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Repeated exposure to high-frequency spanking and child externalizing behavior across the first decade: A moderating role for cumulative risk

Michael J. MacKenzie, Ph.D.^{1,*}, Eric Nicklas, Ph.D.¹, Jeanne Brooks-Gunn, Ph.D.², and Jane Waldfogel, Ph.D.¹

¹ School of Social Work, Columbia University

² Teacher's College and College of Physicians and Surgeons, Columbia University.

Abstract

This study used the Fragile Families and Child Well-being study to examine the effects of repeated exposure to harsh parenting on child externalizing behavior across the first decade of life, and a moderating role for cumulative ecological risk. Maternal report of harsh parenting, defined as high frequency spanking, was assessed at age 1, 3, 5, and 9, along with child externalizing at age 9 (N=2768). Controlling for gender, race, maternal nativity, and city of residence, we found a cumulative risk index to significantly moderate the effects of repeated harsh parenting on child behavior, with the effects of repeated high-frequency spanking being amplified for those experiencing greater levels of cumulative risk. Harsh parenting, in the form of high frequency spanking, remains a too common experience for children, and results demonstrate that the effects of repeated exposure to harsh parenting across the first decade are amplified for those children already facing the most burden.

Keywords

harsh parenting; cumulative risk; spanking; aggression; rule-breaking; externalizing behavior

The experience of harsh parenting, in the form of frequent physical punishment, has been consistently found to be associated with later externalizing behavior (Benjet & Kazdin, 2003; Durrant & Ensom, 2012; Gershoff, 2002; Lee, Altschul & Gershoff, 2013; MacKenzie, Nicklas, Waldfogel & Brooks-Gunn, 2012; MacKenzie, Nicklas, Waldfogel & Brooks-Gunn, 2013; Taylor, Manganello, Lee, & Rice, 2010). The importance of increasing our understanding of the links between harsh parenting and downstream child behavior is underscored by the ongoing use of frequent spanking as a parenting tool in families (Durrant & Ensom, 2012; Straus & Stewart, 1999), beginning as early as the first year of life (MacKenzie, Nicklas, Brooks-Gunn & Waldfogel, 2011). This disconnect between the

*Corresponding Author: 1255 Amsterdam Ave, NY, NY, 10027. mm3038@columbia.edu.

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findings on behavioral outcomes associated with spanking and the persistent reliance on it as a tool by families has led to explicit calls in the United States and Canada for the healthcare and child welfare communities to work with families on alternative modes of discipline and positive parenting (Fletcher, 2012; Wolraich, Aceves, Feldman, et al., 1998).

Whether spanking per se constitutes child maltreatment is a matter of some debate (Brooks-Gunn, Schneider, & Waldfogel, 2013), but it is clear that frequent spanking, particularly in early childhood may signal elevated risk for child maltreatment (Bugental and Happaney, 2004; Lee, Grogan-Kaylor, & Berger, 2014; MacKenzie et al., 2011). A range of research has demonstrated that high frequency use of physical discipline may indicate an increased likelihood of child abuse, as parental physical discipline practices escalate to abuse (Gershoff, 2002; Gil, 1973). Associations have also been found between parental beliefs in corporal punishment, reported stress, and physical child abuse potential (Crouch and Behl, 2001, Gershoff, 2002, Haskett et al., 1995, Rodriguez et al., 2011), and child maltreatment reports (Brooks-Gunn, Schneider, & Waldfogel, 2013).

An area where important knowledge gaps remain is in potential moderators of the association between frequent harsh parenting and externalizing behavior. In particular, the potential for broader measures of cumulative family burden and socioeconomic risk to interact with harsh parenting in its association with downstream increases in aggression and rule breaking behavior important to the onset of Conduct Disorder has been little studied. Maltreatment research has highlighted the need for considering the cumulative effects of ecological risk on the etiology of harsh parenting (Appleyard, Egelant, van Dulmen & Sroufe, 2005; MacKenzie, Kotch, & Lee, 2011; Masten & O'Dougherty Wright, 1998; Nair, Schuler, Black, Kettinger, & Harrington, 2003), and in our thinking about the downstream behavioral sequelae associated with maltreatment (MacKenzie, Kotch, Lee, Augsberger, & Hutto, 2011). More recently, these cumulative risk perspectives have begun to also inform our understanding of the etiology and sequelae of high frequency spanking early in development (MacKenzie, et al, 2012; MacKenzie et al., 2013).

Emerging from research on the etiology of heart disease (Dawber, Meadors & Moore, 1951), the cumulative risk perspective has informed understanding of developmental psychopathology (Rutter, 1979; Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998), and been applied across a variety of social and cognitive domains (Belsky & Fearon, 2002; Dong, Anda, Felitti, Dube, Williamson, Thompson, et al., 2004; Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, et al., 1998; Liaw & Brooks-Gunn, 1994; Sameroff, Seifer, Baldwin, & Baldwin, 1993; Whitaker, Orzol, & Kahn, 2006). The cumulative risk perspective has provided cross-domain evidence that the total level of risk differentiates those who are at risk for a given outcome better than any single risk factor (Evans, Li, & Whipple, 2013; Pressman, Klebanov, & Brooks-Gunn, 2012).

The cumulative risk perspective is in keeping with important theoretical models that speak to the connection between risk and disrupted parenting processes, such as Bronfenbrenner's ecological model (1977). Bronfenbrenner's conceptualization of the nested systems of the family's ecology suggested, particularly in early childhood, that more distal macro- and exo-system risks only impact the child to the extent that they disrupt more proximal micro-

system processes, such as parenting behaviors and harshness and sensitivity. In keeping with this approach and conceptualizations of cumulative ecological risk models of child maltreatment (MacKenzie, Kotch and Lee, 2011), the current study attempts to address current shortcomings in our understanding of the effects of frequent spanking over time, and to examine whether the effects are more detrimental in contexts of greater social risk by integrating cumulative models of ecological risk into prospective longitudinal research.

Examining the potential moderating role of cumulative ecological risk on the association of high frequency spanking with downstream child externalizing behavioral outcomes across the first decade of life represents a potentially significant step forward in our ability to understand the consequences of harsh parenting for child outcomes and the contexts in which children are likely to be most affected.

Method

Sample

We use data from the Fragile Families and Child Well-Being Study (FFCW; Reichman, Teitler, Garfinkel, & McLanahan, 2001). FFCW is a longitudinal birth cohort study of children born between 1998 and 2000 in 20 medium to large U.S. cities. The sample is diverse and when weighted is representative of births in medium to large U.S. cities.

Baseline in-person interviews took place in the hospital shortly after the focal child was born. Follow-up interviews were conducted by telephone when the focal child was approximately 1 year-of-age, again when the child was approximately 3 years-of-age, and also when the child was approximately 5 and 9 years-of-age. In addition, in-home interviews and visits were held with the mothers and children at age 3 and 5 to supplement the phone interviews. Our study's analytic sample is limited to families in which there were valid responses on the key variables from these interviews including the 9 year-old externalizing behavior outcome variable. The resultant sample included 2,768 children and their families.

Measures

Harsh Parenting—Exposure to harsh parenting was defined as the number of assessment waves where mothers reported high frequency spanking, in order to best capture the child's experience of repeated harsh parenting through age 9. Spanking was measured by a question asked of the mother at the first three waves at age 1, 3 and 5, asking; “...(i)n the past month, have you spanked (CHILD) because (HE/SHE) was misbehaving or acting up?.” Mothers who reported spanking in the past month were also asked about their frequency of spanking in the past week, and those who spanked two or more times per week were considered high frequency and placed in the harsh parenting group for that particular assessment wave.

At year 9, these items were not available. However, the spanking item from the Conflict Tactics Scale for Parent and Child (CTSPC; Strauss, Hamby & Finkelhor, 1998) was available. The question asks whether the parent spanked the child with hand on bare bottom in the past year and if so, how often. The two responses representing the highest frequency of spanking (11-20 times, or more than 20 times in the past year) were coded as high frequency spanking, placing the family in the harsh parenting category.

Children could be coded as having experienced harsh parenting at 0, 1, 2, 3, or all 4 of the four assessment waves by age 9. While earlier research has demonstrated high levels of continuity of any use of spanking across the first decade, when it comes to high frequency spanking, only 4.1% (n=114) of children experienced 2 waves of harsh parenting, 1.2% (n=34) experienced 3 waves of harsh parenting, and 0.3% (n=8) experienced harsh parenting at all 4 waves. As shown in Table 1, we thus placed into one category all children who experienced 2 or more waves of harsh parenting (5.6% of children, n=156).

Child Externalizing Behavior—Mothers reported on child externalizing behavior at 9 years-of-age using Achenbach and Rescorla's (2001) Child Behavior Checklist (CBCL). The CBCL Externalizing behavior score draws upon 35-items asked of the mother across the in-home and phone interviews. These items comprise the aggression and rule-breaking subscales available in the CBCL, with responses ranging from Not True (0), to Sometimes True (1), and Often True (2) (Mean 6.34 [S.D.=6.90]).

Cumulative ecological risk index—A total of 15 binary risk factors were summed to create a cumulative risk index at age 1. The index therefore captures the early environment in which children were raised and the early risks which they faced. Some risk factors had clear cut-points, such as presence or absence of incarceration history, or above or below the poverty line, whereas other risks were defined by sample specific cut-points such as being more than a standard deviation below the mean for economic hardship. Specific binary cut-point information for each of the 15 risk factors that comprise the index are provided below. To conserve degrees of freedom in analysis, and in keeping with existing literature on cumulative risk groups (MacKenzie, Kotch & Lee, 2011; Rutter, 1979; Sameroff et al., 1998), we collapsed the risk scores into low (0-1 risks), medium (2-5 risks) and high (6 or more risks) cumulative risk groups, with roughly one quarter of the sample in both the low and high risk groups. The first two risks were late starting or no prenatal care (if care was initiated after first trimester or not initiated at all) and low birth weight (< 2500 g).

The third risk factor captured reduced maternal cognitive functioning, with the risk condition being indicated by a maternal score of 1 S.D. below the mean on a modified version of the Similarities subtest of the Weschler Adult Intelligence Subscale – Revised (WAIS-R). The fourth risk factor was indicated if the two biological parents were not cohabitating or married at age 1. The fifth risk factor was indicated if the mother reported having less than a high school diploma or GED. The sixth risk factor for maternal health was indicated if the mother reported her overall health to be less than very good or excellent, the two top responses on a five-point scale asking about general health.

The seventh risk factor was a dummy variable set to 1 if the mother reported symptoms that indicate potential Depression or Generalized Anxiety Disorder (GAD) when the child was age 1. Maternal depressive symptoms were measured using an 8-point scale drawn from the Composite International Diagnostic Interview-Short Form (CIDI-SF; Nelson, Kessler, & Mroczek, 1998) and scored by assigning one point for each affirmative response. The CIDI-SF depression measure has been widely used in prior research and can be coded either as a dichotomous measure of major depression “caseness” or as an index of depressive symptoms. We use the former approach, categorizing a respondent as potentially suffering

from depression if she scores 3 or higher. Mothers' symptoms of anxiety are measured using the CIDI-SF for general anxiety disorder (GAD). The stem questions for GAD on the CIDI-SF considers whether the mother experienced a period lasting a month or more where she felt worried or anxious most of the time and, if so, what was the longest lasting period. The stem conditions coupled with affirmative responses on at least three physiological symptoms result in the respondent being coded with potential GAD. We coded the mother as 1 if she was identified as potentially suffering from either depression or anxiety when the child was age 1. The eighth risk factor captured any smoking, taking any drugs or moderate to heavy alcohol use at the year 1 interview. The ninth risk factor was a dummy variable indicated if the mother reported 3 or more children under 18 in the home at the age 1 interview. The 10th risk factor recorded any indication of receipt of TANF or Food Stamps in the past 12 months at the age 1 interview. The 11th risk factor was a binary measure of poverty based on mother's household income to needs ratio being at or below poverty level at year 1. The 12th risk factor was a measure of family economic hardship, with the risk factor indicated for families more than 1 S.D. from the mean at year 1. The hardship score is based on the mother's responses to 12 Yes (1)/No (0) questions on economic conditions faced in the past year, e.g., trouble paying utilities, not paying rent, borrowing money from friends/family.

The 13th risk factor was a measure of maternal parenting stress at age 1, with the risk factor indicated for all families scoring more than 1 S.D. from the mean toward higher stress at age 1 using a 16-point continuous scale based on 4 items from the Panel Study of Income Dynamics – Child Development Supplement's Aggravation in Parenting Scale (Mainieri, & Grodsky, 2006). The 14th risk factor captured any maternal report at age 1 of Intimate Partner Violence. The 15th and final risk factor in the index was indicated if the child's father had any history of incarceration.

Control variables—Four demographic characteristics were included in the externalizing behavior models as controls – child gender, maternal race/ethnicity, maternal nativity status (foreign- vs U.S.-born), and city of residence to take into account potential city fixed effects across the sample drawn from 18 U.S. cities included in this analysis. These were not included as potential moderators because earlier work with this sample through age 5 years did not find gender, race, or city effects to moderate the association between harsh parenting and externalizing behavior (MacKenzie, Nicklas, Waldfogel and Brooks-Gunn, 2012).

Analysis

We used data from FFCW to estimate a two-way ANOVA predicting externalizing behavior at age 9 from early cumulative risk score, a measure of number of waves of harsh parenting experienced across the first decade of life, and further controls for child gender, maternal race/ethnicity, city of interview, and maternal nativity status. We also included the interaction term between cumulative risk and harsh parenting to determine if the effects of repeated harsh parenting on child externalizing were moderated by the experience of early cumulative ecological risk.

Results

The descriptive information for the study sample is presented in Table 1. The data underscore the high levels of frequent spanking, with nearly one in five of the children experiencing frequent spanking for at least one of the four assessment waves at ages 1, 3, 5, or 9. Of particular concern, 6% of the children experienced this marker of harsh parenting at two or more assessment waves. Complicating the experiences of the children experiencing harsh parenting was the high level of cumulative ecological risk families in the overall sample were experiencing (Mean 3.7 risk factors [S.D.=2.3]), with only 23% of the families having fewer than 2 risk factors, and 27% experiencing 6 or more risk factors.

With harsh parenting and cumulative risk group in the full model, and controlling for city of residence ($F(17, 2731)=1.34, p=.16$), race/ethnicity ($F(3, 2731)=1.08, p=.36$), maternal nativity ($F(1, 2731)=4.07, p=.04$; higher externalizing for children of immigrant mothers), and child gender ($F(1, 2731)=15.65, p<.001$; higher externalizing for boys), number of waves of frequent spanking had a significant main effect ($F(2, 2731)=36.88, p<.001$), such that having experienced more waves of high frequency spanking was associated with increased externalizing behavior at age 9 (0 waves: Mean 5.92 [S.E.=.28]; 1 wave: Mean 8.20 [S.E.=.46]; 2 or more waves: Mean 10.38 [S.E.=.65]). There was also a significant main effect for cumulative risk ($F(2, 2731)=31.06, p<.001$), with increased risk exposure predicting higher externalizing behavior (Low risk: Mean 5.54 [S.E.=.58]; Medium risk: Mean 8.22 [S.E.=.38]; High risk: Mean 10.74 [S.E.=.48]). The interaction between harsh parenting and cumulative risk was also significant ($F(4, 2731)=3.24, p=.01$), such that the association between increased waves of harsh parenting and externalizing behavior was stronger for those experiencing greater levels of cumulative risk (Figure 1).

Discussion

The findings add additional evidence to the literature establishing an association between high frequency spanking and child externalizing behavior (Durrant & Ensom, 2012; Gershoff, 2002; MacKenzie et al., 2013; Taylor et al., 2010), and extend those findings by examining the effects of repeated harsh parenting interacting with cumulative risk across the first decade of life. Our analysis is distinctive in the inclusion of the cumulative risk perspective, and in the inclusion of data on harsh parenting from age 1 through 9, a wider range than has been typically available in the literature to date.

Harsh parenting, assessed by the experience of high frequency spanking at a given assessment wave, was an all too common experience for children in the study, with a fifth experiencing harsh parenting for at least one of the assessment periods. For most, this was a transient developmental experience, but six percent experienced harshness more chronically with high frequency spanking at two or more of the four different assessment periods across the first decade of life. While prior studies have examined the main effects of harsh parenting and of cumulative risk separately, our study is unique in considering them together and exploring potential interactive effects.

A key finding is that the association between repeated frequent spanking and externalizing behavior at age 9 was moderated by cumulative risk, such that those facing higher levels of risk showed an amplified effect of harsh parenting on externalizing behavior. This is particularly important clinically given that the rule-breaking and aggressive behaviors comprising the externalizing domain at age 9 include the core items relevant to assessing behaviors indicative of Conduct Disorder. Our analyses also allow us to place the effects of harsh parenting in the context of the fuller picture of family burden provided by the cumulative risk index, particularly since our findings indicate that children in the low-risk group who had experienced two or more waves of harsh parenting demonstrated lower levels of externalizing behavior than high-risk group children who had experienced no waves of harsh parenting (Figure 1). This finding about the relative importance of cumulative risk is in keeping with the work of MacKenzie and colleagues (2011), who found that children facing low-risk with early maltreatment reports evinced lower levels of behavioral problems across childhood than those facing high-levels of cumulative risk who had not been reported for maltreatment.

The study does have some limitations that could be addressed in future studies to further elucidate the connection between harsh parenting and the cumulative effects of social disadvantage and ecological risk. First, is that we had to contend with not having uniform definitions of spanking and cut-points for what would be considered frequent at the different waves of data analysis, which relied on maternal self-report. We were able to collapse across the available categories to create a more consistent measure across the four waves of assessment, but in so doing were thus limited in being able to use a more continuous measure of spanking frequency. Second, our focus was on early cumulative risk exposure and does not allow us to account for potential discontinuities in risk over this developmental period. We see this as another area of focus for future work to look at timing of risk exposure and its connection to timing of harsh parenting across development. The focus of this analysis, however, was on the experience of early risk, particularly with its potential to serve as a window for identifying families for early intervention. And the research literature to date paints a disturbing picture of the continuity of early cumulative risk across development with Sameroff and Rosenblum (2006) highlighting correlations between cumulative risk scores across the preschool to late adolescent period as high as 0.8, and Vernon-Feagans and colleagues (FLP Key Investigators, 2013) showing correlations in the 0.9 range for risk scores from 6 through 15 months-of-age and over 0.8 for 6 months through 3 years. So, while we are using early cumulative risk as a marker of disadvantage, it tends to be a stable marker that is likely to exhibit strong developmental continuity. Thus, it is not clear that the association with later externalizing through interactions with harsh parenting is an “infancy” effects per se, but rather that something that can be measured (and thus responded to through intervention) very early is likely continuing to have effects across that developmental period. Finally, an important avenue for future work not addressed in the current study would be to expand the analysis beyond an additive cumulative risk index to also explore the role of protective and promotive factors in these dynamic developmental processes.

The findings underscore that harsh parenting, although a consistently important predictor of downstream child behavioral problems for children across the spectrum of cumulative risk,

is but one factor in understanding the contributions of stress and disrupted family functioning to child outcomes. The moderating role for cumulative risk illustrates that some children may be particularly vulnerable to the effects of harsh parenting, and those are likely to be the very children who are most at risk across a breadth of domains due to the additive effects of the risk factors present across the child's family ecology. The role of early cumulative risk in these family processes highlight an important potential port-of-entry for the practice and policy communities to focus on as a window into early relationship processes and a marker for families for whom targeted intervention may be appropriate. This is particularly important given what we know about the stability of cumulative risk across development (Sameroff & Rosenblum, 2006) in the absence of focused efforts to shift the balance of risk and protective factors across the family ecology. As we move as a field to begin to elucidate the family processes and mechanisms by which harsh parenting has its effects on child outcomes, we must not lose sight of the broader balance of risk and protective factors in the family that may serve to buffer or amplify the impact of physical discipline.

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Michael J. MacKenzie was the primary author and drafted the manuscript and subsequent revisions. The article was conceptualized by MacKenzie, Nicklas, Brooks-Gunn and Waldfogel, and analyses were carried out by MacKenzie and Nicklas. All authors approved the final version submitted for publication.

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Figure 1.

The association between the effects of repeated frequent spanking over four assessment waves (Number of waves of frequent spanking across four assessments at ages 1, 3, 5, and 9 years) across the first decade with externalizing behavior outcomes at age 9 as moderated by early cumulative risk score (In addition to the inclusion of the cumulative risk index, the model further controls for gender, race/ethnicity, maternal nativity, and city of residence).

Table 1

Descriptive statistics on study sample and key variables (n=2,762).

Demographics and Model Variables	%	Mean (SD) [Range]
Child gender (Female)	48	
Race/ethnicity of mother		
White non-Hispanic	22	
Black non-Hispanic	52	
Hispanic	23	
Other	3	
Maternal Nativity (% foreign born)	13	
Cumulative Risk Score (out of 15 risk variables)		3.7 (2.3) [0-8]
Low risk group (0-1 risks)	23	
Medium risk group (2-5 risks)	50	
High risk group (6+ risks)	27	
Additive Harsh Parenting Score		
Frequent spanking at 0 waves	81	
Frequent spanking at 1 wave	13	
Frequent spanking at 2 or more waves	6	
Age 9 Externalizing Behavior		6.37 (6.90) [0-70]