

Paternal Psychosocial Characteristics and Corporal Punishment of their 3-Year Old Children

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Abstract

This study uses data from 2,309 biological fathers who participated in the Fragile Families and Child Wellbeing Study (FFCWS) to examine associations between psychosocial characteristics and levels of corporal punishment (CP) toward their 3-year old children over the past month. Results indicate that 61% of the fathers reported no CP over the past month, 23% reported using CP once or twice, and 16% reported using CP a few times in the past month or more. In multivariate models controlling for important socio-demographic factors as well as characteristics of the child, fathers' parenting stress, major depression, alcohol use, and drug use were significantly associated with greater use of CP, whereas involvement with the child and generalized anxiety disorder were not. Girls were less likely to be the recipient of CP than boys, and child externalizing behavior problems but not internalizing behavior problems were associated with more CP.

### Paternal Psychosocial Characteristics and Corporal Punishment of their 3-Year Old Children

Corporal punishment (CP), defined as “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) is widely used as a child disciplinary strategy in American families. Recent research from the Fragile Families and Child Wellbeing Study (FFCWS) indicates that 55% of mothers had spanked their 3-year old child at least once in the past month (Taylor, Guterman, Lee, & Rathouz, 2009). Similarly, in a national sample, 64% of mothers and 58% of fathers reporting use of CP (Straus & Stewart, 1999). Fathers are more likely to endorse use of aggressive parenting strategies, and although studies are not conclusive on this issue, fathers are believed to spank children more than mothers do, after accounting for the fact that mothers spend more time with children than fathers (Straus & Stewart, 1999).

Use of CP peaks in the toddler years at approximately 3-years of age (Straus & Stewart, 1999), and although CP is commonly used to discipline young children, research has accumulated that documents the potential negative consequences of CP for children’s wellbeing. Even after controlling for other forms of coercive parenting, the child’s initial levels of aggression, and other potential covariates, maternal CP at 3-years was uniquely predictive of child behavioral problems at 5-years (Taylor, Rice, Manganello, & Lee, 2008). A study focused specifically on paternal child discipline found that fathers’ harsh parenting practices, including CP, were associated with increased risk of young children’s externalizing behavior problems (Lee, Kim, Taylor, & Perron, 2009). Abusive parents are more likely to use CP than non-abusive parents (Trickett & Kuczynski, 1986), and the use of CP is considered a direct risk factor for child

physical abuse victimization as well as other physical, behavioral, and social health problems (Gershoff, 2002).

Despite an emerging consensus regarding the negative consequences of CP to children (Gershoff, 2002), little is known about the psychosocial mechanisms that may increase use of CP among fathers. Studies using either primarily or entirely mother respondents have shown that parental frustration is related to greater use of CP (Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004). Maternal alcohol and drug use problems have also been linked to punitive discipline of children (Miller, Smyth, & Mudar, 1999). Previous FFCWS studies document that fathers with higher levels of depression are less involved with their children and experience more parenting stress (Bronte-Tinkew, Moore, Matthews, & Carrano, 2007), and fathers' substance abuse has been linked to greater risk of child health and behavioral problems (Osborne & Berger, 2009). However, these studies do not specifically examine the extent to which mental health and substance use influence fathers' use of coercive parenting practices. In a FFCWS study using a more limited number of psychosocial stressors than reported here, paternal parenting stress and lack of co-parental support were associated with spanking but were not associated with other forms of coercive parenting (Lee, Guterman, & Lee, 2008).

Knowledge of paternal psychosocial factors that relate to fathers' disciplinary practices, including CP, is necessary for better understanding the etiology of child maltreatment, and will aid in the development of services that target at-risk father by helping service providers understand the full range of psychosocial needs of fathers. In this study we assess the prevalence of CP using self-reported data from fathers in a large, diverse, community-based sample. Second, we examine psychosocial mechanisms, including parenting stress, major

depressive disorder, generalized anxiety disorder, alcohol use, and drug use, that are associated with paternal CP. Third, we examine the strength of the association between these factors and paternal CP, controlling for socio-demographic variables that have been linked with child maltreatment as well as paternal involvement with the child, an important factor to consider given that greater involvement is likely to provide more situations in which fathers discipline their child.

## Method

### *Procedure and Participants*

This study uses data from the FFCWS, a birth cohort study in 20 U.S. cities with populations over 200,000 people. All subject recruitment procedures were approved by the Institutional Review Boards (IRB) at Columbia University and Princeton University and at the individual hospitals. A thorough description of the cities included in the study and the sampling strategy can be found in Reichman et al. (2001). The total FFCWS sample includes 4,898 families. The sample of fathers who provided data at year 3 ( $n = 3,299$ ) included 77% ( $n = 2,966$ ) of the 3,830 fathers who participated in the baseline interview at birth plus 333 fathers not interviewed at baseline. We omit 780 fathers because the child's mother did not participate in one or more waves of the study when data was collected on child characteristics (e.g., low birth weight, problem behaviors). An additional 210 fathers were dropped from analyses because, although they participated in the year 3 interview, they did not provide information on key psychosocial characteristics. The final sample for this study is ( $n = 2,309$ ). We use father self-reported data for analyses, with several exceptions. Because fathers were not asked about

certain child characteristics, we use maternal report of low birth weight (baseline interview) and child behavior problems (year 3 in-home interview).

### *Measures*

*Paternal Socio-Demographic Characteristics.* Paternal self-report data from the baseline interview at the time of the child's birth include father's age, race/ethnicity, and education.

*Marital status and household income* were from the fathers' 3-year interview. Household income was skewed (mean = \$46,061, median = \$35,000, *SD* = \$44,621) and natural log transformed for analyses, with some imputed variables used. The imputation strategies are described in detail in FFCWS documentation (Fragile Families, 2008).

*Child Characteristics.* At baseline mothers reported the *child's sex* and *low birth weight* if the child weighed < 2,500 grams at birth. During the 3-year interview fathers reported the *child's general health* (1 = *fair or poor*, 2 = *good*, 3 = *very good*, 4 = *excellent*). During a separate in-home assessment at year 3, mothers completed the Child Behavior Checklist 1.5 – 5 (Achenbach & Rescorla, 2000). For example, mothers were asked whether it was *not true*, *somewhat or sometimes true*, or *very true or often true* that their child: clings to adults, looks unhappy, is too fearful, looks sad (internalizing behavior); or is defiant, is demanding, destroys others' things, is disobedient (externalizing behavior). In this study we use Child Behavior Checklist 1.5 – 5 variables that were created by the FFCWS research team (Fragile Families, 2006), including a sum score of 19 items endorsed from the *externalizing behavior problems* subscale ( $\alpha$  for full in-home sample = .88). *Internalizing behavior problems* was the summed score of two Child Behavior Checklist 1.5 – 5 subscales: 8 items from the withdrawn subscale ( $\alpha$

for full in-home sample= .66) and 8 items from the anxious/ depressed subscale ( $\alpha$  for full in-home sample= .62). For analyses an average score of the variables was created.

#### *Paternal Psychosocial Characteristics*

*Parenting Stress Index Short Form (PSI-SF)* (Abidin, 1995; Haskett, Ahern, Ward, & Allaire, 2006). A measure of parenting stress was created based on fathers' responses to four statements such as "Being a parent is harder than I thought it would be" and "I feel trapped by my responsibilities as a parent" (1 = *strongly disagree* to 4 = *strongly agree*) ( $\alpha$  = .62).

*Involvement with the Child.* A mean score was created based on father's report of the number of days per week (0 = *never* to 7 = *every day*) he provided each of 13 common types of care to the child (e.g., sing songs or nursery rhymes with child, read stories to child, assist child with eating ( $\alpha$  = .83).

The Composite International Diagnostic Interview - Short Form (CIDI – SF), Section A (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998) was used to measure major depression and generalized anxiety disorder. The CIDI-SF is a standardized instrument that is consistent with the criteria set forth in the Diagnostic and Statistical Manual of Mental Disorders – Third Edition – Revised (DSM-III-R) (American Psychiatric Association, 1994). This instrument has good reliability and validity (Kessler et al., 1998). All disorders reflect current diagnoses.

*Generalized Anxiety Disorder* is indicated by a period of six months or more when an individual feels excessively worried or anxious about more than one thing, more days than not, and has difficulty controlling their worries. Common symptoms include being keyed up or on edge, irritability, restlessness, having trouble falling asleep, tiring easily, difficulty concentrating

and tense or aching muscles. Subjects were classified as having generalized anxiety disorder if they met full diagnostic criteria based on the CIDI-SF (0 = *no*, 1 = *yes*).

*Major Depressive Disorder* is indicated by feelings of depression or anhedonia in the past year that lasted for two weeks or more, and if so, whether the symptoms lasted for most of the day and occurred every day of the two-week period. If the respondent answered yes to those questions, they were probed regarding: losing interest, feeling tired, change in weight, trouble sleeping, trouble concentrating, feeling worthless, and thinking about death. In this study, subjects were classified as having major depressive disorder if they endorsed the screening items and three or more depressive symptoms (0 = *no*, 1 = *yes*).

*Alcohol Use.* Respondents were asked the following question to assess alcohol use: "... how frequently you drink alcoholic beverages. By a "drink" we mean either a bottle of beer, a wine cooler, a glass of wine, a shot of liquor, or a mixed drink. With these definitions in mind, what is the largest number of drinks you have had in any single day during the past 12 months – none, between one and three, four to ten, eleven to twenty, or more than twenty drinks in a single day?" For the analyses we report in this study, alcohol use was coded as an ordinal variable, 0 = *no drinks consumed in the past 12 months*, 1 = *1 - 3 drinks consumed in any single day during the past 12 months*, or 2 = *four or more drinks consumed in any single day during the past 12 months*.

We use this variable for several reasons. Only 2.4% of the men in this study met the DSM-III-R criteria for alcohol use dependence, which is based on having had 4 drinks or more in one day in addition to indicating yes to three out of seven symptoms measuring role interference, use of alcohol in hazardous situations, emotional and psychological problems as a

result of alcohol use, and so forth. Although less stringent than the DSM-III-R diagnostic criteria, the variable utilized in this study allows us to examine potential differences in parenting behaviors as a function of no, moderate, or heavy drinking days. Furthermore, this measure of alcohol use approximates the levels of heavy drinking days as defined by the National Institute on Alcohol and Alcoholism (NIAAA). Specifically, for men, a heavy drinking day is considered 5 or more drinks in a single day, and for women it is 4 or more drinks in a single day (NIAAA, 2005). This measure is considered important given the adverse consequences associated with heavy drinking.

*Drug Use.* Respondents were classified as using drugs based on their response to the following question: “The next questions are about your use of drugs on your own. By ‘on your own,’ we mean either without a doctor’s prescription, in larger amounts than prescribed, or for a longer period than prescribed. With this definition in mind, did you use any of these drugs on your own during the past 12 months?” Following was a comprehensive list of drugs, including sedatives, tranquilizers, amphetamines, analgesics, inhalants, marijuana, cocaine, LSD, and heroin. Similar to alcohol use, only 1.78% of the men in this study met the DSM-III-R criteria for drug dependence, which is based on having used one or more of the drugs in the list, and the presence of at least three of seven symptoms of DSM-III-R dependence, including role interference, use of alcohol in hazardous situations, emotional and psychological problems as a result of alcohol use, and so forth. Therefore, in this study we created a variable assessing any drug use in the past 12 months (0 = *no*, 1 = *yes*).

*Dependent Measure: Corporal Punishment*

Corporal punishment was assessed based on fathers' responses to two questions, as follows: "Sometimes children behave pretty well and sometimes they don't. In the past month, have you spanked (child) because (he/ she) was misbehaving or acting up?" (1 = *no*, 2 = *yes*). If the father indicated he had spanked the child in the past month, he was subsequently asked, "Did you do this . . . (1 = *every day or nearly every day*, 2 = *a few times a week*, 3 = *a few times this past month*, or 4 = *only once or twice?*)" We created a three-level variable measuring paternal CP (no-CP = *never in the past month*, moderate CP = *only once or twice or a few times this past month*, heavy CP = *a few times a week, every day, or nearly every day*). These coding criteria were used for several reasons. The variable as operationalized here made the most sense based on the distribution of the CP variable in this sample, because the variable was skewed toward "less spanking" with the distribution thinning out as the frequency of CP increases. Furthermore, it allows us to maintain consistency and make comparisons with other published studies (Taylor, Guterma, et al., 2009) that used the same coding procedure.

*Analysis Plan*

Table 1 presents sample characteristics and bivariate results for study variables. One-way analyses of variance (ANOVA) and chi-square tests were conducted to examine differences on study variables as a function of level of CP (no-CP, moderate CP, heavy CP). Table 2 presents adjusted odds ratios and 95% confidence intervals for the multinomial regression results examining paternal factors that were associated with use of CP, after accounting for a comprehensive set of control and background characteristics of the father and child.

## Results

### *Univariate and Bivariate Summaries*

Overall, 61% of the fathers reported no prior month CP, 23% reported moderate CP, and 16% reported heavy CP. One-way analysis of variance and chi-square tests revealed that, among the psychosocial variables of central focus in the current study, higher levels of paternal parenting stress, greater involvement with the child, major depressive disorder, alcohol use, and any drug use in the past year were all associated with greater use of CP (Table 1).

### *Multivariate Associations*

*Paternal Socio-Demographic Characteristics.* The no-CP group was the reference group for these analyses (Table 2). The overall multinomial regression model exhibited a good fit with the data ( $LR \lambda^2 (44) = 231.81, p < .001, \text{pseudo } R^2 = .06$ ). Younger fathers were more likely to engage in heavy CP than were older fathers. Cohabiting fathers and fathers who were not married or cohabiting with the child's mother were less likely to report CP than fathers who were married, even after controlling for level of child involvement. Compared to white fathers, being African American was associated with higher levels of moderate CP and being Hispanic was associated with lower levels of heavy CP. With regard to paternal education, fathers with more moderate levels of education (high school degree or equivalent, some college or tech school) were generally more likely to engage in CP compared to fathers with less than a high school degree. There was no significant difference in use of CP between fathers with less than a high school degree and fathers with college degree or higher.

*Child Characteristics.* Girls were much less likely to be the recipient of paternal CP than boys, especially heavy CP. As indicated in Table 1, 60% of heavy spankers had boy children.

Child externalizing behavior was also associated with higher levels of CP.

*Paternal Psychosocial Characteristics.* Paternal stress was linked to both moderate and heavy use of CP. Although higher levels of child involvement were significantly associated with greater use of CP at the bivariate level, involvement was not significantly associated with greater use of paternal CP in the fully controlled regression models. Major depressive disorder and any drug use in the past year were associated with heavy CP use but not significantly associated with moderate CP use. Alcohol use – specifically, having 4 or more drinks in one day in the past year, compared to no alcohol use – was associated with both moderate and heavy CP. However, consumption of 1-3 drinks in one day in the past year was not associated with greater use of CP. Generalized anxiety disorder was not associated with CP. Various interaction effects were probed but none were statistically significant. For example, we tested interactions between major depression \* alcohol/ drug use and generalized anxiety \* alcohol/ drug use, and we did not find significant interaction effects between the substance use and mental health problem categories.

## Discussion

To our knowledge, this is the first study that documents significant associations with paternal stress, drug / alcohol use, and paternal CP, while simultaneously accounting for paternal mental health, socio-demographic characteristics, and father involvement with the child, as well as the child's existing level of internalizing and externalizing behavior problems. Additionally, this study makes use of self-reported data from fathers who participated in a

large, diverse community based sample and contributes to an under-developed area of research examining the role of fathers in physical child maltreatment (Guterman & Lee, 2005).

We find that fathers with a high school degree or equivalent engage in more heavy CP than fathers without a high school degree. Also, some college or tech school was associated with being in the moderate and heavy CP categories. While it is somewhat counterintuitive that fathers with more than a high school degree use more CP, these findings are not without precedent when examining results from several FFCWS studies. For example, when examining only paternal risk factors (as in the current study), higher levels of paternal education were associated with more spanking, but not other forms of physical and psychological aggression (Lee et al., 2008). This pattern was concentrated only among Hispanic fathers, with non-significant findings for education among White and African-American fathers. It may be that if we were to examine the race/ ethnic differences more carefully (which was not the goal of the current paper) we may find that the positive association between higher education and CP would again be concentrated among Hispanic fathers. While it is problematic to attribute a great deal of importance to this isolated finding, and it is also difficult to fully explain these findings in light of the limitations of the FFCWS study, we have speculated that better educated Hispanic fathers may more actively engage in child discipline. Furthermore, although there is limited empirical information about Hispanic fathers and child discipline, past research indicates that Hispanic fathers endorse or engage in fewer harsh parenting practices. It may be that more educated fathers are more acculturated and therefore more likely to adapt to cultural beliefs normalizing CP (Lee et al., 2008).

When examining paternal influence on *maternal* harsh parenting, fathers' higher education is associated with lowered likelihood of maternal CP (Guterman et al., 2009; Taylor, Guterman, et al., 2009) and maternal risk for physical abuse (Taylor, Lee, et al., 2009). Father's education was not significantly associated with his use of CP, but father's college education did predict low risk of maternal CP, although the adjusted odds ratios were low (Taylor, Lee, et al., 2009). To summarize across these studies, it appears that father's education is not consistently or strongly linked with his own harsh parenting (with the possible exception of Hispanic fathers), but his higher education is associated with mothers' decreased use of CP.

In contrast to some prior theorizing (e.g., McLoyd, 1990), we have consistently failed to find that fathers' income or employment status are associated with harsh parenting or CP (Guterman et al., 2009; Lee et al., 2008; Taylor, Guterman, et al., 2009; Taylor, Lee, et al., 2009). These findings are not without precedent. In at least one other study using a community sample, individual socioeconomic factors were not related to onset of child maltreatment (Chaffin, Kelleher, & Hollenberg, 1996). Significant effects for paternal unemployment and income often come from studies of families at-risk or indicated for abuse (e.g., Coohy, 2006). It may be that when focusing on at-risk families, income in combination with other risk factors place families at much greater risk for abuse, whereas when examining community samples with proper controls for variables that are potentially confounded with income and employment (e.g., parenting stress, education, marital status), the link between paternal earnings and employment may not be as strong as previously thought (Lee et al., 2008).

Results show that paternal stress, heavy alcohol use, and any drug use are associated with fathers' increased use of CP, findings that are consistent with the existing research on

mothers (Miller et al., 1999) and perhaps not surprising given the associations among impulsive behavior, parental stress, and substance use disorders (Moeller, Barrett, Dougherty, Schmitz, & Swann, 2001). Although prior research shows that generalized anxiety disorder and depression can impair one's ability to effectively cope with life stressors (Taylor & Stanton, 2007), major depression was only significantly associated with heavy CP and generalized anxiety disorder was not associated with any of the CP outcomes. We surmise that these conditions may primarily have an indirect influence on use of CP through their links to increased levels of parental stress, a question that should be examined in future research using path analytic approaches. Furthermore, it is important to keep in mind the very low numbers of fathers who had either of these disorders, with only 3% of fathers reporting generalized anxiety disorder and 12% reporting major depressive disorder.

The current study extends prior research by showing that, although African American fathers are significantly more likely than white fathers to engage in moderate CP, they were not more likely than white fathers to engage in heavy spanking. In contrast, Hispanic fathers were significantly less likely to engage in heavy CP than White fathers, an important finding given the very limited research available on Hispanic fathers and their parenting practices. Instead, results point to modifiable mechanisms that are linked to CP – that is, paternal stress and alcohol/ drug use, which are factors that are amenable to change through evidence-based interventions and parenting education.

Our results also underscore the transactional nature of the parent – child relationship. We find that boys are more likely to experience paternal CP than girls (Gershoff, 2002) and that child externalizing behavior is associated with greater use of paternal CP. In other analyses by

this research team we find that maternal CP is predictive of childhood behavioral problems (Taylor et al., 2008). Although in the current analyses we cannot discern the direction of the effects, it may be that there is a similar pathway for fathers, pointing to the need for early intervention with parents, especially those with high levels of stress and substance use.

#### *Limitations and Future Directions*

These findings must to be considered in context of the study limitations. The FFCWS recruited families from large urban areas (Reichman, Teitler, Garfinkel, & McLanahan, 2001) and the men included in the current analyses are all biological fathers. Therefore, results may not generalize to non-biological male caregivers or fathers living in non-urban areas. The cross-sectional nature of the analysis does not allow for causal inference. Common to all studies using secondary data, there are limitations with respect to measurement. For example, the categorical measure of CP did not allow us to examine the severity of CP used by fathers in this study.

Despite these limitations, this study has a number of strengths and provides important direction for future research on the role of fathers in child maltreatment. The FFCWS is a socio-economically diverse community study that provides the opportunity for prospective analysis of multiple complex factors that foreshadow risk for child maltreatment. This study does not provide strong evidence for race/ ethnic differences in fathers' use of CP. Rather, results point to the need for greater understanding regarding the complex role of young paternal age, paternal education, and marital status. Furthermore, results suggest that future studies should examine the role of major depressive disorder as a potential mediator in the relationship between parenting stress and greater use of CP.

Our findings document the importance of parenting stress and alcohol and drug use above and beyond the influence of psychiatric disorders. Results suggest fruitful avenues for intervention may include parenting programs and treatment that target fathers' use of alcohol and drugs, as well as their levels of parenting stress. Better understanding potential points of intervention is especially important given prior research from substance use treatment programs revealing a high rate of unmet family-related services needs (Perron, Ilgen, Hasche, & Howard, 2008) and the need for greater inclusion of fathers in parenting services (Guterman & Lee, 2005; Lee, Bellamy, & Guterman, 2009).

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Table 1

*Sample Characteristics and Bivariate Results (N =2,309)*

	Full Sample % or M (SD)	No CP	Moderate CP	Heavy CP
<b><i>Paternal socio-demographics</i></b>				
Age at child's birth (range: 15-67)	28.04 (7.22)	28.29	27.80	27.44
Father marital status* : Married	42%	39%	46%	50%
Cohabiting	30%	29%	31%	33%
Not married or cohabiting	28%	33%	22%	17%
Father race/ethnicity*: White	22%	22%	20%	28%
African American	47%	45%	50%	48%
Hispanic	27%	28%	26%	21%
Other race	4%	5%	4%	3%
Father education*: Less than HS	29%	31%	27%	23%
HS or equivalent	35%	34%	36%	39%
Some college or tech school	24%	21%	29%	26%
College or higher	12%	14%	9%	11%
Household income <sup>c</sup> (range: 0 - \$500,000)	\$46,061 (\$44,621)	\$46,724	\$45,836	\$43,913
<b><i>Child characteristics</i></b>				
Child sex *: Male	52%	49%	56%	60%
Female	48%	51%	44%	40%
Low birth weight	9% yes	9%	10%	9%
General health (range: 1-4)	3.52 (0.73)	3.51	3.53	3.56
CBC externalizing (range: 0-37) <sup>‡</sup>	11.61 (6.71)	11.10 <sup>a, b</sup>	12.49 <sup>a</sup>	12.32 <sup>b</sup>
CBC internalizing (range: 0-26) <sup>‡</sup>	5.40 (3.98)	5.39	5.54	5.26

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**Paternal psychosocial characteristics**

Parenting stress (range: 1-4) <sup>‡</sup>	2.08 (0.67)	2.03 <sup>a</sup>	2.11 <sup>b</sup>	2.21 <sup>a,b</sup>
Involvement with child (range: 0-7) <sup>‡</sup>	4.16 (1.35)	4.08 <sup>a,b</sup>	4.25 <sup>a</sup>	4.31 <sup>b</sup>
Generalized anxiety disorder (CIDI)	3% yes	3%	3%	2%
Major depressive disorder (CIDI)*	12% yes	11%	13%	16%
Alcohol use***: No alcohol use in past yr	31%	33%	26%	29%
1-3 drinks in one day in past yr	40%	41%	41%	35%
4+ drinks in one day in past yr	29%	26%	33%	36%
Any drug use in past year **	11% yes	10%	12%	15%

*Note.* Column percentages may not equal 100% due to rounding. HS = High School. CBC = Child Behavior Checklist. <sup>‡</sup> Higher scores indicate higher levels of the construct.  $\chi^2$  test significant results are denoted \* $p < .05$ . <sup>a,b</sup> One-way ANOVA significant differences ( $p < .05$ ) between cell pairs are denoted by letter superscript pairs, from Bonferroni adjusted post-hoc comparisons. <sup>c</sup> 4 cases with extremely high incomes >\$ 500,000 were dropped from descriptive analyses.

Table 2

*Multinomial Regression Results: Paternal Psychosocial Characteristics and Use of Corporal Punishment toward 3-Year Old Children (n = 2,260)*

	Moderate CP (Once or twice or a few times in past month)		Heavy CP (A few times a week to nearly every day)	
	AOR	95% CI	AOR	95% CI
<b><i>Paternal socio-demographics</i></b>				
Age at child's birth	0.99	0.97-1.00	0.97 **	0.95-0.99
Father marital status: <sup>a</sup>	----	----	----	----
Cohabiting	0.75 *	0.57-0.98	0.72 *	0.53-0.98
Not married or cohabiting	0.41 ***	0.30-0.56	0.26 ***	0.18-0.38
Father race/ethnicity: <sup>b</sup>	----	----	----	----
African American	1.63 **	1.19-2.23	1.17	0.83-1.65
Hispanic	1.12	0.80-1.56	0.68 *	0.46-0.99
Other race	1.31	0.74-2.32	0.71	0.36-1.43
Father education: <sup>c</sup>	----	----	----	----
HS or equivalent	1.26	0.96-1.65	1.64 **	1.19-2.27
Some college or tech school	1.61 **	1.18-2.19	1.74 **	1.20-2.53
College or higher	0.68	0.43 -1.07	0.85	0.51-1.42
Household income	1.06	0.97-1.16	1.03	0.93-1.13
<b><i>Child characteristics</i></b>				
Child sex: Girl <sup>d</sup>	0.73 **	0.59-0.90	0.61 ***	0.48-0.78
Low birth weight	1.32	0.92-1.88	1.17	0.76-1.80
General health	1.00	0.87-1.16	1.05	0.88-1.25

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CBC externalizing	2.05 ***	1.45-2.92	1.99 ***	1.32-3.00
CBC internalizing	0.74	0.44-1.24	0.67	0.37-1.23
<b><i>Paternal psychosocial characteristics</i></b>				
Parenting stress	1.22 *	1.04-1.43	1.53 ***	1.27-1.84
Involvement with child	1.03	0.95-1.13	1.02	0.92-1.13
Generalized anxiety disorder (CID-I)	0.78	0.39-1.55	0.71	0.32-1.58
Major depressive disorder (CID-I)	1.31	0.93-1.84	1.53 *	1.06-2.21
Alcohol use <sup>e</sup>	----	----	----	----
1-3 drinks in one day in past yr	1.16	0.89-1.49	0.91	0.68-1.23
4+ drinks in one day in past yr	1.57 **	1.18-2.08	1.40 *	1.02-1.93
Any drug use in past year	1.10	0.78-1.55	1.49 *	1.03-2.15

LR  $\lambda^2$  (44) = 231.81 \*\*\* , pseudo  $R^2$  = .06

*Note.* Non-spankers were the reference group in all analyses. AOR = adjusted odds ratio. CI = Confidence Interval. HS = High School. <sup>a</sup> Reference group is married. <sup>b</sup> Reference group is White. <sup>c</sup> Reference group is less than HS. <sup>d</sup> Reference group is boy. <sup>e</sup> Reference group is no alcohol consumption in the past year. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .