen at time of interview in the data introduces the possibility that the child age variable could be confounded by potential interview timing effects related to family risk factors. This has been addressed previously in the Fragile Families dataset through the creation of controls for potential interview timing effects (Pilkauskas, Currie, & Garfinkel, 2010). As such, we created a dummy control variable with participants scoring a 1 if they were in the oldest quartile at time of interview in their particular city. This interview timing variable allows us to take into account variation within each city regarding potential interview delays. As shown in Table 1, children of African American mothers are more likely than children from other groups to be low-birthweight, and less likely to be first-born.

Variables included in Model 2—Our second model adds, in addition to those listed above, controls for mother and family characteristics that may influence the resources and stressors facing this family: a continuous variable for the mother's age at the time of the birth (in years); a set of dummy variables for the family structure at baseline and at the year 1 follow-up (these include married at both waves, cohabiting at baseline and married or cohabiting at follow-up, not married or cohabiting at baseline or follow-up, married or cohabiting at baseline but not follow-up, or not married or cohabiting at baseline but married or cohabiting at follow-up); a set of dummy variables for the mother's level of education at baseline (these include less than high school education, high school or high school equivalency (GED) only, or at least some college); household income-to-needs ratio at baseline (this is the household's annual income divided by the relevant poverty line); a dummy variable for whether the mother was born outside the U.S.; a dummy variable for whether the mother reported living with both her parents when she was age 15; and a dummy variable for whether the mother was employed in the two weeks prior to the follow-up interview. As shown in Table 1, children of African American mothers are more likely

³FFCW also includes a question on frequency of spanking – daily, few times per week, few times in past month, or once or twice in past month. We include in Table 1 the % of mothers reporting high frequency spanking, assessed as more than 2 times per week in the past month. Since nearly 80% of the mothers who reported ever spanking at this early age responded to the follow-up question by indicating that they spanked only a few times per month or less, the sample sizes by race for high frequency spanking were small. We thus focused our analyses on the basic question of spanking versus no spanking.

than children from other groups to be living with single mothers both at birth and at year 1. Non-Hispanic white children are much more likely than children from the other two groups to be born to married parents and also have parents who are more highly educated and have higher incomes. Hispanic children are the most likely to have parents who have not graduated from high school and parents who are foreign-born.

Variables included in Model 3—In addition to those listed above, Model 3 also includes controls for experiences and behaviors during the mother’s pregnancy with this child, as reported by the mother at the baseline in-person interview: a dummy variable for timing of onset of receipt of prenatal care, an important marker of parent functioning and child outcomes (Kogan et al., 1998; coded as 1 if she received no prenatal care or care initiated after the first trimester, and 0 if she began care in the first trimester); a dummy variable for whether she reported any smoking, drug use, or moderate to heavy alcohol use (defined as drinking every day, several times per week, or several times per month) during pregnancy; a dummy variable for whether she reported having been the victim of intimate partner violence during pregnancy; and a variable reflecting the mother’s rating of the father’s supportiveness during pregnancy.

The mother’s experience of intimate partner violence (IPV) during pregnancy is drawn from her responses to two questions. At baseline, the mother was asked how often the birth father “hit or slapped you when he was angry” (Fragile Families, 2004). At year 1 the mother was asked if she was “ever cut, bruised or seriously hurt in a fight with the (FATHER)” and whether this occurred before, during or after her pregnancy (Fragile Families, 2003). If the mother responded affirmatively to the baseline question, or responded affirmatively to the year 1 question and specifically indicated that the violence occurred before or during the pregnancy, this was coded Yes (1). Rates of reported IPV during pregnancy were low across all groups (7.0% for African American mothers, 4.1% for non-Hispanic whites, 8.6% for Hispanics).

Mothers were asked to rate the birth father’s supportiveness during pregnancy based on four questions. These items include willingness to be fair or compromise, expresses love or affection, insults or criticizes her ideas (the insults/criticizes item is reversed coded), and encourages or supports her on things important to her. A 3-point scale was used – often (3), sometimes (2), and never (1) – and the score was derived by adding the 4 responses together (Cronbach’s alpha = 0.65). Consequently, the higher the value of the scale the more supportive the birth father reportedly is. Mean scores were 10.3 for African American mothers, 10.6 for non-Hispanic whites, and 10.8 for Hispanics.

Variables included in Model 4—The final model includes, in addition to the variables listed above, variables capturing three factors that are reported by the mother at the follow-up interview and that might be expected to be associated with increased use of spanking. The first of these is the mother’s report of parental stress, which we measure using a 16-point scale based on 4 items from the Panel Study of Income Dynamics—Child Development Supplement’s Aggravation in Parenting Scale (Mainieri & Grodsky, 2006). Items are measured on a 4-point scale ascertaining the extent to which the mother agrees that being a parent is harder than she expected, she feels trapped by her responsibilities as a parent, she finds taking care of her children much more work than pleasure, and she often feels tired, worn out, or exhausted from raising a family. The scale is coded such that a higher score indicates *lower* levels of parental stress (Cronbach’s alpha = .62). Mean scores were 11.1 for African American mothers, 11.6 for non-Hispanic whites, and 11.5 for Hispanics.

The second is the mother's report about the infant's difficult temperament, using three items rated on a 5 point scale (not at all to very much): whether the child often fusses/cries, is easily upset, and reacts strongly when upset. The responses are summed to derive one score where 15 is the highest possible value, indicating a highly difficult temperament, and 3 is the lowest possible value, indicating not at all difficult (Cronbach's alpha = 0.60). Mean scores were 8.7 for African American mothers, 7.7 for non-Hispanic whites, and 8.6 for Hispanics.

The third is the mother's report of her own mental health. We create a dummy variable set to 1 if the mother reports symptoms that potentially indicate depression or generalized anxiety disorder. Maternal depressive symptoms are measured using an 8-point scale drawn from the Composite International Diagnostic Interview-Short Form (CIDI-SF) (Nelson et al., 1998) and scored by assigning one point for each affirmative response to items assessing whether the respondent was sad, blue, or depressed for two or more weeks during the last 12 months and whether, during that time period, she lost interest in things, felt more tired than usual, experienced a weight change of 10 or more pounds without trying, had more trouble sleeping than usual, had more trouble concentrating than usual, felt worthless, and thought a lot about death. The CIDI-SF depression measure has been widely used in prior research and can be coded either as a dichotomous measure of major depression "caseness" or as an index of depressive symptoms. We use the former approach, categorizing a respondent as potentially suffering from depression if she scores 3 or higher.

Mothers' symptoms of anxiety are measured using the CIDI-SF for general anxiety disorder (GAD). The stem questions for GAD on the CIDI-SF considers whether the mother experienced a period lasting a month or more where she felt worried or anxious most of the time and, if so, what was the longest lasting period. These stem questions are assessed along with a set of seven physiological symptoms - being keyed up or on edge, irritability, restlessness, having trouble falling asleep, tiring easily, difficulty concentrating, and tense or aching muscles (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). The stem conditions (i.e. the respondent indicates having strong anxiety/worry most days lasting for at least six months in the past 12 month where she was anxious over more than one issue and struggled to control her anxiety) coupled with affirmative responses on at least three physiological symptoms - result in the respondent being coded with potential GAD (Fragile Families, 2006). Finally, we create a single summary mental health problem variable, which we set to one if the mother is identified as potentially suffering from either depression or anxiety, and 0 otherwise. The share of mothers coded as potentially suffering from either depression or anxiety was 17.5% for African American mothers, 17.0% for non-Hispanic whites, and 14.8 % for Hispanics.

Results

Prevalence of Spanking

As shown in Figure 1, spanking increases with child age. At 9 or 10 months, only 10% of children are spanked. This rises to 15% by 12 months, about 25% by 15 months, and about 40% by 18 months. By the time children are age 20 months or older, 45% of children are spanked.

However, as shown in Figure 2, these rates and trends differ a good deal by race/ethnicity. At all ages, African American children are more likely to be spanked than white or Hispanic children. Although the data are somewhat noisy due to smaller samples at some ages, these gaps look to be particularly pronounced at younger ages (12 months or younger) and again at older ages (16 months or older).

Predictors of Spanking

As discussed earlier, we estimate a set of 4 increasingly controlled logistic regression models. Model 1 includes controls only for child age (in months), a control for the timing of interview, and characteristics of the child at birth (child gender, whether the child was low birthweight, and whether the child was a first-born). Model 2 adds controls for characteristics of the mother and family. Model 3 adds controls for experiences during pregnancy. And Model 4 adds controls for the mother's reported level of parental stress, her mental health, and her report about whether the child has a difficult temperament.

We conduct all our analyses separately by race/ethnic group. Results for African American children are shown in Table 2, white non-Hispanic children in Table 3, and Hispanic children in Table 4. The tables show odds ratios (with standard errors of the estimates in parentheses, and asterisks indicating significance levels as noted in the tables). Odds ratios greater than 1 indicate that a factor is associated with increased likelihood of spanking, whereas odds ratios less than 1 indicate that a factor is associated with reduced likelihood of spanking.

Results for Children of African American Mothers

Looking first at Table 2, for children of African American mothers, we can see that baseline characteristics of the child have strong effects on the likelihood of being spanked (Model 1). Girls have 20% lower odds to be spanked than boys, while first-born children have 68% greater odds to be spanked than children whose mothers have had prior births. For African American mothers our control variable for the child being interviewed in the last quartile by age for their particular city was associated with reduced odds for spanking. Spanking increases with the child's age, with each month of age increasing the likelihood of spanking by about .74 percentage points (this is calculated by multiplying the elevated odds of spanking, 1.173, by the constant in the model, which is .043).⁴

Adding controls for mother and family characteristics (Model 2), pregnancy experiences (Model 3), and current stress, mother mental health, and rating of infant temperament (Model 4) does not substantially alter the influence of the baseline characteristics, but some of the additional variables do have strong effects on spanking. Foreign-born mothers (who make up 5% of African American mothers) are much less likely to spank. While the mother's report of domestic violence during pregnancy does not significantly affect spanking, her report of father supportiveness during pregnancy is associated with significantly lower levels of spanking. Mothers who report receiving late or no prenatal care are less likely to spank, although this is only marginally significant (at $p < .10$). Mothers who report less parental stress are less likely to spank, while those who report poorer mental health or report their child has a difficult temperament are more likely to spank. The association with maternal mental health is particularly notable, with mothers who have some indication of depression or anxiety disorder being 33% more likely to spank.

Results for Children of Non-Hispanic White Mothers

Results for children of non-Hispanic white mothers, shown in Table 3, reveal some important points of commonality but also some notable differences. As was the case for African American children, spanking increases as children get older. However, as we saw in the raw data in Figure 2, spanking increases more steeply with child age for white non-Hispanic children than it does for African American children. Here, spanking increases by

⁴In results not shown but available on request, we interacted gender and child age, to see whether girls are at consistently lower risk of spanking or whether this varies by age, and found that girls are at significantly lower risk of spanking up to age 15 months, but not thereafter.

19 to 23% with each month of age across the four models, in contrast to 17 to 18% for African American children. Other points of difference are that child gender is not a significant predictor of spanking among white non-Hispanic families (the odds ratio for being a girl is less than 1 but not statistically significant), while being first-born is a significant risk factor only in model 4 (and is only marginally significant there). There is also a clearer suggestion in the models for white non-Hispanic children that family resources are protective. Spanking rates are significantly lower as family income-to-needs ratio rises; spanking also is lower when mothers have at least some college education.

As was the case for African American children, non-Hispanic white children are less likely to be spanked if their mother reports less stress, and more likely if she reports they have a more difficult temperament. However, in contrast to the results for African American children, among the white non-Hispanic sample there is no significant association between maternal mental health and spanking.

Results for Children of Hispanic Mothers

Results for children of Hispanic mothers, shown in Table 4, display some common elements with results for both African American and white non-Hispanic children, but also some distinctive ones. As was the case with both prior groups, spanking increases with child age, with the rate increasing at about the same pace as it does for African American children (increasing 16 to 18% with each month of age). The child being first-born also increases the likelihood of spanking, as it did for the other two groups, but here the effect is much larger, more than doubling the risk in each of the models. As was the case for white non-Hispanic children, and in contrast to results for African American children, child gender does not significantly affect the risk of spanking.

Nativity has a strong effect among Hispanics, as it did among African Americans, with those who are foreign-born much less likely to spank. Within this sample of Hispanic mothers, 49% are Mexican, 16% are Puerto Rican, while the remaining 35% are from all other Spanish-speaking countries. Approximately 40% of both the Mexican and Other Hispanic groups are foreign born, with the Puerto Rican mothers all considered US born. In models supplemental to those reported in Table 4, not shown but available on request, we replaced the dummy variable for foreign-born with two dummy variables – the first coded one only if the mother was foreign-born and Mexican, and the other coded one only if the mother was foreign-born and Other Hispanic. This model indicated that it is the Mexican born mothers driving this result as they were significantly less likely to spank (odds ratio of 0.41). The result for the foreign-born other Hispanics was not significant, though the direction of the coefficient was consistent with a lower likelihood (odds ratio of 0.64).

A distinctive result for the Hispanic mothers is that working in the past 2 weeks is associated with increased likelihood of spanking. The effect is large, ranging from a 41 to 45% increase in the probability of spanking, but only marginally significant (at $p < .10$).

In common with results for African Americans, Hispanic mothers who report the father was more supportive during pregnancy are less likely to spank. Surprisingly, mothers who report some domestic violence during pregnancy are *less* likely to spank (although this result is only marginally significant at $p < .10$). And, in common with both other groups, mothers who report their child has a more difficult temperament are more likely to spank.

Robustness Checks

Previous research on spanking has found marked differences by region. In particular, spanking is more widely used in the South than in other parts of the United States. To ensure that our results were not being driven by regional or local variation, we repeated the models

adding controls for city fixed effects (using dummy variables to flag each of the 18 cities making up our sample). Results from these models (not shown but available on request) were overall quite similar to those reported here, suggesting that they are not being driven by geographical differences.

Discussion and Conclusions

Our results provide new evidence as to the prevalence of spanking of infants and toddlers among families in U.S. cities and also shed some light on the factors that are associated with spanking. Our analysis is distinctive in focusing on very young children and in conducting all the analyses separately by race/ethnic group, so that both common and distinctive determinants of spanking can be seen.

Confirming prior research on mostly older samples of children, we find striking racial/ethnic differences in spanking, with African American children more likely to be spanked and at younger ages. We also find that foreign-born African American and Hispanic parents in our sample are less likely to spank, confirming that spanking does tend to be more widely used by native born U.S. parents than by parents immigrating from many other countries. This may be reflective of differences in spanking rates across nation of birth (Lansford, Chang, Dodge, Malone, Oburu, Palmerus, et al., 2005), indicators of family characteristics associated with mobility/migration, or potentially even decisions made by families immigrating to the U.S. with regards to spanking that could be influenced by their beliefs about what is acceptable parenting practices in their new context.

However, as striking as the differences in prevalence across groups are the differences we find in the predictors of spanking within groups. Although our results point to some common factors that place children at elevated risk of spanking in each racial/ethnic group, we also uncover some factors that pose risk only within a specific group or groups.

In terms of common factors, across all three groups, spanking is more common if a child is older, is reported to have a more difficult temperament, or is first-born (although this latter effect is only marginally significant in one model for white children, and not significant in the others). The result for child age is consistent with previous research and makes sense given that children in the age range we studied (age 9 months to 36 months) are becoming more mobile and getting into more situations where parents may feel they need to be reprimanded. The age effects are present even taking into account potential effects from differences in the timing of interview. The interview timing variable was a significant predictor of reduced odds of spanking only for African American families, indicating why timing effects were important to account for in our model, particularly for Black families. The result for temperament also confirms previous research and suggests that if a parent perceives an infant to be more difficult or frustrating, the parent is more likely to resort to physical punishment (Bugental & Happaney, 2004; Combs-Orme & Cain, 2008; Wissow, 2002). This result is concerning given the potential for such parenting cognitions and behavior to in turn aggravate the self-regulatory difficulties the child is experiencing and in a transactional fashion prompt escalating harsh parenting on the part of the parent (MacKenzie & McDonough, 2009). Caregiver attributions and perceptions about infant regulation difficulty have been demonstrated to be a potent port of entry for intervention, utilizing cognitive reframing exercises to disrupt the negative perceptions before they lead to amplifying hostility in caregiver behavior (Bugental et al., 2002).

Thus, to the extent that caregiver perceptions of infant temperament as difficult can be identified early on, such families would be good targets for preventive services. This may be particularly true for spanking in the first year of life, when the use of corporal punishment is

less likely to be in response to child mobility or verbal defiance, but rather in response to parental frustration with dysregulation in crying, feeding, or sleeping. The first-born result suggests that less experienced parents are more likely to resort to spanking, either because they experience more frustration in parenting or because they have less knowledge of alternatives to spanking. If so, first-time parents might be a particularly important group to target for preventive programs (as is in fact the case with the Nurse Family Partnership home visiting program for first-time mothers; Olds et al., 1997).

In addition to these risk factors that were seen across all three racial/ethnic groups, several other factors emerged only within a specific group or groups. Here we highlight three that uniquely affected spanking in only one of the groups.

First, child gender strongly predicted spanking among African American families, with girls 20% less likely to be spanked than boys. We explored several interactions to test whether this result was driven by differences in family structure between African American and other families, but this seemed not to be the case. Age-gender interactions indicated that this protective effect of being a girl operates most strongly when children are very young, and is no longer present after age 15 months. So perhaps it reflects differential expectations of boys and girls at young ages, differences in development or parental concern by gender (if for example, boys are at greater risk of injury in the first year [Mack, Gilchrist, & Ballesteros, 2008; Rivara, Bergman, LoGerfo, & Weiss, 1982]), or differences in norms about the use of spanking with infant boys and girls.⁵

Second, lower income was a significant risk factor in white non-Hispanic families, as we might have expected given the prior literature on income and child maltreatment, but was not a risk factor in African American or Hispanic families. This is an interesting finding and one that would be worth pursuing in further research. In our sample, white non-Hispanic families have much higher average incomes than the other groups (with mean income nearly 4 times the poverty line, in contrast to less than 2 times the poverty line for African Americans and Hispanics). Thus, it may be that the differential effect of income reflects not just differences across racial/ethnic groups but also differences in the influence of resources at different points in the income distribution.

Third, maternal employment was a risk factor in Hispanic families. This result, although only marginally significant, is nevertheless novel and merits further study. Employment being differentially impactful for Hispanic moms in the first year may indicate that the nature of the work itself may be more stressful, on average, among Hispanic mothers. Alternatively, it may indicate that the meaning-making surrounding maternal employment places more stress on Hispanic families. For example, if they hold more traditional attitudes about mothers' employment, we might expect to see greater stress related to decisions or economic pressures that push them into the workplace. In our sample, Hispanic mothers are considerably less likely to be working at the year 1 interview than are the other two groups, suggesting that maternal employment one year post-birth is less normative for them. Given prior research that found that full-time work at year 1 was associated with more behavior problems among Hispanic children but not among non-Hispanic white or African American children (Berger et al., 2008), it may also be the case that maternal employment in these families is leading to more behavior problems which are in turn prompting more spanking, suggesting that this could be bidirectional.

⁵In results not shown but available on request, we explored whether interactions between gender and child temperament play a role here, but for the most part, these interactions were not significant.

Finally, it is worth highlighting some factors that did *not* predict spanking. Our models included an extensive set of controls for family structure but these tended to have no effect on spanking. This is an interesting finding and one that suggests that mothers' use of spanking is not affected by who else is in the household. Interestingly, however, we did find a link between more supportive fathers during pregnancy and less spanking of the child. It is not clear what mechanism is at work here – perhaps the support leads the mother to view the child more positively, or perhaps it reduces stress during pregnancy and leads to better birth outcomes. This too is an interesting finding and one worth pursuing in future research. If father supportiveness during pregnancy really does play a protective role, this would have implications for programs to engage fathers and boost their supportiveness prenatally.

Overall, our results provide some support for the interpretation that spanking is a normative part of parenting in the U.S. context. Rates of spanking by the time children are 20 months old are nearly 50%, suggesting that this is a typical experience for U.S. children in urban areas such as those we study here.

At the same time, however, our results also strongly indicate that spanking is affected by maternal stress. Although the specific indicators of stress vary across racial/ethnic groups, mothers who feel their child has a more difficult temperament, who find parenting more stressful, who are in poorer mental health themselves, or who are struggling with lower income or employment (in at least some groups) are more likely to resort to spanking, even in infancy. This constellation of predictors is similar to those that would predict maltreatment, suggesting that at least in some families, spanking might be a marker for elevated risk of maltreatment. If so, families who are reporting such stresses might be good candidates for preventive programs.

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References

- Baumrind D. The discipline controversy revisited. *Family Relations*. 1996; 45:405–414.
- Berger L, Brooks-Gunn J, Paxson C, Waldfogel J. First-year maternal employment and child outcomes: Variation across racial and ethnic groups. *Children and Youth Services Review*. 2008; 30(4):365–387. [PubMed: 20336171]
- Berlin LJ, Malone PS, Ayoub CA, Ispa J, Fine M, Brooks-Gunn J, Brady-Smith C, Bai Y. Correlates and consequences of spanking and verbal punishment for low income White, African American, and Mexican American toddlers. *Child Development*. 2009; 80(5):1403–1420. [PubMed: 19765008]
- Bugental DB, Ellerson PC, Lin EK, Rainey B, Kokotovic A, O'Hara N. A cognitive approach to child abuse prevention. *Journal of Family Psychology*. 2002; 16:243–258. [PubMed: 12238408]
- Bugental DB, Happaney K. Predicting infant maltreatment in low-income families: The interactive effects of maternal attributions and child status at birth. *Developmental Psychology*. 2004; 40:234–243. [PubMed: 14979763]
- Bugental DB, Martorell GA, Barraza V. The hormonal costs of subtle forms of infant maltreatment. *Hormones & Behavior*. 2003; 43:237–244. [PubMed: 12614655]
- Chung EK, Mathew L, Rothkopf AC, Elo IT, Coyne JC, Culhane JF. Parenting attitudes and infant spanking: The influence of childhood experiences. *Pediatrics*. 2009; 124:e278–e286. [PubMed: 19620204]
- Combs-Orme T, Cain DS. Predictors of mothers' use of spanking with their infants. *Child Abuse & Neglect*. 2008; 32:649–657. [PubMed: 18571232]

- Deater-Deckard K, Dodge KA. Externalizing behavior problems and discipline revisited: Nonlinear effects and variation by culture, context, and gender. *Psychological Inquiry*. 1997; 8:161–175.
- Deater-Deckard K, Dodge KA, Bates JA, Petit GS. Physical discipline among African American and European American mothers: Links to children's externalizing behaviors. *Developmental Psychology*. 1996; 32:1065–1072.
- Deater-Deckard, K.; Dodge, KA.; Sorbring, E. Cultural difference in the effects of physical punishment. In: Rutter, M.; Tienda, M., editors. *Ethnicity and causal mechanisms*. New York: Cambridge University Press; 2005.
- EPOCH-USA. Legal reforms: Corporal punishment of children in the family. 2010 [accessed May 27, 2010]. Available from <http://www.stophitting.com/index.php?page=laws-main>
- Fragile Families. Mother's 1 Year Follow Up Survey. Center for Research on Child Wellbeing at Princeton University and the Social Indicator Survey Center at Columbia University; 2003 [Revised August 2003]. The Fragile Families Child Wellbeing Study (Survey of New Parents).
- Fragile Families. Mother's Baseline Survey – Public Use Version. Center for Research on Child Wellbeing at Princeton University and the Social Indicator Survey Center at Columbia University; 2004 [Revised January 2004]. The Fragile Families Child Wellbeing Study (Survey of New Parents).
- Fragile Families. Fragile Families: Scales documentation and question sources for three-year questionnaires – Draft (Revised 4/26/06). 2006 [Retrieved March 4, 2007]. from the Fragile Families and Child Wellbeing Study website: http://www.fragilefamilies.princeton.edu/documentation/core/scales/ff_3yr_scales.pdf.
- Gershoff E. Corporal punishment by parents and associated child behaviors and experiences: A meta-analytic and theoretical review. *Psychological Bulletin*. 2002; 128:530–579.
- Gil, D. *Violence against children: Physical abuse in the United States*. Cambridge: Harvard University Press; 1973.
- Horn IB, Cheng TL, Joseph J. Discipline in the African American community: The impact of socioeconomic status on beliefs and practices. *Pediatrics*. 2004; 113:1236–1241. [PubMed: 15121935]
- Ispra JM, Fine M, Halgunseth LC, Harper S, Robinson J, Boyce L, Brooks-Gunn J, Brady-Smith C. Maternal intrusiveness, maternal warmth, and mother-toddler relationship outcomes: Variations across low-income ethnic and language groups. *Child Development*. 2004; 75:1613–1631. [PubMed: 15566369]
- Kessler RC, Andrews G, Mroczek D, Ustun TB, Wittchen HU. The World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF). *International Journal of Methods in Psychiatric Research*. 1998; 7:171–185.
- Kogan MD, Martin JA, Alexander GR, Kotelchuck M, Ventura SJ, Frigoletto FD. The changing patterns of prenatal care utilization in the United States, 1981–1995, using different prenatal care indices. *JAMA*. 1989; 279(20):1623–1628. [PubMed: 9613911]
- Lansford JE, Chang L, Dodge KA, Malone PS, Oburu P, Palmerus K, Bacchini D, Pastorelli C, Bombi AS, Zelli A, Tapanya S, Chaudhary N, Deater-Deckard K, Manke B, Quinn N. Physical discipline and children's adjustment: Cultural normativeness as a moderator. *Child Development*. 2005; 76(6):1234–1246. [PubMed: 16274437]
- Mack KA, Gilchrist J, Ballesteros MF. Injuries among infants treated in emergency departments in the United States, 2001–2004. *Pediatrics*. 2008; 121(5):930–937. [PubMed: 18450896]
- MacKenzie, MJ.; McDonough, SC. Transactions between perception and reality: Maternal beliefs and infant regulatory behavior. In: Sameroff, AJ., editor. *The Transactional Model of Development: How children and contexts shape each other*. Washington: APA Books; 2009. p. 35-54.
- Mainieri, T.; Grodsky, M. *The Panel Study of Income Dynamics Child Development Supplement: User Guide Supplement for CDS-I*. Ann Arbor, MI: Institute for Social Research, University of Michigan; 2006.
- Nelson, CB.; Kessler, RC.; Mroczek, D. Geneva, Switzerland: Epidemiology, Classification and Assessment Group, World Health Organization; 1998. *Scoring the World Health Organization's Composite International Diagnostic Interview Short Form (CIDI-SF; v 1.0 Nov 98)*. Unpublished manuscript

- Olds DL, Eckenrode J, Henderson CR, Kitzman H, Powers J, Cole R, Sidora K, Morris P, Pettitt LM, Luckey D. Long-term effects of home visitation on maternal life course and child abuse and neglect: Fifteen-year follow-up of a randomized trial. *JAMA*. 1997; 278(8):637–643. [PubMed: 9272895]
- Pilkauskas, N.; Currie, J.; Garfinkel, I. The great recession and material hardship. Paper presented at meetings of the Population Association of America; Dallas, Tx. 2010.
- Regalado M, Sareen H, Inkelas M, Wissow LS, Halfon N. Parents' discipline of young children: Results from the National Survey of Early Childhood Health. *Pediatrics*. 2004; 113:1952–1958. [PubMed: 15173466]
- Reichman NE, Teitler JO, Garfinkel I, McLanahan. SS. Fragile Families: Sample and design. *Children and Youth Services Review*. 2001; 23(4–5):303–326.
- Rivara FP, Bergman AB, LoGerfo JP, Weiss NS. Epidemiology of childhood injuries: II. Sex differences in injury rates. *American Journal Dis Child*. 1982; 136(6):502–506.
- Slade EP, Wissow LS. Spanking in early childhood and later behavior problems: A prospective study of infants and young toddlers. *Pediatrics*. 2004; 113:1321–1330. [PubMed: 15121948]
- Smith JR, Brooks-Gunn J. Correlates and consequences of harsh discipline for young children. *Archives of Pediatrics and Adolescent Medicine*. 1997; 151:777–786. [PubMed: 9265878]
- Socolar RRS, Stein REK. Spanking infants and toddlers: Maternal belief and practice. *Pediatrics*. 1995; 95:105–111. [PubMed: 7770285]
- Straus, M.; Gelles, R.J., editors. *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families*. New Brunswick, NJ: Transaction Publishers; 1990.
- Straus M, Hamby SL, Finkelhor D, Moore DW, Runyan D. Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse and Neglect*. 1998; 22(4):249–270. [PubMed: 9589178]
- Straus M, Stewart JH. Corporal punishment by American parents: National data on prevalence, chronicity, severity, and duration, in relation to child and family characteristics. *Clinical Child and Family Psychology Review*. 1999; 2:55–70. [PubMed: 11225932]
- Taylor CA, Manganello JA, Lee SJ, Rice JC. Mothers' spanking of 3-year-old children and subsequent risk of children's aggressive behavior. *Pediatrics*. 2010; 125:e1057–e1065. [PubMed: 20385647]
- Vittrup B, Holden GW, Buck J. Attitudes predict the use of physical punishment: A prospective study of the emergence of disciplinary practices. *Pediatrics*. 2006; 117:2055–2064. [PubMed: 16740848]
- Wissow LS. Ethnicity, income, and parenting contexts of physical punishment in a national sample of families with young children. *Child Maltreatment*. 2001; 6:118–129. [PubMed: 16705787]
- Wissow, LS. Child discipline in the first three years of life. In: Halfon, N.; McLearn, KT.; Schuster, MA., editors. *Child rearing in America. Challenges facing parents with young children*. New York, NY: Cambridge University Press; 2002. p. 146-177.
- Wu SS, Chang-Xing M, Carter RL, Arlet M, Feaver EA, Resnick MB, Rother J. Risk factors for infant maltreatment: A population-based study. *Child Abuse & Neglect*. 2004; 28(12):1253–1264. [PubMed: 15607768]

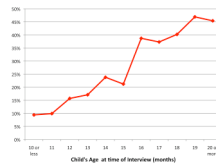


Figure 1.
Share of mothers who spank, by child's age

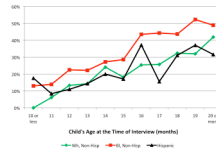


Figure 2.
Share of mothers who spank, by race/ethnicity and child's age

Table 1

Descriptive statistics.

	White, Non-Hisp (N = 812)	Black, Non-Hisp (N = 1,710)	Hispanic (N = 853)
Dependent Variable			
% Mothers Reporting Spanking	17.9%	36.4%	17.6%
% Mothers Reporting High Frequency Spanking	3.7%	8.8%	3%
Independent Variables			
% Girls	46.2%	47.4%	48.4%
Child's Age (months)	14.0	16.2	14.1
% Born Low Birth Weight	7.5%	13.0%	6.0%
% First Born	45.2%	34.3%	40.2%
Mother's Age at Birth (years)	26.9	24.3	24.7
Family Structure			
% Married at Baseline and Year 1	47.5%	12.0%	19.9%
% Cohabiting at Baseline & Married or Cohabiting at Year 1	24.4%	20.8%	36.9%
1 % Not Living Together at Baseline or Year 1	13.9%	42.4%	23.2%
% Living Together at Baseline, Not at Year 1	9.2%	13.5%	10.6%
% Living Separate at Base, Together at Year 1	4.8%	11.3%	9.4%
Mother's Education Level			
% Not Completed High School	23.3%	37.4%	51.0%
% Completed High School or GED Only	20.4%	31.3%	22.2%
% At Least Some College	56.3%	31.2%	26.8%
Household Income/Needs Ratio at Baseline	3.8	1.7	1.9
% Mothers Not US Born	3.7%	4.9%	34.5%
% Mothers Lived w/ Both Parents at Age 15	57.6%	28.7%	51.6%
% Mothers Reported Working in Past 2 Weeks	57.1%	57.0%	46.0%
Number of Other Adults in Household at Year 1	2.1	2.0	2.5
% Mothers Reported Drugs, Moderate/Heavy Alcohol or Cigarettes during Pregnancy	31.0%	22.2%	11.7%
% Mothers Reported IPV before Child's Birth	4.1%	7.0%	8.6%
Mother's Rating of Father's Supportiveness during Pregnancy	10.8	10.3	10.6
% Late Starting or No Prenatal Care	12.2%	21.3%	20.4%
Mother's Parental Stress Score at Year 1	11.6	11.1	11.5
Child's Emotional Temperament Score at Year 1	7.7	8.7	8.6
% Mothers with Flag for Potential Depression or General Anxiety Disorder	17.0%	17.5%	14.8%

Table 2

Predictors of Spanking at Year 1 by Black, Non-Hispanic Mothers

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio
Child is a girl	0.804** (0.085)	0.804** (0.086)	0.805** (0.086)	0.833* (0.091)
Child's age (months)	1.173*** (0.019)	1.175*** (0.019)	1.174*** (0.019)	1.180*** (0.020)
Interviewed in last quartile for city	0.755** (0.091)	0.751** (0.092)	0.757** (0.093)	0.738** (0.092)
Child is low birth weight	0.858 (0.135)	0.840 (0.134)	0.841 (0.136)	0.803 (0.132)
Child is first born	1.684*** (0.184)	1.560*** (0.200)	1.559*** (0.203)	1.677*** (0.223)
Mother's age at birth (years)		0.982 (0.011)	0.979* (0.012)	0.982 (0.012)
Cohabiting at baseline & married or cohabiting at year 1 ^		1.220 (0.259)	1.217 (0.260)	1.229 (0.266)
Not living together at baseline or year 1 ^		1.254 (0.258)	1.153 (0.245)	1.131 (0.243)
Living together at baseline, not at year 1 ^		1.126 (0.260)	1.083 (0.253)	1.073 (0.253)
Living separate at baseline, together at year 1 ^		1.230 (0.297)	1.244 (0.304)	1.353 (0.335)
Mother completed HS/GED only ^^		1.077 (0.142)	1.095 (0.148)	1.159 (0.159)
Mother has at least some college ^^		1.226 (0.187)	1.235 (0.191)	1.319* (0.208)
Household income to need ratio		0.987 (0.036)	0.993 (0.037)	0.997 (0.037)
Mother is not US born		0.315*** (0.101)	0.313*** (0.101)	0.325*** (0.106)
Mother reported living with both parents at age 15		0.908 (0.112)	0.914 (0.113)	0.959 (0.120)
Mother worked in past 2 weeks		0.923 (0.105)	0.924 (0.106)	0.918 (0.107)
Number of other adults in household at Year 1		1.001 (0.059)	1.003 (0.060)	0.976 (0.059)
Mother reported drugs, moderate/heavy alcohol or cigarettes during pregnancy			1.047 (0.146)	1.006 (0.143)
Mother reported at least some IPV before child's birth			1.283 (0.271)	1.214 (0.260)
Birth father supportive during pregnancy			0.917** (0.032)	0.950 (0.034)
Late starting or no prenatal care			0.791* (0.108)	0.770* (0.106)
Parental stress reported at Year 1				0.935*** (0.019)
Mother report of emotional child temperament at year 1				1.079*** (0.018)
Some indication of maternal depression or general anxiety disorder at Year 1				1.318** (0.186)
Constant	0.043*** (0.011)	0.060*** (0.028)	0.164*** (0.102)	0.099*** (0.069)
Pseudo R ²	0.059	0.071	0.077	0.097
Observations	1,710	1,710	1,710	1,710

Notes: Results from logistic regression models, with standard errors in parentheses

p<0.01**
p<0.05,*
p<0.1^
Omitted category is 'Married at both baseline line and Year 1'.

^{^^} Omitted category is 'Mother did not complete high school'.

Table 3

Predictors of Spanking at Year 1 by White, Non-Hispanic Mothers

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio
Child is a girl	0.842 (0.162)	0.825 (0.167)	0.802 (0.163)	0.814 (0.168)
Child's age (months)	1.191 *** (0.034)	1.222 *** (0.038)	1.216 *** (0.038)	1.226 *** (0.040)
Interviewed in last quartile for city	1.144 (0.244)	1.088 (0.249)	1.112 (0.255)	1.120 (0.262)
Child is low birth weight	0.830 (0.312)	0.610 (0.235)	0.631 (0.248)	0.605 (0.248)
Child is first born	1.322 (0.254)	1.350 (0.312)	1.407 (0.330)	1.529* (0.368)
Mother's age at birth (years)		0.964 (0.022)	0.967 (0.022)	0.970 (0.023)
Cohabiting at baseline & married or cohabiting at year 1 ^		0.723 (0.217)	0.721 (0.225)	0.747 (0.238)
Not living together at baseline or year 1 ^		0.735 (0.247)	0.686 (0.258)	0.722 (0.280)
Living together at baseline, not at year 1 ^		0.942 (0.346)	0.848 (0.328)	0.874 (0.343)
Living separate at baseline, together at year 1 ^		0.749	0.753	0.740
		0.964	0.967	0.970
Mother completed HS/GED only ^^		0.841 (0.231)	0.860 (0.242)	0.969 (0.279)
Mother has at least some college ^^		0.447 *** (0.130)	0.438 *** (0.130)	0.508 ** (0.155)
Household income-to-need ratio		0.892 ** (0.043)	0.888 ** (0.043)	0.884 ** (0.044)
Mother is not US born		0.335 (0.256)	0.341 (0.261)	0.371 (0.284)
Mother reported living with both parents at age 15		0.875 (0.187)	0.891 (0.192)	0.858 (0.188)
Mother worked in past 2 weeks		1.355	1.414	1.394
		0.335	0.341	0.371
Number of other adults in household at year 1		0.985 (0.126)	0.985 (0.127)	1.032 (0.136)
Mother reported drugs, moderate/heavy alcohol, or cigarettes during pregnancy			0.818 (0.194)	0.810 (0.196)
Mother reported at least some IPV before child's birth			2.108* (0.946)	1.769 (0.808)
Birth father supportive during pregnancy			1.011 (0.074)	1.039 (0.079)
Late starting or no prenatal care			1.409 (0.406)	1.454 (0.426)
Parental stress reported at Year 1				0.868 *** (0.041)
Mother reported emotional child temperament at Year 1				1.089 ** (0.042)
Some indication of maternal depression or general anxiety disorder at Year 1				0.938 (0.254)
Constant	0.016 *** (0.007)	0.073 *** (0.060)	0.063 ** (0.077)	0.079* (0.109)
Pseudo R ²	0.067	0.136	0.142	0.165
Observations	812	812	812	812

Notes: Estimates from logistic regression models, with standard errors in parentheses.

p<0.01,**
p<0.05,*
p<0.10^
Omitted category is 'Married at both baseline line and Year 1'.

^{^^} Omitted category is 'Mother did not complete high school'.

Table 4

Predictors of Spanking at Year 1 by Hispanic Mothers

VARIABLES	(1) odds ratio	(2) odds ratio	(3) odds ratio	(4) odds ratio
Child is a girl	0.889 (0.166)	0.883 (0.170)	0.820 (0.160)	0.819 (0.161)
Child's age (months)	1.156*** (0.035)	1.177*** (0.038)	1.175*** (0.038)	1.169*** (0.038)
Interviewed in last quartile for city	1.108 (0.240)	1.044 (0.232)	1.044 (0.234)	1.026 (0.231)
Child is low birth weight	0.771 (0.310)	0.773 (0.322)	0.738 (0.313)	0.715 (0.306)
Child is first born	2.345*** (0.441)	2.190*** (0.474)	2.236*** (0.490)	2.394*** (0.533)
Mother's age at birth (years)		0.961* (0.021)	0.958* (0.021)	0.958* (0.021)
Cohabiting at baseline & married or cohabiting at year 1 ^		0.871 (0.255)	0.937 (0.277)	0.922 (0.275)
Not living together at baseline or year 1 ^		0.800 (0.256)	0.691 (0.228)	0.677 (0.227)
Living together at baseline, not at year 1 ^		1.023 (0.374)	0.991 (0.367)	0.970 (0.362)
Living separate at baseline, together at year 1 ^		1.324 (0.498)	1.267 (0.479)	1.246 (0.477)
Mother completed HS/GED only ^^		0.912 (0.223)	0.920 (0.228)	0.949 (0.238)
Mother has at least some college ^^		0.758 (0.200)	0.751 (0.200)	0.785 (0.212)
Household income-to-needs ratio		0.922 (0.059)	0.923 (0.060)	0.928 (0.061)
Mother is not US born		0.485*** (0.121)	0.501*** (0.127)	0.514*** (0.132)
Mother reported living with both parents at age 15		1.108 (0.221)	1.126 (0.226)	1.101 (0.223)
Mother worked in past 2 weeks		1.414* (0.283)	1.444* (0.293)	1.449* (0.297)
Number of other adults in household at year 1		1.080 (0.099)	1.070 (0.099)	1.057 (0.098)
Mother reported drugs, moderate/heavy alcohol, or cigarettes during pregnancy			1.078 (0.311)	1.061 (0.310)
Mother reported at least some IPV before child's birth			0.505* (0.205)	0.474* (0.194)
Birth father supportive during pregnancy			0.836*** (0.054)	0.845*** (0.055)
Late starting or no prenatal care			1.127 (0.265)	1.113 (0.265)
Parental stress reported at year 1				0.969 (0.035)
Mother reported emotional child temperament at year 1				1.075** (0.034)
Some indication of maternal depression general anxiety disorder at year 1				1.308 (0.349)
Constant	0.018*** (0.008)	0.042*** (0.034)	0.316 (0.343)	0.221 (0.270)
Pseudo R ²	0.065	0.103	0.115	0.127
Observations	853	853	853	853

Notes: Estimates from logistic regression models, with standard errors in parentheses.

p<0.01,

**
p<0.05,

*
p<0.10

^
Omitted category is 'Married at both baseline line and Year 1'.

^^
Omitted category is 'Mother did not complete high school'.