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Hugs, Not Hits: Warmth and Spanking as Predictors of Child Social Competence

Many parents believe that spanking is an effective way to promote children's positive behavior, yet few studies have examined spanking and the development of social competence. Using information from 3,279 families with young children who participated in a longitudinal study of urban families, this study tested competing hypotheses regarding whether maternal spanking or maternal warmth predicted increased social competence and decreased child aggression over time and which parent behavior was a stronger predictor of these changes. The frequency of maternal spanking was unrelated to maternal warmth. Findings from cross-lagged path models indicated that spanking was not associated with children's social competence, but spanking predicted increases in child aggression. Conversely, maternal warmth predicted children's greater social competence but was not associated with aggression. Warmth was a significantly stronger predictor of children's social competence than spanking, suggesting that warmth may be a more effective way to promote children's social competence than spanking.

Decades of research have found links between parents' use of spanking, or "the use of physical force with the intention of causing a child to experience pain, but not injury, for the purpose of correcting or controlling a child's behavior" (Donnelly & Straus, 2005, p. 3), and an increased likelihood of negative outcomes for children (Ferguson, 2013; Gershoff, 2002). The child outcomes most often linked with spanking are aggression and antisocial behavior, and several large, longitudinal studies have now linked early spanking with increases in children's aggression or antisocial behavior over time, including from age 1 to age 2 in the Early Head Start Research and Evaluation Project (Berlin et al., 2009); from age 1 to ages 3, 5, and 9 in several studies using the Fragile Families and Child Wellbeing Study (FFCWS; Gromoske & Maguire-Jack, 2012; Lee, Altschul, & Gershoff, 2013, 2015; MacKenzie, Nicklas, Waldfogel, & Brooks-Gunn, 2013; Maguire-Jack, Gromoske, & Berger, 2012); from kindergarten to third grade in the Early Childhood Longitudinal Study, Kindergarten Cohort 1998–1999 (ECLS-K; Gershoff, Lansford, Sexton, Davis-Kean, & Sameroff, 2012); and

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from kindergarten to middle school in the Child Development Project and the Pitt Mother–Child Project (Lansford et al., 2011). Spanking is thought to increase antisocial behavior because it models aggression (Bandura, 1973), interferes with internal attributions for appropriate behavior, and does not teach children why their behavior was wrong or what alternative behaviors are appropriate (Gershoff, 2013). The consistency of findings has led professional organizations, such as the American Academy of Pediatrics (1998) and the American Academy of Child and Adolescent Psychiatry (2012), to recommend that parents avoid spanking their children in favor of other forms of discipline.

Despite the negative child outcomes associated with spanking, some academics have defended spanking as an effective means of discipline (Baumrind, Larzelere, & Cowan, 2002; Larzelere & Kuhn, 2005), and a significant proportion of U.S. parents regularly use spanking to discipline children. One FFCWS study showed that about one third of children are spanked as infants (Maguire-Jack et al., 2012), similar to the rate of spanking of 1-year-olds observed in a nationally representative sample of parents (Straus & Stewart, 1999). Use of spanking increases as children age. One study of nearly 3,000 mothers in North Carolina showed that 70% of mothers self-reported that they had spanked their 2-year-old children (Zolotor, Robinson, Runyan, Barr, & Murphy, 2011). In another FFCWS study that examined spanking by mothers and fathers, 44% of 3-year-olds had been spanked two times or more in the past month (Lee, Taylor, Altschul, & Rice, 2013). Spanking peaks at about age 3 (Holden, Coleman, & Schmidt, 1995), and by age 10 more than 80% of children have been spanked at least once by a parent (Straus & Stewart, 1999; Vittrup & Holden, 2010).

Why do parents persist in spanking when the advice of both researchers and practitioners converges on the conclusion that it is potentially harmful to children? One key reason is that parents believe spanking is an effective means of promoting better behavior in their children. In one large study, 25% of respondents endorsed the belief that spanking improved child behavior, and 22% indicated that other forms of discipline were not as effective as spanking (Taylor, Al-Hiyari, Lee, Priebe, & Guerrero, 2015). Parents' agreement with social norms that endorse the use of spanking is another strong predictor of spanking behavior (Taylor, Hamvas, Rice, Newman, & DeJong, 2011) and, as a result, social norms and beliefs that spanking is effective often trump science. In particular, parents who spank their children believe it is effective in promoting desirable child behavior, such as social competence (Vittrup & Holden, 2010).

How might spanking promote children's social competence? Spanking is a form of punishment that associates a negative stimulus (e.g., physical pain) with an undesirable behavior in order to reduce its recurrence (Hineline & Rosales-Ruiz, 2012). If parents accompany the spanking with a message about what socially competent behavior they would like to see instead (e.g., taking turns with a sibling's toy), spanking may make the child's positive behavior more likely. Given that most parents have the goal of increasing their children's social competence through parental discipline, whether spanking predicts social competence is an important question for research.

The majority of research on spanking has focused on undesirable child outcomes such as aggression or antisocial behavior (Gershoff, 2002). Little attention has been paid to whether spanking promotes desirable child behaviors and, if so, whether use of spanking accomplishes this better than, or at least equally well as, other parenting behaviors. In this study we sought to address this gap by comparing spanking and maternal warmth as predictors of change in both child aggression and child social competence.

We chose to contrast spanking as a predictor of child behavior with maternal warmth because theories of parenting have long argued that warmth promotes positive child development but physically controlling behavior does not (Maccoby & Martin, 1983). Maternal warmth includes behaviors such as affection, positive reinforcement, and verbal responsiveness to the child (Rohner, 2004), and these behaviors were selected for comparison with spanking given prior research findings showing that warmth promotes the creation of trust and reciprocity between parents and children and the development of children's social competence (Darling & Steinberg, 1993; Grolnick & Farkas, 2002; Maccoby & Martin, 1983; Parpal & Maccoby, 1985). This sense of shared trust is thought to promote children's prosocial behavior because of children's desire to reciprocate with their parent. Indeed, maternal warmth has been associated with fewer oppositional child

behaviors (Stormshak, Bierman, McMahon, & Lengua, 2000), better child self-regulation, and fewer child behavior problems (Eiden, Edwards, & Leonard, 2007).

Although studies suggest that maternal warmth is associated with children's prosocial behavior and that spanking is linked with child aggression, we are aware of no recent studies that have examined the extent to which spanking is associated with children's social competence. This is an important question, for several reasons. First, many theories of child development highlight the parents' role in promoting children's social development. These socialization processes are a key component in the development of early prosocial behavior (Eisenberg, Fabes, & Spinrad, 2006). For example, research shows that parents' use of *inductive reasoning*, defined as "verbal instructions or reasons for requiring the child to change his or her behavior" (Hoffman, 1983), is linked to children's greater prosocial behavior (reviewed in Eisenberg et al., 2006). Although spanking may be seen in contrast to the use of inductive reasoning as an approach to obtain child compliance, parents often cite the desire to promote child prosocial behavior as a reason for using spanking. We are aware of no prior studies that have specifically examined both spanking and warmth as predictors of child prosocial behavior or that have compared whether either parent behavior is more effective at promoting social competence than the other.

Importantly, parental warmth and use of physical discipline are orthogonal, and many parents use both behaviors. In an international study of parents, parental warmth and physically controlling behaviors were either not significantly correlated or were positively correlated (Deater-Deckard et al., 2011). Similarly, in the FFCWS, mothers high in warmth were slightly less likely to report having spanked when their children were 1 year of age, but maternal warmth was unrelated to maternal spanking when children were 3 and 5 years of age (Lee, Altschul, & Gershoff, 2013). Furthermore, children who were spanked had higher levels of aggressive behavior, even when their mothers were high in warmth (Lee, Altschul, & Gershoff, 2013). This research underscores the importance of examining warmth and spanking simultaneously in order to parse out the relative contributions of both behaviors to children's aggressive and prosocial behavior.

The Current Study

Although the main focus of our study was on predicting children's social competence, because past literature on spanking has emphasized its connections to aggression (Gershoff, 2002; Gershoff et al., 2010), we first hypothesized that (1) spanking would predict increases in child aggression over time. We then predicted that (2) maternal warmth would predict decreases in child aggression over time. Conversely, we predicted that (3) maternal warmth would predict increases, and (4) spanking would predict decreases in children's social competence over time. Given these countervailing predictions, we questioned whether these aspects of parenting would cancel each other out or whether one parenting behavior might have a stronger influence on each of the child outcomes than the other. To evaluate these hypotheses, we used data from the FFCWS to test a series of nested path models that stepped in key predictive pathways corresponding to the four hypotheses above to isolate the independent contributions of each. Path models within a structural equation modeling framework are advantageous in that they allow the prediction of multiple outcomes simultaneously while accounting for correlations between exogenous and endogenous variables, thus enabling us to identify the extent to which each parenting behavior predicted two distinct child outcomes while accounting for the interrelated nature of variables associated with parent and child interactions. In the current study we focused on parent and child interactions in early childhood because spanking is most common between the ages of 1 and 5 (Holden et al., 1995; Straus & Stewart, 1999).

In our models, we controlled for a number of demographic factors linked to spanking and to child behaviors. Research using both the FFCWS and the Early Head Start Evaluation data has shown that African American mothers were more likely to spank their children and were more likely to begin spanking when children were younger (Berlin et al., 2009; MacKenzie, Nicklas, Brooks-Gunn, & Waldfogel, 2011). Lower education and younger age of parent are also linked to greater use of spanking by mothers (Taylor, Manganello, Lee, & Rice, 2010; Zolotor et al., 2011) and fathers (Lee, Perron, Taylor, & Guterman, 2011). Furthermore, numerous studies also indicate that maternal psychosocial characteristics, such as parenting stress (Taylor, Manganello, et al., 2010),

depression (Berlin et al., 2009; Chung, McCollum, Elo, Lee, & Culhane, 2004), heavy alcohol use (Miller, Smyth, & Mudar, 1999), intimate partner violence (IPV; Taylor, Lee, Guterman, & Rice, 2010), and maternal verbal abilities (e.g., MacKenzie et al., 2013) are associated with spanking as well as children's behavioral outcomes; thus, these factors are additional potential confounds in the associations tested in the current study and were included as control variables.

Method

Participants

The FFCWS is a longitudinal study of urban families from 20 large U.S. cities ($N = 4{,}898$) that intentionally oversampled nonmarital births. The name *fragile families* derives from the fact that children born to non-married parents are more likely than children of married parents to experience poverty and parental relationship instability. FFCWS participants were recruited at baseline (birth of study child) from urban hospitals between 1998 and 2000. The institutional review boards at Columbia University and Princeton University approved all participant recruitment procedures. Detailed descriptions of recruitment procedures and sampling design are available elsewhere (Reichman, Teitler, Garfinkel, & McLanahan, 2001). Data used in the current study were collected at four time points: (a) when children were newborns (baseline, or Wave 1), (b) one year old (Wave 2), (c) three years old (Wave 3), and (d) five years old (Wave 4). Mothers who completed the core interviews when children were age 3 were invited to participate in an add-on study called the *In-Home Longitudinal Study of Pre-School Aged Children*, which collected measures of maternal warmth and child behavioral assessments (age 3, $n = 3{,}288$; age 5, $n = 3{,}024$). Our analyses focused on data from 3,279 mothers who participated in both the 3-year core interview and the In-Home study and for whom data on race and ethnicity were available.

In this sample of mothers recruited from hospitals in urban centers across the United State a majority were not married, a majority were Black or Hispanic, and a majority had a high school degree or less; at child's birth, mean maternal age was 25 years ($SD = 6.05$) and mean household income was \$31,747 ($SD = \$31{,}054$).

Table 1. *Sample Characteristics*

Variable	Full sample ($N = 3{,}279$) *n* (%) or *M* (*SD*)
Child characteristics	
Child emotionality age 1 (range: 1–5)[a]	2.83 (1.06)
Child (poor) health age 3 (range: 1–5)[a]	1.54 (0.78)
Child sex (male)	1,718 (52.4%)
Maternal parenting risk factors	
Parenting stress (range: 1–5)[a]	2.10 (0.72)
Major depression (yes)	710 (21.7%)
Heavy alcohol use (yes)	380 (11.6%)
Intimate partner violence (yes)	980 (29.9%)
Verbal ability (PPVT or TVIP; range 40–160)	89.9 (13.1)
Maternal demographic characteristics	
Maternal age at child's birth (range: 14–47 years)	25.13 (6.05)
Race/ethnicity	
White	714 (21.8%)
Black	1,604 (48.9%)
Hispanic	845 (25.8%)
Other race	116 (3.5%)
Education level	
Less than high school	1,114 (34.0%)
High school degree or equivalent	995 (30.3%)
Some college/tech school	816 (24.9%)
College or higher	350 (10.7%)
Relationship status	
Married	801 (24.4%)
Cohabiting	1195 (36.4%)
Not married or cohabiting	1,283 (39.1%)
Household income (range: 0–\$133,750)	\$31,747 (\$31,054)

Note. PPVT = Peabody Picture Vocabulary Test; TVIP = Test de Vocabulario en Imágenes Peabody.
[a]Higher values indicate higher levels of the construct.

The sample included substantial variability on these five demographic variables. Sample characteristics are presented in Table 1.

Key Measures

Maternal spanking. The core FFCWS surveys assessed mothers' use of spanking with a combined score from two questions that asked (a) whether the mother had spanked the child in the past month when the child was misbehaving and, if so, (b) the frequency of spanking in the

past month (once or twice, a few times this past month, a few times a week, or every day or nearly every day). A response of *no spanking in the past month* was coded as 0, *1–2 times* coded as 1, and *more than 2 times* was coded as 2. This scoring procedure truncates the positively skewed distribution and decreases the influence of extreme scores, yet it preserves the distinction between no spanking, infrequent spanking, and more frequent use of spanking. This scoring procedure is also consistent with previously published studies using FFCWS data (e.g., Taylor, Manganello, et al., 2010). In our analyses, we included spanking measured at age 3 and age 5.

Maternal warmth was based on observer ratings using the warmth subscale of the Home Observation for Measurement of the Environment Inventory (HOME; Caldwell & Bradley, 1984)**.** Trained observers assessed each mother's warmth in interactions with her child during the In-Home interviews when the child was age 3 and again when he or she was age 5. The measure of warmth used at age 3 is the average of seven items indicating whether the mother did any of the following (0 = no, 1 = yes) as observed by the interviewer: spontaneously vocalized to the child twice, responded verbally to the child's vocalization, told the child the name of the object or a person during visit, spontaneously praised the child at least twice, verbally conveyed positive feelings toward the child, caressed or kissed child at least once. or responded positively when interviewer praised child ($\alpha = .77$). The measure of warmth used at age 5 is the average of nine items indicating whether the mother did any of the following (0 = no, 1 = yes) as observed by the interviewer: talked twice to the child during the visit; verbally answered the child's questions or requests; encouraged the child to contribute to conversation during the visit; helped the child demonstrate achievement or skill; spontaneously praised the child's behavior or qualities twice during the visit; used some form of endearment or a diminutive of the child's name; verbally conveyed positive feeling when speaking to the child; caressed, kissed, or cuddled the child; responded positively when interviewer praised the child ($\alpha = .81$). The use of observer ratings of maternal warmth reduced the potential for method or shared rater bias, which could be introduced if the study relied only on maternal self-report of maternal warmth.

Child aggressive behavior was measured using the Child Behavior Checklist 1 1/2–5 (CBCL; Achenbach & Rescorla, 2000) when children were 3 years and 5 years of age, administer during the In-Home assessment. At age 3, mothers' assessments of child aggression were based on responses to 19 statements ($\alpha = .87$; 0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*) such as: "(He/she) is defiant," "(He/she) is easily frustrated," and "(He/she) is disobedient." At age 5, the Aggression subscale consisted of 20 items ($\alpha = .85$), measured on the same scale as above. The items administered at age 3 and age 5 were largely the same, with some modifications to reflect developmental changes, for example, "showing off or clowning around" and "is easily jealous" were added at age 5, whereas "can't wait turn" and "selfish/won't share" were dropped. An average score was used for analyses, with higher numbers indicating greater aggressive behavior.

Child social competence. Children's social competence was assessed using the Adaptive Social Behavior Inventory—Express subscale (ASBI; Hogan, Scott, & Bauer, 1992). Mothers reported the extent to which certain behaviors were true for their children (0 = "not true," 1 = "somewhat or sometimes true," 2 = "very true or often true"). The Age 3 Social Competence scale included nine items: (a) understands others' feelings; (b) is sympathetic to other children's distress; (c) is open and direct about what he/she wants; (d) will join a group of children playing; (e) plays games and talks with other children; (f) is confident with other people; (g) tends to be proud of things he/she does; (h) is interested in many and different things; and (i) enjoys talking with you ($\alpha = .73$). When children were age 5, in addition to the nine items listed above, four items were added: (j) can easily get other children to pay attention to him/her; (k) asks or wants to go play with other children; (l) says "please" and "thank you" when reminded; and a reverse-coded item, (m) tends to just watch others when in social activity ($\alpha = .80$).

Control Variables

Maternal psychosocial risk factors. Our analyses included five maternal psychosocial risk factors, all assessed when children were age 3, as control variables: (a) parenting stress, (b) depression, (c) alcohol use, (d) IPV, and (e) verbal ability. Prior research has shown that these

factors are associated with spanking as well as children's behavioral outcomes; thus, they are potential confounds in the associations tested in the current study. *Parenting stress* was measured using a composite of all parent stress items in the In-Home component of FFCWS (2008). Mothers indicated their agreement (1 = *strongly agree* to 4 = *strongly disagree*) with 9 items, including "Being a parent is harder than I thought it would be" and "I feel trapped by my responsibilities as a parent" ($\alpha = .87$). A mean score of items was used to indicate parenting stress. *Maternal depression* was assessed with the Composite International Diagnostic Interview—Short Form (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998), which determines the probability that the respondent would be diagnosed with major depression if given the full Composite International Diagnostic Interview (yes = 1, no = 0). Major depression was indicated by feelings of depression or anhedonia experienced for most of the day, every day, for at least 2 weeks. Participants were classified as likely to have major depression if they endorsed the screening items and three or more depressive symptoms (e.g., losing interest, feeling tired, change in weight; no = 0, yes = 1). *Maternal heavy alcohol use* was determined using the National Institute on Alcohol and Alcoholism's (2005) definition of a heavy drinking day for women, indicated by four or more drinks in a single day. Heavy alcohol use in the past 12 months was coded 1; three or fewer drinks in a single day in the past 12 months coded 0. Whether mothers experienced *IPV* was determined using three items from the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), which assesses physical aggression (e.g., "He slaps or kicks you"), and four items adapted from the Spouse Observation Checklist (Lloyd, 1996; Weiss & Margolin, 1977), which assesses psychological aggression (e.g., "He tries to keep you from seeing or talking with your friends or family"). This variable was dichotomized for analysis (any = 1, none = 0). *Maternal verbal ability* was assessed using the Peabody Picture Vocabulary Test—III (Dunn & Dunn, 1997) or its Spanish version, Test de Vocabulario en Imágenes Peabody (Dunn, Padilla, Luge, & Dunn, 1986).

Socioeconomic and demographic characteristics were assessed when children were born, and these variables were included as covariates in all models: maternal age, maternal race or ethnicity (Black, White, Hispanic, and other), maternal relationship status (married = 1, cohabiting = 2, not married or cohabiting = 3), maternal education level (less than high school = 1, high school degree or equivalent = 2, some college/technical school = 3, college or higher = 4), and household income. We used a constructed household income variable. If mothers did not report a household income and the mother and father were either married or cohabiting, the constructed variable used fathers' report of total household income. If neither parent responded to the household-income question or if the mother indicated that she and father were neither married nor cohabiting, household income was imputed by the FFCWS team using a regression imputation framework in Stata that included numerous covariates (Fragile Families and Child Wellbeing Study, 2006).

Child characteristics. Control variables for child characteristics included sex (boy = 1, girl = 0) and child emotionality at age 1, which was assessed with three items (child fusses and cries, gets upset easily, and reacts strongly when upset; $\alpha = .60$) from the Emotionality, Activity, and Sociability Temperament Survey for Children (Mathieson & Tambs, 1999). Mothers' responses were measured on a scale that ranged from *not at all* (1) to *very much* (5). Maternal report of the child's health at age 3 (1 = "excellent," 2 = "very good," 3 = "good," 4 = "fair," 5 = "poor") was also included as a control.

Statistical Analyses

Within- and across-time associations between maternal and child behaviors were assessed using nested, cross-lagged path models estimated in Mplus 7.3 (Muthén & Muthén, 1998–2014). A correlation matrix of all study variables used in the path models is presented in Table 2. Nested models incrementally assessed each of the four hypotheses, with subsequent models testing the significance of each added relationship; the final model assessed all four relationships simultaneously. We used this approach to assess each hypothesized relationship both in terms of whether each relationship was statistically significant as well as whether each relationship contributed significantly to the overall fit of the model to the data. We began by testing the relationship between

Table 2. *Study Variables Correlation Matrix*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Child social competence age 3	—																							
2. Child social competence age 5	.351**	—																						
3. Child aggression age 3	−.075**	−.090**	—																					
4. Child aggression age 5	−.063**	−.017	.559**	—																				
5. Maternal spanking age 3	.020	.023	.192**	.178**	—																			
6. Maternal spanking age 5	.027	.021	.204**	.235**	.466**	—																		
7. Maternal warmth age 3	.213**	.171**	−.136**	−.085**	.007	−.034	—																	
8. Maternal warmth age 5	.104**	.168**	−.082**	−.119**	−.011	−.035	.198**	—																
9. Child emotionality age 1	−.066**	−.067**	.296**	.260**	.091**	.079**	−.075**	−.053*	—															
10. Child sex (male)	−.064**	−.073**	.067**	.050*	.056**	.065**	−.030	−.056*	.031	—														
11. Child health	−.133**	−.180**	.130**	.124**	.005	.001	−.088**	−.075**	.116**	.071**	—													
12. Parenting stress	−.173**	−.180**	.345**	.256**	.126**	.083**	−.110**	−.134**	.164**	.026	.182**	—												
13. Major depression	−.033	−.025	.184**	.164**	.098**	.069**	−.038	−.062**	.091**	.006	.068**	.257**	—											
14. Heavy alcohol use	.053**	.054**	.043*	.038	.073**	.028	.049*	.047*	.013	.005	.021	.037*	.103**	—										
15. IPV	.023	.009	.092**	.063**	.087**	.025	.049*	.018	.042*	−.058**	.029	.078**	.060**	.073**	—									
16. Maternal age	.038*	−.021	−.097**	−.114**	−.108**	−.140**	.107**	.149**	−.089**	−.013	.015	−.055**	−.044*	−.045**	.110**	—								
17. Relationship status	−.089**	−.062**	.115**	.156**	.039*	.061**	−.130**	−.167**	.102**	.009	.045*	.144**	.056**	−.019	−.189**	−.340**	—							
18. Race/ethnicity: White	.117**	.115**	−.031	−.029	.025	−.005	.188**	.165**	−.121**	.004	−.086**	−.082**	−.008	.142**	.051**	.182**	−.306**	—						
19. Race/ethnicity: Black	−.060**	−.032	.034	.038	.091**	.122**	−.200**	−.166**	.104**	.003	−.020	.038*	.059**	−.118**	−.134**	−.145**	.342**	−.516**	—					
20. Race/ethnicity: Hispanic	−.045*	−.078**	−.015	−.015	−.123**	−.123**	.043*	.044	.009	−.015	.109**	.019	−.059**	.011	.063**	−.026	−.062**	−.311**	−.577**	—				
21. Race/ethnicity: Other	.002	.011	.013	−.002	−.013	−.030	.043*	−.013	−.029	.017	−.012	.035*	−.001	−.023	.098**	.048**	−.097**	−.101**	−.187**	−.113**	—			
22. Household income	.151**	.148**	−.111**	−.135**	.000	−.047**	.158**	.139**	−.114**	−.023	−.118**	−.146**	−.083**	.097**	.118**	.310**	−.415**	.326**	−.237**	−.073**	.084**	—		
23. Maternal education	.192**	.163**	−.120**	−.148**	.037*	−.003	.220**	.188**	−.155**	.009	−.129**	−.184**	−.058**	.046**	.077**	.397**	−.344**	.295**	−.107**	−.200**	.104**	.480**	—	
24. Maternal verbal	.227**	.210**	−.070**	−.073**	.059**	.020	.222**	.181**	−.090**	−.030	−.068**	−.175**	.002	.133**	.064**	.122**	−.242**	.342**	−.258**	−.019	.010	.325**	.416**	—

Note. Correlations were calculated as Pearson correlation coefficients with pairwise deletion. IPV = intimate partner violence.

*$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

maternal spanking and child aggression, which has already been confirmed in prior studies, specifically (1) assessing whether more frequent maternal spanking would predict increases in child aggression over time. We then examined the hypothesis that (2) higher maternal warmth would predict decreases in child aggression over time and that (3) higher maternal warmth would predict increases in children's social competence over time and (4) more frequent maternal spanking would predict decreases in children's social competence over time.

Throughout the analytic models, every key variable was regressed onto all control variables. The inclusion of Age 3 measures of child behaviors as predictors of the Age 5 measures means that the Age 5 dependent variables are indices of residualized change over the period from age 3 to age 5. Use of residualized change indices represents a more rigorous assessment of the relationships between predictors and dependent variables than regression between these variables without controls for earlier levels of each outcome. We included maternal warmth and spanking at age 5 (controlled for earlier levels of each maternal behavior) as covariates of all Age 5 variables.

Model fit was evaluated using chi-square along with the comparative fit index (CFI) and root-mean-square error of approximation (RMSEA) following recommendations by Kline (2011). CFI values of .95 or above and RMSEA values of .06 or above are generally accepted as demonstrating good fit (Hu & Bentler, 1999). The relative contribution of each added relationship to overall model fit was evaluated using the chi-square difference test calculated using the DIFFTEST option in MPlus. We used the CLUSTER option in MPlus to adjust standard errors for the clustering of respondents by city.

Across all control variables, data were missing in $< 1\%$ of cases, with the exception of maternal verbal skills, which were missing in 25% of cases. Data for mothers' spanking at age 3 and age 5 were missing in $< 1\%$ and 6.8% of cases, respectively. Data for maternal warmth were missing in 36% of cases at age 3. This is due to the fact that maternal warmth was assessed by interviewer observation using the HOME scale, and in a number of cases ($n = 692$) the interview was conducted over the phone; thus, observational assessments were not possible (see http://www.fragilefamilies.princeton.edu/documentation.asp). Data for child aggression were missing in $< 2\%$ and 25% of cases for age 3 and age 5 respectively. Because the In-Home Assessment at age 5 was conducted 5 years following baseline, there was significant attrition in the sample. Thus, we used full information maximum likelihood estimation in Mplus to account for all cases and missing data patterns in our analyses. Full information maximum likelihood is a preferred method of model estimation with missing data (Allison, 2003), and estimating models with missing data is preferable to listwise deletion when data do not appear to be missing completely at random (Allison, 2003; Graham, 2009). Standardized regression coefficients, or betas, are presented throughout; these may be interpreted as indicators of relative effect sizes.

Results

Maternal spanking was a common parenting practice in the study sample. More than half of the mothers (53%) reported using spanking at least once or twice a month with their 3-year-old children (see Table 3), a rate that is similar to those reported in other national samples (Berlin et al., 2009; Straus & Stewart, 1999) and lower than the rate of spanking (64%) of children age 23–27 months reported among a representative sample of mothers in North Carolina (Zolotor et al., 2011). At the same time, the levels of maternal warmth observed in mother–child interactions were generally high in this sample (on a scale ranging from 0 to 1, $M = .85$, $SD = .23$). Maternal spanking and maternal warmth were not significantly correlated in either bivariate analyses (Spearman's $r = .003$, *ns*) or in the fully controlled models (see Figure 1).

Maternal Behaviors Predicting Change in Aggression

To test our four hypotheses, we fit a successively complex series of models. We began with a baseline path model in which mothers' spanking and mothers' warmth, along with child aggression and child social competence, were all correlated with each other within the same time point, when children were 3 and 5 years of age. Age 5 variables were autoregressed on their Age 3 counterparts. All relationships in the model were controlled for: children's temperament, health, and sex; mothers' parenting stress, depression,

Table 3. *Descriptive Statistics for Maternal Parenting Behaviors and Child Behaviors* (N = *3,279)*

Variable	Full sample *n* (%) or *M* (*SD*)
Child behaviors	
Child social competence at age 3 years (range: 0–2.00)	1.71 (0.29)
Child social competence at age 5 years (range: 0–2.00)	1.69 (0.28)
Child aggression at age 3 years (range: 0–1.95)	0.62 (0.36)
Child aggression at age 5 years (range: 0–1.80)	0.54 (0.32)
Maternal parenting behaviors	
Maternal warmth at age 3 years (range: 0–1)	.85 (.23)
Maternal warmth at age 5 years (range: 0–1)	.77 (.26)
Maternal spanking in the last month at age 3 years	
Not spanked in last month	1518 (46.3%)
Once or twice in last month	895 (27.3%)
A few times to nearly every day in the past month	854 (26.0%)
Maternal spanking in the last month at age 5 years	
Not spanked in last month	1581 (48.2%)
Once or twice in last month	936 (28.5%)
A few times to nearly every day in the past month	539 (16.4%)

alcohol use, IPV, race, age, education, verbal skills, relationship status, and income. In addition, paths from child behaviors to maternal behaviors were included in the baseline model. Please see Table 4 for model fit statistics.

To test our first hypothesis regarding the effects of mothers' spanking on changes in child aggression, we added a path to our baseline model from spanking at age 3 to child aggression at age 5 (which represents residualized change from age 3 to age 5). This model provides a significant improvement in fit over the baseline model, $\Delta\chi^2(1) = 13.35$, $p < .001$ (see Table 4) and indicated that mothers' spanking at age 3 was a significant predictor of change in children's aggression between ages 3 and 5 ($\beta = .07$, $p < .001$), as has been found in previous studies with these data (Maguire-Jack et al., 2012).

In the second nested model a path was added from maternal warmth at age 3 to change in aggression between ages 3 and 5 to test our second hypothesis. Maternal warmth was not a significant predictor of change in child aggression ($\beta = .01$, $p = .61$). The fit of this model was not substantially different from that of the previous model, $\Delta\chi^2(1) = 0.27$, $p = .61$. Thus, we can conclude that maternal warmth did not add to the prediction of change in children's aggression over time, over and above the association of maternal spanking with an increase in children's aggression.

Predictors of Change in Social Competence

In the third and fourth nested models we assessed whether maternal warmth or maternal spanking predicted change in children's social competence. In Model 3, a path was added from maternal warmth when children were 3 years old to change in children's social competence from 3 to 5 years of age. This pathway was significant ($\beta = .08$, $p < .001$) and yielded a significant improvement in the fit of the model to the data, $\Delta\chi^2(1) = 13.85$, $p < .001$.

The fourth and final model included the addition of a path from maternal spanking at age 3 to change in social competence between ages 3 and 5. This path was not significant ($\beta = .01$, $p = .61$), and the fit of this model did not differ substantially from the fit of the previous model, $\Delta\chi^2(1) = 0.25$, $p = .62$.

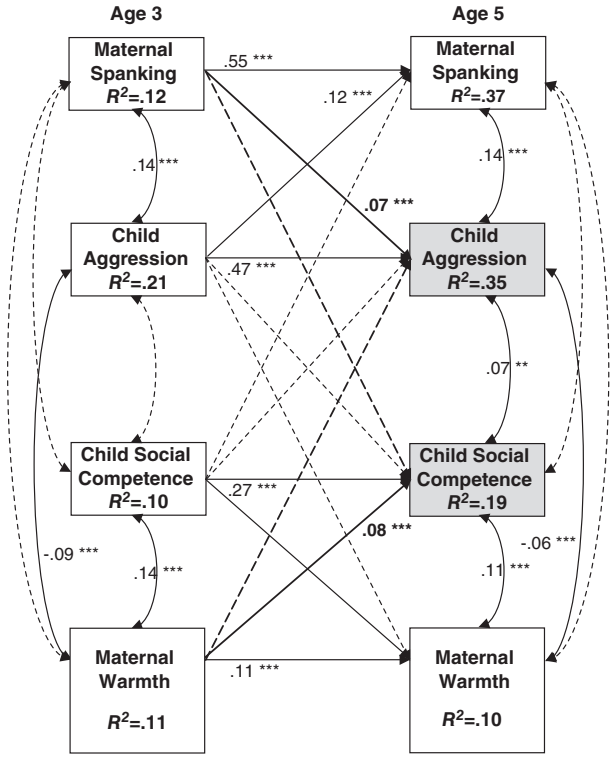
Child Effects on Parenting Behavior

Our cross-lag models included pathways from child aggression and child social competence at age 3 to maternal spanking and maternal warmth at age 5. Child aggression at age 3 was found to predict an increase in maternal spanking from age 3 to age 5 ($\beta = .12$, $p < .001$) but was not significantly associated with change in maternal warmth over that same period ($\beta = -.00$, $p = .92$). Child social competence at age 3 did not predict maternal spanking or maternal warmth at age 5 ($\beta = .03$, $p = .08$, and $\beta = .02$, $p = .38$, respectively).

Summary of the Final Model

Although some of the hypothesized pathways were not statistically significant and did not improve the fit of the model, our final model included all paths so that we could evaluate the contribution of the significant paths while

Figure 1. Final Model for Maternal Parenting Behaviors (Spanking, Warmth) as Predictors of Change in Child Behaviors (Aggression, Social Competence) From Age 3 to Age 5 Years.



Note. All relationships in the above model were controlled for: child temperament, health, and sex; mothers' parenting stress, depression, alcohol use, father-to-mother intimate partner violence, race, age, education, verbal skills, relationship status, and household income. All standard errors are adjusted for clustering by city. Standardized path coefficients are presented. Boldface paths correspond to the four study hypotheses. Dotted lines indicate nonsignificant relationships. $^{**}p < .01$. $^{***}p < .001$.

controlling for other paths. This final model is presented in Figure 1; all coefficients from this model are presented in Table 5. When all pathways are considered, maternal spanking at age 3 remains a significant predictor of increase in child aggression from ages 3 to 5, but it was not a significant predictor of change in child social competence across the same period. The opposite was found for maternal warmth: Although maternal warmth did not predict change in aggression, warmth did predict an increase in social competence from ages 3 to 5. Overall, the final model did a better job predicting the variance in child aggression (35%) than the variance in child social competence (19%), indicating that much of the change in social competence is influenced by factors other than those included in the present model.

Comparison of Pathways Between Maternal Behaviors and Child Outcomes

Although maternal warmth, but not spanking, was a significant predictor of children's social competence, and the reverse was true for children's aggression, we wanted to test whether the two paths—from warmth and spanking—differed in magnitude from each other in predicting each outcome. We used the Wald test to compare the regression coefficient from maternal warmth to children's social competence ($B = .094$, $SE = .026$), with the regression coefficient from maternal spanking to children's social competence ($B = -.003$, $SE = .006$) finding that the regression coefficient from warmth was significantly larger, Wald $\chi^2(1) = 11.63$, $p < .001$. Similarly, we compared the regression coefficients from

Table 4. *Fit Statistics and Chi-Square Comparisons for Nested Path Models*

	Model fit					Comparison with previous model		
Models tested	CFI	RMSEA	χ^2	*df*	*p*	$\Delta\chi^2$	Δ *df*	*p*
Baseline model	.993	.018	31.76	15	.01			
Model 1: Maternal spanking (age 3) predicting change in child aggression (ages 3–5)	.995	.016	26.01	14	.03	13.35	1	.00
Model 2: Addition of maternal warmth (age 3) predicting change in child aggression (ages 3–5)	.995	.017	25.03	13	.02	0.27	1	.61
Model 3: Addition of maternal warmth (age 3) predicting change in social competence (ages 3–5)	.997	.014	19.83	12	.07	13.85	1	.00
Model 4: Addition of maternal spanking (age 3) predicting change in social competence (ages 3–5)	.997	.015	18.89	11	.06	0.25	1	.62

Note. CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

maternal warmth ($B = .015$, $SE = .031$) and spanking ($B = .022$, $SE = .006$) to child aggression, finding that the two coefficients were not significantly different from each other, Wald $\chi^2(1) = .049$, *ns*.

Robustness Checks of the Final Model

As noted above, we had chosen to top-code the three spanking variables in the model from five to three categories in an effort to minimize the potential effects of outliers. However, it may be that only high levels of spanking are associated with the other variables in the model, a fact that would be obscured with the top-coded variable. Thus, as a robustness check on our final model with the three-category spanking measure, we ran our accepted model with the original five-category spanking variables at each wave in order to include the full range of variability. The model fit and paths were substantively similar and led to the same conclusions as our accepted model.

Another possibility is that we did not reduce our spanking variables enough; perhaps the true difference is between parents who choose to spank at least occasionally and parents who choose never to spank. We thus ran a model in which we dichotomized the spanking variables into any spanking (1) versus none (0). As before, the model fit and the path coefficients were substantively similar to our original model. We thus concluded that our final accepted model was robust to different specifications of the spanking variables.

Our hypothesized model included only direct effects of parental spanking and warmth on change in children's behaviors over time based on past research that spanking and warmth are orthogonal (Lee, Altschul, & Gershoff, 2013). However, to confirm that these two aspects of parenting do not interact to predict changes in child behavior, we ran a separate model that included interactions between maternal warmth and spanking at age 3 as predictors of child behaviors at age 5. Although the model fit the data, CFI = .992, RMSEA = .018, $\chi^2(21) = 43.87$, $p = .002$, the interaction variables were not significant predictors of either outcome ($\beta = -.09$, $p = .69$, for aggression and $\beta = -.16$, $p = .15$, for social competence). We thus found no evidence for an interactive effect and retained our hypothesized direct-effects model as the final model.

Discussion

This study addressed the question of whether two distinct aspects of mothers' parenting behavior— spanking and warmth— differentially predicted change in young children's aggressive and socially competent behaviors over time. Our approach of examining child aggression and child social competence as simultaneous outcomes enabled us to assess

Table 5. *Path Coefficients Estimating Child Social Competence, Child Aggression, Maternal Warmth, and Maternal Spanking in the Final Model*

Regression path	B	*SE*	*β*	*p*
Child social competence at age 3 ($R^2 = .10$) ON				
Child emotionality at age 1	−.003	.005	−.011	
Child health at age 3	−.030	.005	−.081	***
Child sex (male)	−.035	.012	−.060	**
Maternal parenting stress	−.045	.006	−.110	***
Maternal depression	−.001	.009	−.003	
Maternal alcohol use	.015	.012	.055	
Interpersonal violence	.004	.008	.014	
Maternal verbal ability (maternal report)	.321	.057	.144	***
Maternal age	−.002	.001	−.034	
Maternal race (ref.: Black)				
White	−.002	.022	−.003	
Hispanic	−.008	.018	−.012	
Other	−.012	.035	−.007	
Maternal education	.028	.009	.102	**
Maternal relationship status	.004	.007	.016	
Household income	.005	.003	.043	
Child social competence at age 5 ($R^2 = .19$) ON				
Maternal warmth at age 3	.094	.026	.076	***
Maternal spanking at age 3	.003	.006	.012	
Child aggression at age 3	−.013	.016	−.017	
Child social competence at age 3	.258	.021	.269	***
Child emotionality at age 1	−.002	.005	−.009	
Child health at age 3	−.037	.005	−.101	***
Child sex (male)	−.027	.009	−.048	**
Maternal parenting stress	−.033	.006	−.084	***
Maternal depression	.004	.006	.014	
Maternal alcohol use	.012	.011	.046	
Interpersonal violence (IPV)	.000	.006	.001	
Maternal verbal ability (maternal report)	.189	.055	.089	***
Maternal age	−.003	.001	−.070	***
Maternal race (ref.: Black)				
White	−.004	.032	−.006	
Hispanic	−.031	.017	−.048	
Other	.007	.032	.004	
Maternal education	.006	.010	.024	
Maternal relationship status	.006	.008	.024	
Household income	.006	.003	.055	
Child aggression at age 3 ($R^2 = .21$) ON				
Child emotionality at age 1	.076	.005	.222	***
Child health at age 3	.020	.006	.042	***
Child sex (male)	.042	.012	.058	***
Maternal parenting stress	.122	.010	.241	***

Table 5. *continued*

Regression path	B	*SE*	*β*	*p*
Maternal depression	.039	.009	.108	***
Maternal alcohol use	.000	.009	.001	
Interpersonal violence (IPV)	.034	.007	.098	***
Maternal verbal ability (maternal report)	.018	.071	.007	
Maternal age	−.003	.001	−.048	**
Maternal race (ref.: Black)				
White	.044	.021	.050	*
Hispanic	−.004	.022	−.005	
Other	.030	.035	.015	
Maternal education	.000	.010	.000	
Maternal relationship status	.024	.007	.072	***
Household income	−.003	.004	−.021	
Child aggression at age 5 ($R^2 = .35$) ON				
Maternal warmth at age 3	.015	.031	.010	
Maternal spanking at age 3	.022	.006	.073	***
Child aggression at age 3	.419	.013	.474	***
Child social competence at age 3	.001	.024	.001	
Child emotionality at age 1	.025	.005	.082	***
Child health at age 3	.015	.008	.036	
Child sex (male)	.006	.010	.009	
Maternal parenting stress	.007	.008	.017	
Maternal depression	.018	.008	.057	*
Maternal alcohol use	−.002	.012	−.005	
Interpersonal violence (IPV)	.009	.009	.028	
Maternal verbal ability (maternal report)	−.008	.053	−.003	
Maternal age	.000	.001	−.006	
Maternal race (ref.: Black)				
White	.041	.019	.053	*
Hispanic	.010	.013	.014	
Other	.025	.032	.014	
Maternal education	−.013	.009	−.043	
Maternal relationship status	.027	.007	.092	***
Household income	−.003	.003	−.020	
Maternal warmth at age 3 ($R^2 = .11$) ON				
Child emotionality at age 1	−.003	.003	−.012	
Child health at age 3	−.014	.005	−.048	**
Child sex (male)	−.011	.009	−.024	
Maternal parenting stress	−.015	.010	−.047	
Maternal depression	−.002	.008	−.007	
Maternal alcohol use	.001	.010	.006	
Interpersonal violence	.004	.006	.018	
Maternal verbal ability	.166	.079	.096	*
Maternal age	.000	.002	.013	
Maternal race (ref.: Black)				
White	.083	.024	.149	***
Hispanic	.068	.028	.130	*
Other	.065	.022	.052	**

Table 5. *continued*

Regression path	B	*SE*	*β*	*p*
Maternal education	.034	.011	.161	**
Maternal relationship status	.006	.008	.027	
Household income	.000	.003	.002	
Maternal warmth at age 5 ($R^2 = .10$) ON				
Maternal warmth at age 3	.125	.030	.112	***
Child social competence at age 3	.016	.019	.019	
Child aggression at age 3	−.002	.019	−.003	
Child emotionality at age 1	.004	.005	.017	
Child health at age 3	−.012	.010	−.037	
Child sex (male)	−.025	.012	−.049	*
Maternal parenting stress	−.021	.010	−.058	*
Maternal depression	−.011	.010	−.042	
Maternal alcohol use	.012	.010	.050	
Interpersonal violence (IPV)	−.008	.005	−.033	
Maternal verbal ability (maternal report)	.103	.069	.053	
Maternal age	.003	.001	.069	*
Maternal race (ref.: Black)				
White	.051	.033	.082	
Hispanic	.043	.034	.074	
Other	−.018	.039	−.013	
Maternal education	.018	.013	.075	
Maternal relationship status	−.017	.008	−.075	*
Household income	−.003	.004	−.028	
Maternal spanking at age 3 ($R^2 = .12$) ON				
Child emotionality at age 1	.068	.021	.068	***
Child health at age 3	−.014	.024	−.010	
Child sex (male)	.129	.053	.061	*
Maternal parenting stress	.163	.041	.110	***
Maternal depression	.070	.047	.067	
Maternal alcohol use	.071	.041	.070	
Interpersonal violence (IPV)	.143	.035	.141	***
Maternal verbal ability (maternal report)	.398	.266	.049	
Maternal age	−.027	.004	−.154	***
Maternal race (ref.: Black)				
White	−.115	.071	−.045	
Hispanic	−.358	.088	−.147	***
Other	−.313	.130	−.054	*
Maternal education	.102	.032	.103	***
Maternal relationship status	.031	.025	.032	
Household income	.006	.010	.014	
Maternal spanking at age 5 ($R^2 = .37$) ON				
Maternal spanking at age 3	.647	.025	.545	***
Child aggression at age 3	.412	.094	.119	***
Child social competence at age 3	.131	.074	.030	
Child emotionality at age 1	−.006	.019	−.005	
Child health at age 3	−.004	.019	−.002	

Table 5. *continued*

Regression path	B	*SE*	*β*	*p*
Child sex (male)	.084	.045	.033	
Maternal parenting stress	−.026	.047	−.015	
Maternal depression	.001	.046	.001	
Maternal alcohol use	−.035	.041	−.029	
Interpersonal violence (IPV)	−.027	.032	−.023	
Maternal verbal ability (maternal report)	−.002	.146	.000	
Maternal age	−.020	.005	−.095	
Maternal race (ref.: Black)				
White	−.093	.059	−.031	
Hispanic	−.217	.054	−.075	***
Other	−.267	.107	−.039	*
Maternal education	.029	.042	.024	
Maternal relationship status	−.023	.030	−.020	
Household income	−.012	.015	−.023	

Note. ref. = reference category; IPV = intimate partner violence. $^{*}p \leq .05$. $^{**}p \leq .01$. $^{***}p \leq .001$.

whether the two aspects of parenting were similarly associated with reductions in problematic child behavior and increases in desirable behavior. We are aware of no prior studies that have used longitudinal data in the first 5 years of life to simultaneously examine the associations of spanking and maternal warmth with the development of children's prosocial and aggressive behavior over time. Thus, the current study fills an important gap in the empirical literature and addresses a core belief held by many parents who use spanking, namely, that it is an effective strategy to promote children's positive behavior—or, at a minimum, to reduce misbehavior. The results of this study do not support either of these common beliefs.

Our first hypothesis—that maternal spanking would predict increased child aggression and decreased child social competence—was partially supported. Consistent with numerous prior studies that have controlled for children's initial levels of behavior in analyses using large, diverse samples of children (Berlin et al., 2009; Gershoff et al., 2012; Lansford et al., 2011), as well as FFCWS studies (Mackenzie et al., 2013; Maguire-Jack et al., 2012), spanking was associated with increases in child aggression over time. These findings challenge the argument that associations between spanking and child aggression are solely the result of aggressive children eliciting additional punishment from their parents (Larzelere, Kuhn, & Johnson, 2004). On the contrary, by controlling for initial child aggression we determined that spanking was associated with increases in child aggression over and above children's initial levels of aggression.

We did not find support for the notion that spanking will improve children's social competence over time; spanking was not associated with changes in children's social competence over time. We speculate that spanking is more predictive of aggression while not being associated with social competence because spanking does not, in and of itself, include direct messages about socially competent behavior. At the same time, spanking does model aggression as a means of solving interpersonal conflict. Spanking might thus be a particularly strong influence when children are young and parents' actions speak louder than their words.

Our second hypothesis—that maternal warmth would predict decreases in child aggression and increases in child social competence—was partially supported. Levels of maternal warmth when the child was 3 years old were not associated with significant changes in child aggression from ages 3 to 5 years. However, mothers' demonstration of warmth was related to increases in child social competence over the same period. Thus, we found these positive parenting behaviors predicted increases in positive child behavior, but were not associated—either positively or negatively—with the development of negative child behavior.

Notably, the frequency with which mothers reported spanking their children was unrelated

to levels of warmth. In other words, mothers who reported high rates of spanking were not necessarily low in warmth, as rated by interviewers who observed their interactions with their child. Similar to prior research (Deater-Deckard et al., 2011; Lee, Altschul, & Gershoff, 2013), these aspects of parenting were independent of each other. This finding supports our investigation of these parenting behaviors as separate influences on child behavior over time.

Taken together, these findings provide evidence of specific associations between parenting practices and child behaviors. Increased child aggression was uniquely associated with maternal spanking at age 3 years, whereas higher levels of child social competence were associated with mothers' warmth when children were 3 years old, suggesting that children's behaviors reflect their parents' behaviors. Moreover, maternal warmth had a significantly greater association with children's social competence than did spanking.

Study Limitations and Considerations for Future Research

The findings of this study are strengthened by the use of longitudinal data from a large, racially and ethnically diverse sample of urban parents of young children. However, a limitation of this sample is that it was drawn from large cities, and thus these results may not be applicable to individuals living in non-urban geographical areas. The generalizability of study results must be viewed in light of the FFCWS sampling strategy, which purposively oversampled nonmarital births (Reichman et al., 2001). FFCWS studies consistently show that children born to non-married parents (i.e., cohabiting but not married, romantically involved but not married, or not romantically involved) differ in important ways from children born to married parents. First, these children experience high levels of parental relationship instability. More than two thirds of the nonmarital unions had ended by the time children were age 5, compared to only 20% of the marital unions (McLanahan, 2012; Tach & Edin, 2013). Second, children born to unmarried parents experience poorer educational and social development outcomes relative to children born to married parents (McLanahan, 2012; Osborne & McLanahan, 2007). Therefore, it is important to consider that the results of this study may not generalize to samples of children from more advantaged family backgrounds; future studies should seek to replicate study results with children and parents from more advantaged family backgrounds.

All study measures were taken from reliable and well-validated measures, and the assessment of maternal warmth was based on observers' ratings (HOME scale), although there was a high degree of missing data on the HOME observations because a portion of the In-Home interviews were conducted via telephone rather than home visits. Another limitation in measurement was that our other key constructs, namely, child aggression, child social competence, and spanking, were based on maternal self-report, and the use of mothers to report several key constructs introduced shared measurement error. We addressed this possible limitation in part through the use of within-time correlations in the model. To minimize the potential influence of omitted variables we included a robust set of measures controlling for numerous potential confounds, including maternal characteristics such as depression and verbal skills, and household characteristics such as income and parental relationship status as well as child characteristics. However, there is still the potential that omitted variables biased our parameter estimates and led to overestimation of the associations between maternal behaviors and children's behavioral outcomes.

An additional study limitation is that by considering only maternal spanking, the models most likely underestimated children's actual exposure to spanking, particularly that of children in two-parent families, most of whom are spanked by both parents (Kim, Lee, Taylor, & Guterman, 2014; Lee, Taylor, & Gershoff, 2013; Taylor, Lee, et al., 2010). Although the FFCWS does include data on fathers' parenting behaviors, paternal warmth was not assessed, and thus we could not run parallel models for fathers. Future studies should examine paternal and maternal spanking and warmth and associations with the development of child behavioral problems and prosocial behavior.

Finally, though statistically significant, the observed effect sizes in this study linking spanking with child aggression ($\beta = .10$) and maternal warmth with child social competence ($\beta = .08$) were small in magnitude. These effect sizes are consistent with other studies that have used large, diverse samples of children, namely,

$\beta = .08$ in Berlin et al. (2009), $\beta = .05$ in Gershoff et al. (2012), and βs = .06–.08 in Lansford et al. (2011). Given that upward of 80% of children are spanked at some point in their lives (Bender et al., 2007; Lee, Taylor, et al., 2013; Taylor, Manganello, et al., 2010), small effects experienced by the majority of a population accumulate. Indeed, public health researchers argue that small reductions in risk targeting a highly prevalent risk factor in an entire population can have major impacts for the population at large (Cohen, Scribner, & Farley, 2000).

Conclusion

Many parents who use spanking to discipline their children say that they do so with the belief that it will lead to positive child behavior (Taylor et al., 2015). The current findings indicate that this belief is misguided. This study provides further evidence that spanking is an ineffective method for either reducing problematic child behaviors or promoting desirable child behaviors; instead, spanking may have the unintended result of increasing undesirable behaviors, such as aggression (Berlin et al., 2009; Gershoff, 2002; MacKenzie et al., 2013; Maguire-Jack et al., 2012; Taylor, Manganello, et al., 2010). In contrast, greater maternal warmth did promote increases in desirable child behaviors over time. Parents often seek guidance from professionals on effective parenting techniques, especially discipline. The results of this study suggest that professionals who work with children should discourage parents from using spanking because it does not effectively increase prosocial behavior, and instead they should encourage parents to be warm and responsive to their children. Indeed, our findings suggests that even if parents use both warmth and spanking, the benefits of warmth with regard to children's social competence may be undermined by the increased child aggression associated with spanking. In sum, these findings indicate parents should continue to avoid spanking and to use positive parenting techniques such as warmth in order to foster positive behaviors in their children.

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