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Fathers and Maternal Risk for Physical Child Abuse

Neil B. Guterman
University of Chicago

Yookyong Lee
Temple University

Shawna J. Lee
Wayne State University

Jane Waldfogel
Columbia University

Paul J. Rathouz
University of Chicago

This study set out to examine father-related factors predicting maternal physical child abuse risk in a national birth cohort of 1,480 families. In-home and phone interviews were conducted with mothers when index children were 3 years old. Predictor variables included the mother–father relationship status; father demographic, economic, and psychosocial variables; and key background factors. Outcome variables included both observed and self-reported proxies of maternal physical child abuse risk. At the bivariate level, mothers married to fathers were at lower risk for most indicators of maternal physical child abuse. However, after accounting for specific fathering factors and controlling for background variables, multivariate analyses indicated that marriage washed out as a protective factor, and on two of three indicators was linked with greater maternal physical abuse risk. Regarding fathering factors linked with risk, fathers' higher educational attainment and their positive involvement with their children most discernibly predicted lower maternal physical child abuse risk. Fathers' economic factors played no observable role in mothers' risk for physical child maltreatment. Such multivariate findings suggest that marriage per se does not appear to be a protective factor for maternal physical child abuse and rather it may serve as a proxy for other father-related protective factors.

Keywords: fathers; physical child abuse; marital status; maternal risk

The need to better understand fathers' roles in risk for physical child abuse is pressing. Studies have indicated that fathers are disproportionately implicated as perpetrators of physical child abuse, particularly in its most severe forms (e.g., Brewster et al., 1998; Krugman, 1985; Sinal et al., 2000; Stiffman, Schnitzer, Adam, Kruse, & Ewigman, 2002). Despite this, little is yet known about the role fathers may play more generally in the etiology of physical child abuse. Fathers may potentially influence risk in a variety of ways, both directly in their own perpetration of abusive behaviors as well as indirectly by influencing mothers' abusive behaviors (Dubowitz, 2006). With regard to factors that shape fathers' own perpetration of physical child abuse, a limited body of literature has reported that fathers' abuse of substances (Ammerman, Kolko,

Kirisci, Blackson, & Dawes, 1999) and young age (Lee, Guterman, & Lee, 2008) are linked with risk. Fathers' unemployment status and earnings have been linked with their own physical abuse risk in some studies (Jones,

1990; Wolfner & Gelles, 1993) while not in others (Lee et al., 2008).

Preliminary evidence suggests that factors influencing fathers' own risk for perpetrating physical child abuse may differ from paternal factors that influence mothers' risk of perpetrating physical child abuse (e.g., Florsheim, et al., 2003). To date, however, direct empirical evidence is rather scant, clarifying the specific ways that fathers may influence mothers' risk for perpetration of physical child abuse. An ecological framework incorporating multiple interrelated levels of influence on maltreatment risk points out that primary relationships in closest proximity to the mother, such as those potentially with fathers, should exert the most immediate influence on mothers' parenting, and therefore on her risk for physical maltreatment (Belsky, 1980; Cicchetti & Toth, 2005). Consistent with this lens, social support theory highlights that primary relationships such as those with fathers may serve as important vehicles for the transmission of necessary resources and information that support or hinder effective maternal parenting behaviors, from tangible (e.g., money or child care) to intangible (e.g., emotional support, validation, information about developmental expectations, or parenting norms; DePanfilis, 1996; Thompson, 1995).

Early empirical evidence has indeed suggested that fathers' availability and contributions to the family may influence mothers' own parenting behaviors linked with physical abuse, but the present understanding of the exact ways fathers contribute to mothers' abuse risk is rather diffuse. For example, a host of prior studies has reported single motherhood as a clear risk factor for physical child abuse (e.g., Dubowitz, Hampton, Bithoney, & Newberger, 1987; Gelles, 1989; Schloesser, Pierpont & Poertner, 1992), suggesting that father absence might play some key role in heightening maternal risk for physical child maltreatment. However, numerous studies have highlighted that "father absence" is best not viewed in a simple dichotomous (presence versus absence) fashion (Danziger & Radin, 1990; Field, 1998; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001), and thereby point out a need to look beyond the status of the mother–father relationship to the varied ways fathers may be involved in family life. Studies linking single motherhood with maternal physical abuse have most often implicated fathers' economic contributions (or lack thereof) as linked with risk, given that single motherhood has often been linked with poverty status (Berger, 2004), a factor also closely associated with physical abuse; however, empirical evidence is lacking that traces the specific role of fathers' economic

contributions on maternal physical abuse risk as contrasted with those contributions provided by mothers or other sources.

Beyond fathers' economic contributions to the family, several studies have suggested that fathers' supportiveness toward mothers plays a protective role in mothers' risk for physical child abuse. For example, low father support has been found associated with higher Child Abuse Potential Inventory scores among pregnant adolescents (Zelenko, Huffman, Lock, Kennedy, & Steiner, 2001), and one study reported that married abusive mothers showed lower marital satisfaction when compared against other nonabusive clinic-referred married mothers (Whipple & Webster-Stratton, 1991). Fathers' supportiveness toward mothers has also been linked with less maternal power assertive child rearing attitudes, fewer maternal rejecting and punitive behaviors (Brunelli, Wasserman, Rauh, Alvarado, & Caraballo, 1995; Unger & Wandersman, 1988), and greater maternal responsivity (Jackson, 1999).

Evidence has also pointed out that coercive interactions between mothers and fathers are linked with mothers' coercive behaviors toward children (e.g., Appel & Holden, 1998; Salzinger et al., 2002; Straus & Gelles, 1990), and a number of studies have found that physical child abuse and domestic violence co-occur at high rates, especially in cases of fatal child maltreatment (Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008; Child Fatality Review Panel, 1993; Felix & McCarthy, 1994). However, prior studies have not examined supportive or coercive parental interactions in conjunction with other fathering factors, limiting our understanding of the degree to which such qualities of the parental dyad directly predict mothers' maltreatment risk or whether some important third factor (such as a family's economic impoverishment) may shape both.

In a similar way, fathers' direct involvement in child care has been implicated in risk for maternal physical child abuse, but how paternal involvement with children shapes mothers' physical child abuse risk, while also considering other related factors, is also not well understood. Studies have reported that fathers' involvement predicts mothers' provision of a responsive home environment (Cutrona, Hessling, Bacon, & Russell, 1998). However, in a study focused on child neglect, Dubowitz, Black, Kerr, Starr, and Harrington (2000) reported that fathers' greater direct involvement with child care was linked with higher maternal risk, but that their involvement in other household domains was linked with lower maternal risk. Such findings, while specifically focused on child neglect rather than maternal physical abuse risk,

nonetheless underscore a need to question the ways in which fathers' involvement in the family, considered in conjunction with other paternal contributions and interactions in the home, may uniquely shape mothers' risk behavior.

In sum, while the present empirical base suggests that the relationship status of the mother–father dyad and fathers' contributions to the family may be linked with mothers' physical child abuse risk, it is difficult to assess which aspects of fathers' roles are protective or risk heightening, which are merely co-occurring, and which may be instigated by other antecedent risk or protective factors. Given this, we set out to examine fathering factors in mothers' risk for physical abuse in a multivariate fashion, using both observational and self-reported proxies of physical abuse and controlling for an array of potential other confounding paternal, maternal, and demographic factors. We do so employing a population-based sample from the Fragile Families and Child Wellbeing (FFCW) study, which reduces selection bias problems inherent in prior studies using clinical samples, such as those drawn from child protective services caseloads. Given the consistently documented empirical association between single motherhood and physical child abuse risk, we first examine whether the relationship status of the mother–father dyad predicts mothers' risk for physical child abuse, after accounting for other fathering, demographic, and important background factors. Second, we also examine the degree to which fathers' economic (income and employment) and psychosocial (education, supportiveness and coerciveness toward the mother, and involvement with the child) contributions to the family predict mothers' physical child abuse risk, after controlling for the status of the mother–father relationship, and other important background factors.

Methods

Study Design and Sample

The present analyses are drawn from the FFCW study, a longitudinal birth cohort study begun in 1998. The FFCW study collected data from families in 20 U.S. cities with populations of 200,000 or more, chosen by a random sampling method and stratified so as to maximize cross-city variation in their economic and policy environments (Reichman, Teitler, Garfinkel, & McLanahan, 2001). Baseline data collected at birth consisted of 4,898 index births in 75 hospitals across 20 cities with 3,712 births to unmarried and 1,186 births to married mothers. Subsequent interviews took place when the index child was 1 year old and 3 years old, the latter point at which child maltreatment proxy data were collected. All study procedures were approved by Institutional Review Board Committees at Princeton University and Columbia University. A complete description of the study sampling strategy and procedures can be found in Reichman et al. (2001).

Given the nascent state of the empirical base, we focus herein on cross-sectional analyses using data collected from mothers at the 3-year follow-up point. At this point, self-report data were collected over the telephone, and follow-up in-home interviews were conducted with a subset of families agreeing to provide additional self-report as well as observational data during home-based interviews. The in-home interviews lasted approximately 1 hour and included questions on mothers' self-reports of her disciplinary tactics that may indicate risk for physical child abuse, detailed further in the discussion of study measures. These were followed by a set of observational assessments conducted by trained interviewers on the quality of the mother-index child interaction, including observations of mothers' punitive behavior toward the study index child. These observational assessments lasted approximately an additional hour in the home. A more complete description of the in-home study module and its components can be found at the FFCW study Web site (Fragile Families and Child Wellbeing Study, 2005).

For the present study, we examine the subsample of families for which complete data were available on all study predictor and outcome variables assessing risk for physical child abuse, including observational measures completed in the home ($N = 1,480$). Demographic characteristics of the final study sample are summarized in Table 1. Focusing on selected descriptive statistics of relevance to the present study, over one third (37.7%) of mother–father dyads were married, approximately one quarter were cohabiting or in "visiting" relationships (25.1% and 26.5%, respectively), and 10.8% of mothers and fathers were no longer involved in a relationship with one another. Approximately one third of the fathers in the study either had not completed high school (32.1%) or had no further formal education after completing high school (35.2%). Less than one quarter (22.8%) had attended some college, and 9.9% had attained a college degree or higher. Whereas over half the fathers in the sample (53.9%) were African American, approximately one quarter (24.6%) were of Hispanic origin, and 18% were White. Further descriptive information on the study sample is shown in Table 1. Given attrition from baseline and the fact that the FFCW

**Table 1
Demographic Characteristics of the Study
Sample**

	% or Mean (*SD* or IQR[a]) (*N* = 1,480)
Relationship status at third year follow-up	
Married	37.7%
Cohabiting	25.1%
Visiting	26.5%
No relationship	10.7%
Number of adults at home	2.02 (*SD* = .79)
Number of children at home	2.57 (*SD* =1.37)
Mother's age	25.28 (*SD* =6.00)
Mother's education	
Less than high school	32.2%
High school	31.1%
Some college	25.2%
College or higher	11.5%
Mother's ethnicity	
White	21.7%
African American	50.5%
Hispanic	24.4%
Other	3.5%
Mother's earnings	U.S.$25,020 (IQR = 19,840)
Father's age	27.78 (*SD* = 7.13)
Father's education	
Less than high school	32.1%
High school	35.2%
Some college	22.8%
College or higher	9.9%
Father's ethnicity	
White	18.3%
African American	53.9%
Hispanic	24.6%
Other	3.2%
Father's earnings	U.S.$51,163 (IQR = 26,228)
Father's employment (% working)	78.5%

NOTES: IQR = interquartile range; *SD* = standard deviation.
[a] IQR = 75th percentile score − 25th percentile score.

study was designed to oversample unwed parents, the present study sample, although a national one, cannot be viewed as representative of the U.S. population as a whole.

Measures

Demographic and background variables. To examine the role of the relationship status of the mother–father dyad and the unique contributions of fathers' economic and psychosocial factors on maternal physical child abuse risk, family demographic and a selection of potentially confounding maternal factors were included as controls in multiple regression analyses. Family demographic factors included the *number of adults* and the *number of children* in the household to control for family size. In addition, the *city* where the family was interviewed was entered in all regression analyses to control for regional variations. Because the ethnicity of fathers and mothers was commonly consistent within families, only *mothers' ethnicity* (White, African American, Hispanic, or other) was entered as a background variable in regression analyses to avoid problems of multicollinearity. Given similar problems with parents' educational levels attained, and given a primary interest in examining the potential role of fathers' varied contributions to the family (including his educational background), mothers' educational level was omitted from regression analyses presented, whereas fathers' education was retained (described further below).

In addition to *mothers' ethnicity*, her *age* (in years), her self-reported *earnings* over the prior 12 months (excluding "off the books" earnings), and her self-reported *parenting stress* were also included as control variables. Mothers' parenting stress was assessed using a shortened version of the *Parenting Stress Index* (*PSI*; Abidin, 1995), which has reported satisfactory psychometric properties (Deater-Deckard & Scarr, 1996). The shortened PSI consisted of 11 self-report questions arrayed on a 4-point Likert-type scale (from "*strongly agree*" to "*strongly disagree*"), including such questions as "being a parent is harder than I thought it would be" and "I feel trapped by my responsibilities as a parent" ($\bar{X}$= 12.17, *SD* = 7.81, range = 0-44; α = .80).

Fathers' demographic and psychosocial predictors. To minimize sample attrition in regression analyses, fathers' demographic characteristics were drawn from mothers' reports when present, or when absent, from available fathers' self-reports. Rates of agreement between mothers and fathers on demographic variables (including age, ethnicity, and income) were compared at baseline, and found to be at a generally high level of agreement (kappa's ranging from .77 to .96). Fathers' demographic variables paralleled mothers' demographic variables and included his *age* (in years), his *earnings*, and his *employment status. Fathers' earnings* over the past year were assessed like mothers' (How much did you earn from (all of) your regular job(s) in the last 12 months, not including 'off the books' jobs), and both mothers' and fathers' earnings were natural log transformed to reduce skewness for regression analyses. *Fathers' employment status* assessed whether he was "employed" (if he was working full-time, in school full time, or both working and employed) or "unemployed" (if he was unemployed or looking for work). Those

fathers who were identified as incarcerated were omitted from the present analyses. *Fathers' educational level* attained was assessed and categorized into four levels: (a) less than high school; (b) high school/GED; (c) some college; (d) college graduate or higher.

Parents' current relationship status was assessed and categorized into four possible status types, consistent with prior work on family structure and health outcomes (e.g., Meadows, McLanahan, & Brooks-Gunn, 2008). Mothers were asked questions determining whether they were (a) married to and living with the father (married), (b) still romantically involved and living together with the father, but not married (cohabiting), (c) still seeing each other but not living together (visiting), or (d) "no longer involved" in a relationship with one another at the 3-year data collection point.

Father involvement with child was designed to assess the degree to which fathers were engaged in positive parenting activities with the index child. Mothers assessed on a scale from 0 (*never*) to 7 (*every day*) the number of days in a typical week fathers provided 13 different types of direct child care and activities, including singing songs with child, hugging or showing physical affection to child, telling child that he loves him or her, and reading stories to child ($\bar{X} = 40.68$, $SD = 24.60$; range = 0-91; $\alpha = .88$). Matched comparisons between mother reports and father self-reports on father involvement items indicate a mean discrepancy of 0.6 days per week across items (ranging from 0.2 to 1.1 days per week), indicating similar total assessment across mother and father reports, with mothers reporting slightly lower overall father involvement than fathers (Mikelson, 2008). The original design of the FFCW survey skipped father involvement questions when mothers stated the father was not known, the child had not seen the child in at least a month, or since his or her first birthday. Given this, and to minimize sample dropout on these questions, we recoded father involvement in these particular cases as 0.

Fathers' support toward the mother assessed mothers' perceived support from fathers with regard to parenting and household tasks. Mothers indicated on a 4-point scale how often ("*never*" to "*often*") fathers provided instrumental and emotional support to mothers. Instrumental support items included asking how often fathers ran errands, fixed things around the home, and took the child places she or he needed to go. Emotional support items included how often the mother trusted the father to take good care of child, and how often the mother and father talked jointly about problems that came up in raising child. Confirmatory factor analyses on these items indicated that they loaded as one unitary factor,

and the items were therefore combined into a single scale of paternal support ($\bar{X} = 22.4$, $SD = 8.32$, range = 0-30; $\alpha = .89$). The original FFCW survey design skipped paternal social support questions when mothers stated she and the father had no relationship since the birth of the child, the father has had no contact with the child, the father was unknown, or the father had not seen the child since his or her first birthday. To minimize sample dropout due to these skip patterns, we recoded paternal social support in these cases as 0.

Fathers' coercion toward the mother was assessed by asking mothers seven questions, on a 3-point scale ("*never*", "*sometimes*", or "*often*"), regarding how often fathers carried out physically and psychologically coercive behaviors toward the mother, including how often he insulted or criticized her, tried to keep her from seeing or talking with friends or family, withheld money, slapped or kicked her, and tried to make her have sex or do sexual things she did not want to do. Questions regarding direct physical aggression (e.g., slapping, kicking, hitting, and forced sex) were adapted from the Conflict Tactics Scale (CTS-2) for adults (Straus, 1979; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Negative psychological coercion questions were adapted from the Spouse Observation Checklist (Weiss & Margolin, 1977) and studies by Lloyd (1996). Confirmatory factor analyses of all seven items indicated that they loaded on a single overall factor, and therefore they were combined into one scale representing fathers' coercion toward the mother ($\bar{X} = 8.44$, $SD = 2.34$, range = 7-21; total scale $\alpha = .76$).

Outcome measures: maternal physical child abuse proxies. Both self-report and observational measures assessed aspects of parenting behavior that might foreshadow or indicate risk for physical child abuse. To assess risk for future physical child abuse, we opted for observational and maternal self-reported proxy measures that have been reported as predictive of risk for physical abuse over data from official protective services reports, themselves proxies inferred from investigatory practices. Prior studies have indicated that protective services reports are based on substantial variability and discretion across workers, agencies, and state contexts (e.g., King, Reece, Bendel, & Patel, 1998), and that individual worker choices are often subject to significant bias and inaccuracy (e.g., Socolar, Runyan, & Amaya-Jackson, 1995; King et al., 1998).

Home observation of the environment (HOME), observed punitiveness. The HOME maternal

nonpunitiveness subscale was completed by trained data collectors during the in-home interview when the child was 3 years of age. The HOME scales have been used widely in clinical and large-scale longitudinal studies with reported satisfactory psychometric properties in assessing qualities of the home environment that are related to a range of children's outcomes, including risk for physical child abuse (Totsika & Sylva, 2004). For the present study, items on the nonpunitiveness scale were reverse coded to comprise a scale of *maternal punitiveness*, which assessed mother's observed punitive behaviors toward the child, including the extent to which the mother did or did not shout at child, express annoyance with or hostility toward child, slap or spank the child, and scold or criticize the child during the interviewers' visit ($\bar{X} = .44$, $SD = .98$ range $= 0-5$; $\alpha = .78$).

Parent-Child Conflict Tactics Scales (CTS-PC), physical aggression. The CTS-PC (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) measure mothers' self-reported acts of aggression toward the child over the past year. The CTS-PC measure, which retains the same basic conceptualization and operationalization as the original CTS scale, has been used across multiple ethnic groups and in various nations with reported satisfactory psychometric properties, including predictive validity, temporal consistency, and discriminant validity (Straus et al., 1998). Examinations of social desirability biases of the original CTS scale (Straus & Gelles, 1990) have reported that accounting for social desirability biases does not alter the observed relationships between predictor and CTS scores, indicating such biases pose little threats to the CTS scales. To assess risk for physical child abuse, we employed the *physical aggression subscale* items assessing a range of physically aggressive mother-to-child behaviors, including how many times in the past year she shook the child, pinched him or her, slapped him or her on head, face, or ears. Items measuring the most severe physical aggression on this scale were dropped, as required by one Institutional Review Board overseeing the study methods ($\bar{X} = 18.45$, $SD = 18.30$, range $= 0-91$; $\alpha = .61$).

Maternal spanking was assessed by asking whether the mother had spanked the child over the past month, and if yes, how often on a 4-point ordinal scale (from "only once or twice" to "every day or nearly every day"), resulting in a 5-point scale (including "not in the past month"; $\bar{X} = 0.95$, $SD = 1.08$; range $= 0-4$). Prior research has consistently shown strong associations between corporal punishment and physical child abuse (Gershoff, 2002) and has linked use of corporal

punishment with future risk for child abuse (Crouch & Behl, 2001).

Statistical Analyses

To examine relationships among study variables, we conducted both bivariate and multivariate analyses. Given that the status of the dyadic parental relationship is often a preconditioning factor determining other elements of fathers' roles in family life, along with prior empirical associations identifying inordinate risk facing single mothers, we first conducted a series of bivariate one-way analyses of variance (ANOVA's) and χ^2 tests to examine differences across mother–father dyad types (whether married, cohabiting, visiting, or no longer involved with one another) on maternal child maltreatment risk and on fathering predictors.

Multiple regression analyses were then employed to examine parental relationship status and other father-related predictors of maternal physical abuse, controlling for important background factors. Negative binomial regression was employed for the punitiveness scale (HOME) and for the physical aggression scale (CTS). Negative binomial regression is a maximum-likelihood regression technique that extends Poisson regression for use with count data that are overdispersed relative to the Poisson distribution (Gardner, Mulvey, & Shaw, 1995). Poisson models are appropriate when outcome variables, such as the CTS and HOME scales employed in the present study, consist of nonnegative integer counts of relatively uncommon events, yielding nonnormally distributed and positively skewed distributions (Osgood, 2000). Ordinal logistic regression was employed for the spanking variable as it was arrayed ordinally.

For the spanking variable, we report coefficients as odds ratios, indicating the magnitude of predictive role for each factor on level of maternal spanking. For negative binomial regression, we report exponentiated β [exp(b)] coefficients, which take into account a logarithmic transformation in the regression equation between the mean of the physical abuse proxies and predictor variables. An exp(b) coefficient greater than 1 represents the proportionate degree of higher risk associated with one positive unit of difference in the predictor variable (whether scaled or categorical), and an exp(b) below 1 represents the proportionate degree of lower risk associated with one positive unit of difference in the predictor variable (Liaou, 1994; Osgood, 2000). To aid in interpretability of the exp(b) coefficients and odds ratios, the three-scaled father variables (father involvement with child, father support of mother,

and father coercion toward mother) were entered in the regression equations as *z* scores, with a unit difference in a *z* score predictor corresponding to one standard deviation. Across all child abuse risk proxies, exp(b) and odds ratio scores >1 represent greater risk, and exp(b) scores <1 represent lower risk associated with a given predictor.

Predictor variables were entered into the regression equation in two separate blocks. To examine the role of the mother–father relationship status after controlling for background factors, the first block contained control variables (number of adults and number of children in the household, mothers' age, race, earnings, self-reported parenting stress, and city) along with the mother–father relationship status (dummy coded with married mothers as the reference group). To examine the predictive role of the mother–father relationship status after accounting for other father factors, and to examine what specific father factors might uniquely predict maternal risk, we next entered fathers' demographic and psychosocial variables in the second block of predictors (fathers' age, employment status, earnings, educational attainment, support of mother, positive involvement with index child, and coercion toward mother). Regressions were conducted twice: first with the sample excluding cases dropped due to survey skip patterns on the father involvement and social support scales, and next with cases recoded as described to minimize dropout due to survey skip patterns. Significant findings across both regressions were identical, and thus regressions with the fuller study sample are reported here. No multicollinearity problems were detected with any predictor variables at either step of the regressions, with variance inflation factors (VIF) no higher than 3.42 (tolerance = .29) across all three steps.

Results

Table 2 summarizes significant differences found in both study predictor variables and outcome variables by mother–father dyad type. As reported in Table 2, mother–father dyad types show significant differences on all study father predictor, maternal, and outcome variables. Married mothers are older and report greater earnings as compared to mothers who are cohabiting, visiting, or no longer involved with fathers. With regard to father predictor variables, Table 2 indicates that married fathers are more likely to be White and have higher overall educational attainment, with higher proportions having completed college. In addition, they are employed at higher rates than fathers who are not married to mothers. Similarly, married fathers are significantly older and report greater earnings than fathers in other mother–father dyads. Married and cohabiting mothers report less parenting stress, greater support from fathers, greater positive father involvement with the child, and less coercion from the father, in comparison to mothers who are visiting or no longer involved with fathers.

With regard to differences in maternal child abuse risk proxies, Table 2 indicates that married mothers exhibited significantly less punitive behavior than cohabiting mothers, mothers in visiting relationships, or those no longer involved with fathers. Married mothers also reported lower physical aggression than mothers who were no longer involved with fathers. Mothers cohabiting with fathers exhibited less punitive behavior than mothers visiting with fathers, and they also reported lower physical aggression than mothers who were no longer involved with fathers. Finally, although married and cohabiting mothers report lower mean spanking scores than mothers who are in visiting relationships with fathers or those no longer involved with fathers, these differences are not statistically significant.

Table 3 presents the regression analyses examining the mother–father relationship status, and father factors that may predict maternal physical child abuse proxies. Regarding the mother–father relationship status, after controlling for background variables in Step 1, mothers in visiting relationships with fathers are at significantly higher risk than married mothers on the observed maternal punitive behavior HOME scale. However, after entering father factors in Step 2, the magnitude of the effect declines and is no longer statistically significant. Regarding the physical aggression subscale of CTS-PC, after controlling for background factors at Step 1, no significant differences appear across mother–father relationship status types. However, at Step 2, after adjusting for potentially important father factors, mothers in visiting relationships with fathers, and mothers who are no longer involved with fathers are at significantly lower risk when compared to married mothers. With regard to mothers' self-reported spanking, after controlling for background factors in Step 1, mothers who are cohabiting, visiting, or no longer involved with fathers are at significantly lower risk than married mothers. After adjusting for father factors at Step 2, these associations remain statistically significant, and the magnitude of this association (i.e., married mothers at higher risk compared with other mother–father dyad types) becomes stronger. Across all maternal physical abuse proxies, the direction of change of the exp(b) scores from Step 1 to Step 2 consistently indicates a

Table 2
Differences in Demographic, Predictor, and Outcome Variables by Mothers' Relationship
Status With Father

	Married	Cohabiting	Visiting	No Relationship
χ^2 tests				
Father's ethnicity[***]				
White	71.5%	12.2%	12.2%	4.1
African American	21.0	28.0	36.0	15.0
Hispanic	45.9	29.6	17.4	7.2
Other	59.6	17.0	19.2	4.3
Father's education[***]				
Less than high school	25.7%	30.1%	31.2%	13.1%
High school	29.6	26.5	30.7	13.2
Some college	44.5	25.0	22.6	8.0
More than college	89.8	4.1	5.4	.7
% of fathers employed[***]	90.9%	80.6%	67.1%	58.5%
One-way ANOVA's				
Predictor variables				
Mother's age[***]	$27.66^{a,b,c}$	24.23^a	23.74^b	23.16^c
Maternal parenting stress[***]	$10.63^{a,b}$	$11.87^{c,d}$	$13.71^{a,c}$	$14.52^{b,d}$
Mother's earnings[***]	$38,201^{a,b,c}$	$18,401^a$	$16,657^b$	$14,828^c$
Father's age[***]	$30.21^{a,b,c}$	26.45^a	26.45^b	25.69^c
Father's earnings[***]	$89,761^{a,b,c}$	$33,992^a$	$23,790^b$	$23,252^c$
Father's support[***]	$26.36^{a,b}$	$26.54^{c,d}$	$19.18^{a,c,e}$	$6.79^{b,d,e}$
Father's involvement[***]	$50.99^{a,b}$	$53.70^{c,d}$	$28.42^{a,c,e}$	$4.31^{b,d,e}$
Coercion toward mother[***]	$7.78^{a,b}$	$7.75^{c,d}$	$9.01^{a,c,e}$	$10.96^{b,d,e}$
Outcome variables				
Punitiveness[***]	$.25^{a,b,c}$	$.44^{a,d}$	$.64^{b,d}$	$.60^c$
Physical aggression[**]	17.04^a	17.64^b	19.29	$23.23^{a,b}$
Spanking	.95	.84	1.01	1.03

Note: For fathers' ethnicity and education, row percentages are reported. For one-way analyses of variance (ANOVA's), significant differences between cell pairs are denoted by letter-pair superscripts, from Bonferroni post hoc comparisons. On fathers' and mothers' earnings, ANOVA's performed on natural log transformed values (raw means indicated above).
[**] $p < .01$.
[***] $p < .001$.

relative increase in risk for married mothers compared to others, after including father-related factors in the regression models.

Examining the role of specific father factors in the regression analyses, fathers' age significantly predicts mothers' observed punitive behavior, with older fathers associated with greater maternal punitiveness. Fathers' employment status and earnings do not predict maternal abuse risk on any of the three indicators in Table 3. Fathers who are college-educated or higher are associated with significantly lower risk on mothers' self-reported physical aggression and her spanking behavior, when compared to fathers with less than a high school education. With regard to specific father psychosocial factors, mothers who report greater positive father involvement with the index child report significantly lower physical aggression (with a unit increase in the father involvement z scores associated

with 14% decrease in physical aggression scores) as well as lower spanking (with a unit increase in father involvement z scores associated with a 26% decrease in spanking scores). Mothers who reported greater coercion from fathers also self-reported greater spanking behavior, with a unit increase in father coercion z scores associated with a 16% increase in maternal spanking scores. Fathers' support of the mother in the parenting role did not independently predict maternal risk on any of the three proxy indicators of physical child abuse.

Discussion

This study presents a multivariate picture of the relationship status of the mother–father dyad, in conjunction with an array of fathering factors that may be linked with

Table 3
Negative Binomial and Ordinal Logistic Regressions of Paternal Factors and Maternal Physical Child Abuse Proxies[a,b]

	Punitiveness							
	Step 1				Step 2			
	B	*SE*	Wald	Exp(b)	B	*SE*	Wald	Exp(b)
Relationship status								
Married	–	–	–	–	–	–	–	–
Cohabiting	.31	.17	3.13	1.36	.26	.18	2.16	1.30
Visiting	.51	.18	8.11	1.66[**]	.34	.20	2.75	1.40
No relationship	.20	.23	.78	1.23	−.14	.31	.20	.87
Paternal factors								
Father age (years)					.02	2.02	4.09	1.02[*]
Father work status					−.26	−1.78	3.17	.77
Father earnings (LN)					.02	.61	.37	1.02
Fathers' education: <HS					–	–	–	–
Completed high school					−.11	−.76	.58	.89
Some college					−.26	−1.44	2.08	.77
College graduate or >					−.55	−1.68	2.81	.56
Father support of mother					−.18	−1.58	2.49	.84
Father involve with child					.07	.77	.59	1.08
Father Coercion toward mother					−.03	−.41	.17	.97

	Physical Aggression							
	Step 1				Step 2			
	B	SE	Wald	Exp(b)	B	SE	Wald	Exp(b)
Relationship status								
Married	–	–	–	–	–	–	–	–
Cohabiting	−.13	.08	2.38	.88	−.15	.09	3.06	.86
Visiting	−.17	.09	3.72	.84	−.38	.10	14.84	.68[***]
No relationship	−.09	.11	.60	.92	−.48	.16	9.63	.62[**]
Paternal factors								
Father age					−.00	.01	.25	1.00
Father work status					−.05	.08	.31	.96
Father earnings (LN)					−.00	.02	.00	1.00
Fathers' education: <HS					–	–	–	–
Completed high school					.05	.08	.42	1.05
Some college					.09	.09	.94	1.09
College graduate or >					−.30	.14	4.78	.74[*]
Father support of mother					−.02	.06	.10	.98
Father involve with child					−.15	.05	8.84	.86[**]
Father coercion toward mother					.03	.04	.46	1.03

	Spanking							
	Step 1				Step 2			
	B	SE	Wald	Odds Ratio	B	SE	Wald	Odds Ratio
Relationship status								
Married	–	–	–	–	–	–	–	–
Cohabiting	−.44	.09	10.38	.64[***]	−.47	.09	11.24	.62[***]
Visiting	−.29	.11	4.12	.74[*]	−.63	.09	15.00	.53[***]
No relationship	−.37	.13	3.83	.69[*]	−1.01	.10	14.61	.36[***]

(continued)

Table 3. (continued)

| | Spanking | | | | | | | |
| | Step 1 | | | | Step 2 | | | |
	B	SE	Wald	Odds Ratio	B	SE	Wald	Odds Ratio
Paternal factors								
Father age					.00	.01	.02	1.00
Father work status					.07	.14	.27	1.07
Father earnings (LN)					.01	.03	.21	1.01
Fathers' education: <HS					–	–	–	–
Completed high school					.11	.14	.74	1.11
Some college					.08	.16	.26	1.08
College graduate or >					−.48	.14	4.35	.62[*]
Father support of mother					.07	.10	.54	1.07
Father involve with child					−.03	.06	14.71	.74[***]
Father coercion toward mother					.14	.07	5.48	1.16[*]

Note: – denotes reference group; HS = high school.

a. Negative binomial regressions conducted on punitiveness and physical aggression count scales (exponentiated βs shown), and ordinal logistic regression conducted on spanking (odds ratio's shown).

b. Control variables not shown: Number of adults in household, number of children in household, mother's age, mother's race, mother's earnings, mother's parenting stress, and city.

[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

greater risk for maternal physical child abuse risk. Although cross-sectional, it presents a more comprehensive examination from a national nonclinic-based sample of potential father-related factors that may shape mothers' risk for physical child abuse than previously available. At the bivariate level, results are generally consistent with earlier studies, indicating that single mothers face greater risk for physical child abuse perpetration (e.g., Dubowitz et al., 1987; Gelles, 1989). From the bivariate vantage point, married mothers, and to a somewhat lesser extent, mothers cohabiting with fathers, are at lower risk for physical child abuse across observed and self-reported indicators, when compared with mothers who are in visiting relationships with fathers or with mothers who are no longer involved with fathers. At the same time, the bivariate picture also shows that married mothers tend to be better off financially (married mothers and fathers report higher income) and report less parenting stress than all other nonmarried mothers. As well, bivariate analyses also indicate that potentially important father-related factors also vary by the status of the mother–father relationship, including fathers' income, educational level, paternal support of and coercion toward the mother, and father' involvement with the index child.

In multivariate analyses, after accounting for important background factors of family size, geographic region, and mothers' age, race, income, and self-reported stress, Step 1 of the regression analyses indicates that married mothers are at higher risk of spanking than all other (nonmarried) mothers, and that married mothers do not significantly differ from nonmarried mothers on their self-reported physical aggression toward the child. Marriage remains linked with lower risk only in comparison to mothers in visiting relationships with fathers on observed punitive behavior, but this association washes out at Step 2 of the regression analyses, after including potentially important fathering factors. At Step 2, after accounting for fathering factors, marriage is not linked with lower risk on any child abuse proxy measure and indeed is linked with greater risk on self-reported physical aggression and spanking when compared to mothers in visiting relationships or no longer involved with fathers.

We considered a variety of unobserved potential confounding factors that might explain this unexpected pattern. For example, given that married families in this sample reported overall higher incomes than others, we considered whether married mothers were able to spend more time with their children than nonmarried mothers and therefore reported higher use of physical discipline simply by virtue of having greater time exposure to their children. However, controlling for indicators of mothers'

time exposure to their children had no discernable impact on these overall patterns observed in the regression equations, providing no support for this possible explanation.

We also considered whether marriage served as a proxy for more traditional family and parental roles and mores which might include a greater use of corporal punishment. However, again, controlling for indicators of more traditional family mores in our regressions (such as parents' traditional gender role attitudes or religious participation) did not change the overall pattern of results either. We considered other potential confounds that might explain this pattern, such as household composition and size, and even gender of the child; however, none of these variables showed any discernable influence on the observed effects. Although in subgroup analyses we detected select variations in these overall patterns across ethnic groups and income levels (e.g., we observed a stronger marriage risk pattern in lower income families, and an attenuation of this trend in Hispanic families), the pattern found in the full sample, after accounting for logical confounding factors, suggests that this observed relationship is a rather resilient one. Considered from the multivariate standpoint then, higher risk scores associated with marriage on mothers' self-reported physical aggression and spanking strongly suggests that marriage, by itself, is not best viewed as a key protective element reducing risk for maternal physical abuse. After accounting for background and fathering factors in a multivariate fashion renders much of the heretofore observed protective aspects of marriage on maternal abuse risk negligible and suggests what may in fact be some previously undocumented risk associated with marriage per se. In sum, the Step 1 to Step 2 multivariate regression patterns, combined with bivariate analyses of parental dyad type differences, strongly suggest that parents' married relationship status may best be viewed as serving as a proxy for other factors, some of which are related to fathers' contributions to the family. The present study thus places the role of marital status in a new multivariate light in unexpected ways and points out a need for future studies to disentangle what preliminarily suggests a potential meditational protective role of specific fathering (notably father involvement and higher education) or other factors in the pathway between marital status and maternal physical child abuse risk (c.f., Baron & Kenny, 1986).

We observed several novel patterns when examining the father-related factors that appear to play the most discernable role in mothers risk for physical child abuse. First, findings from the regression analyses provided little support for the notion that fathers' economic contributions to the family explain how the mother–father relationship status (particularly single motherhood) shapes mothers' physical child abuse risk (c.f., Dubowitz, 2006), and indeed, we found little evidence of a direct role played by fathers' economic contributions on mothers' physical child abuse risk. This is consistent with our prior multivariate work similarly indicating little support for economic factors on fathers' own physical child abuse risk (Lee et al., 2008). Instead, Step 2 of the regression analyses indicates select psychosocial factors that may explain fathers' roles in mothers' physical child abuse risk. Previously unreported, we find that fathers' higher educational attainment (specifically father's completion of college when compared against those who had less than a high school education) emerged as an observable protective factor. It is important to note that this pattern held even when we considered and then controlled for mothers' own educational attainment (not shown), indicating that fathers' higher educational attainment operates independent of mothers' educational attainment on her maltreatment risk. Although several prior studies have linked fathers' work status (e. g. Wolfner & Gelles, 1993) as well as family socioeconomic status (e.g., Sedlak & Broadhurst, 1996) to physical maltreatment risk, we are unaware of any prior studies that have specifically identified fathers' attainment of a college degree as an important protective element in maternal maltreatment risk.

In addition, fathers' greater positive involvement with the index child is linked with lower maternal child abuse risk across both self-reported spanking and physical aggression. These latter findings add some contrast and raise questions about potential differential etiological patterns across physical abuse and child neglect when considered in conjunction with findings reported by Dubowitz et al. (2000). This earlier study reported that African American fathers' greater involvement in child care (but less overall long-term involvement in the family) was associated with *greater* child neglect (physical abuse was not assessed). It must be noted that the measure of father involvement in the present study, which employed a national multiethnic sample, was one that assessed absolute father involvement across a variety of activities and behaviors, in contrast to that employed by Dubowitz et al. (2000) study, which assessed comparative degree of child care involvement (i.e., which parent provided more child care), suggesting the means of operationalizing fathers' involvement with their children may be consequential in determining its observed role in shaping risk. It may be both that a father's overall

positive involvement with the child serves a protective mechanism, and when mothers become less engaged and neglectful, fathers' also compensate by providing greater needed child care. Clearly, these findings suggest the importance of developing a better understanding of fathers' involvement and child maltreatment risk, given the links reported here between fathers' involvement and lower risk, and the current paucity of prior empirical examination of fathers' involvement as a potential protective factor for child abuse.

Somewhat unexpectedly and in contrast to prior studies (e. g. Zelenko et al., 2001), fathers' support of mothers played no discernable role in predicting mothers' physical child abuse risk on any of the three abuse proxy variables, and fathers' coercion toward the mother only predicted her self-reported spanking. Given that fathers' support of and domestic violence toward mothers' has been linked with child maltreatment in prior studies (e.g., Edleson, 1999; Salzinger et al., 2002), these findings raise more questions than provide answers. For example, is it possible that the prior observed relationship between both father support and domestic violence with physical child abuse is partially attributable to other variables considered here that shape both (such as mothers' age, or fathers' education or involvement with the child)? Clearly the findings here, although not answering these important questions suggest the need for further focused study on the interrelationship between domestic violence and physical child abuse risk, after considering a full array of potential confounding third factors.

Several study limitations should be noted. First, as in all cross-sectional analyses, inferences about the direction of causality are limited, and it is possible that the directionality of the findings reported may differ from those implied by the findings here. For example, it is possible that the observed associations found between fathering factors and maternal physical child maltreatment risk are explainable by some as yet unmeasured third factor or by mother-father-child interactive patterns not discernable by the present analyses. Second, although the sample employed in the present study draws from families across 20 U.S. cities, it should not be viewed as a nationally representative one. Like other large-scale longitudinal studies, the study sample likely held some selection and attrition biases that may have shaped the findings, raising a precautionary caveat against drawing general inferences to the broader national population of young families in the U.S. or beyond. Third, to minimize sample dropout, this study relied primarily on mothers' reports of fathering characteristics, and prior studies have underscored meaningful discordances between mothers' and fathers' reports of parenting-related processes (e.g. Mikelson, 2008; Phares & Compas, 1992). Given this, further studies are necessary that document fathering risk elements that triangulate mothers' reports of father's contributions, such as via paternal self-report or observations of fathers' behaviors in the family context.

Despite these limitations, this national multivariate study has underscored a need to rethink the notion of marriage, per se, as a protective element in risk for maternal physical child abuse, and indeed it sheds a cautionary light on policy efforts focused exclusively on marriage promotion, without simultaneously considering the varied contributions fathers bring to a family to promote child well-being and safety. Considered in a more multifaceted fashion, the findings in this study do not suggest that marriage promotion by itself will be a preferable strategy for child safety and well-being, and indeed, if not considered in conjunction with fathering and other contributing risk and protective elements in the family context, such a strategy may even hold some risk. The present study has pointed out the importance of considering the varied contributions fathers provide to families, beyond economic contributions to psychosocial ones, and has begun to specify fathering factors (such as his positive involvement with the child or his educational background) most clearly linked with mothers' physical abuse risk. Although further study is necessary to more clearly disentangle father-related causal pathways to maternal maltreatment, this study has emphasized that while economic contributions may yet be important in child well-being and safety, fathers' psychosocial contributions to the family appear to deserve greater attention in the future. Once corroborated, findings reported in this study can begin to guide empirically grounded father-focused risk assessment strategies in clinical practice and can further aid in identifying specific evidence-based father-focused targets for preventive intervention. Findings such as these can begin to provide an empirical undergirding for the growing efforts in practice and policy to address the role of fathers in effectively preventing child maltreatment.

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Neil B. Guterman is the Mose and Sylvia Firestone Professor at the School of Social Service Administration and faculty associate at the Chapin Hall Center for Children, both at the University of Chicago. His interests focus on preventing child maltreatment and victimization, and he currently directs the Beatrice Cummings Mayer Program in Violence Prevention.

Yookyong Lee is an Assistant Professor at Temple University School of Social Administration. Her research interests focus on child and family policy, family violence and father involvement.

Shawna J. Lee is an Assistant Professor in the School of Social Work and faculty affiliate of the Merrill-Palmer Skillman Institute for Child and Family Development, both at Wayne State University. Dr. Lee's research focuses on the role of fathers in the etiology of physical child abuse and the nexus of work-family life for low income mothers.

Jane Waldfogel is a Professor of Social Work and Public Affairs at the Columbia University School of Social Work. She is also a research associate at the Centre for Analysis of Social Exclusion (CASE) at the London School of Economics. Her work has focused on the impact of public policies on child and family well-being.

Paul J. Rathouz is an Associate Professor of biostatistics in the Department of Health Studies at the University of Chicago. His research interests focus on the use of estimating functions as tools for statistical inference in the presence of nuisance parameters.