



The Association between Paternal Job Stress and Maternal Child Corporal Punishment: Evidence from a Population-Based Survey in Metropolitan Japan

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Abstract

Although child corporal punishment can lead to adverse health outcomes in children, this practice remains prevalent in Japan. This study investigates whether, under Asian family norms, fathers' job stress is a risk factor for mothers' frequent use of child corporal punishment. A study sample of 522 children ages 0 to 6 years was obtained from a population-based survey in Tokyo. Data from mothers' self-reports of maternal caretaker child corporal punishment were regressed on paternal job stress using logistic regression analysis. Covariates include child age (months), child gender, number of children in the household, maternal education, maternal adverse childhood experiences, and annual household income. Maternal psychological distress was hierarchically included in the model. Paternal job stress was significantly associated with maternal frequent use of child corporal punishment independent of maternal psychological distress and other known risk factors such as child's age, maternal education, and maternal adverse childhood experiences. The results indicate that job stress may be a risk factor for parental child corporal punishment. Employers can contribute to improving children's health and safety in the household by designing workforce policies to reduce employee's stress and by offering psychoeducational programs for parents.

Keywords Corporal punishment · Job stress · Psychological distress · Spillover–crossover model of job stress

Introduction

Corporal punishment (CP) of children is associated with an elevated risk for child abuse and numerous negative effects on children's long-term health and behavioral development (Ferguson 2013; Paolucci and Violato 2004). Recent work in child welfare research has proposed that CP should be considered an adverse childhood experience (Afifi et al. 2017).

However, despite calls to eliminate child CP, this practice remains a normatively accepted disciplinary practice in many Asian countries, including Japan (Global Initiative to End All Corporal Punishment of Children 2017; Save the Children Japan 2018). To design effective interventions for use in the Asian context requires a better understanding of the risk factors for parental use of child CP. This study focused on paternal job stress as a potential risk factor related to parental use of child CP in Asian families.

Several societal and parental factors are known risk factors for parental use of child CP (Chiocca 2017; Gershoff 2002). At the societal level, legal tolerance and social norms allowing the parental use of disciplinary CP are strongly associated with the prevalence of child CP (Straus 2010). At the individual level, parents who are more likely to use CP for disciplinary purposes are those with low educational attainment, younger age, low household income, their own history of adverse childhood experiences, and high levels of mental stress (Combs-Orme and Cain 2008; Gebara et al. 2017). These research findings, mainly from studies in Western countries, provide a useful basis for the design of preventive strategies against parental use of CP such as social campaigns aimed at

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raising awareness of the risks of CP or psychoeducational programs to help high-risk parents choose non-coercive discipline strategies (Horno Goicoechea et al. 1999). Although these strategies are likely to be effective in Asian countries, researchers may need to consider other attributes that affect the well-being of families following Asian norms of childrearing and adhering to gender-bound family values (Kumagai and Ishi-Kuntz 2016; Lu and Cooper 2015).

The traditional family system in Asian societies considers children the property of the family; a male provider is the head of the family and mothers are under social pressure to discipline children (Kumagai and Ishi-Kuntz 2016). Recent household composition changes in favor of nuclear families and the increased participation of women in the labor force have not fully emancipated mothers from their traditional role obligations, but have instead increased pressure on parents caught between the demands of work and family life (Lu and Cooper 2015).

Against this cultural background, our research focused specifically on fathers' job stress as a potential risk factor for maternal use of disciplinary CP, for three reasons. First, long working hours remain the norm in Asian countries (Lee et al. 2007), and the negative effect of high job stress on the work–life balance is one of the most prevalent stressors for parents (Lu and Cooper 2015). According to a 2010 national survey of Japanese households, job-related stress was ranked above other stressors such as low household income, dissatisfaction with family relationships, and family illness, and was the top stressor for both men and women in their thirties and forties (Ministry of Health, Labour and Welfare 2010). Another governmental survey showed that at the household level, fathers spent limited time on childcare and maintained long working hours (Statistics Bureau 2016), whereas mothers were obliged to manage dual role obligations of supporting their male partners working outside the household and to discipline children in the household (Yamaguchi 2009). However, previous studies on the risk factors for parental disciplinary use of CP have not examined paternal job stress.

Second, existing studies that examined risk factors for parental use of child CP have mainly explored individual parental traits (e.g., low educational attainment) and societal factors (e.g., legal allowance for disciplinary use of CP by parents). Recent publications have called for more research on the contextual and situational factors of CP such as work and/or family-related stress (Peltonen et al. 2014). Our aim in this study was to draw attention to the significance of the family system in the Asian context and to examine risk factors that may affect family well-being. We believe that this line of research could facilitate the examination of social policies to reduce CP in the Asian context, which in turn may help to promote interventions aimed at the social environment surrounding families as a complement to education and welfare programs targeting individual parents.

Third, the Spillover-Crossover Model of job stress (Shimazu et al. 2009) provides a plausible mechanism to link paternal job stress with the likelihood of maternal disciplinary use of CP. This model posits that job stress experienced by a father outside the family can be transmitted to the family context and shape the father's interpersonal reactions and relationships. The theory further holds that a father's stress that spills over to the household can influence the psychobehavioral status of cohabitants, which is known as the cross-over effect (Shimazu et al. 2013). Thus, a father's spillover job stress is likely to induce maternal psychological distress, which may trigger maternal use of CP. Another possibility is that the father's spillover stress directly induces the child's behavioral reactions and problems, which in turn, affect the risk of the mother using CP (Connell and Goodman 2002; Mezulis et al. 2004).

Given the high prevalence of job stress among adults who are also rearing children and the general acceptance of disciplinary use of CP in Asian families, the population-attributable risk of CP associated with paternal job stress could be as large as the risk of the known factors. Therefore, the purpose of the present study was to investigate the association between paternal job stress and maternal use of CP to discipline children among households in a metropolitan city in Japan.

Methods

Data Source

Data were obtained from the Japanese Study on Stratification, Health, Income, and Neighborhood (J-SHINE), an ongoing panel study of households of adults aged 25 to 50 years (Takada et al. 2014). J-SHINE participants were probabilistically selected across four municipalities in the Tokyo metropolitan area. The survey asked respondents to complete self-administered questionnaires via an Internet site or on a stand-alone personal computer. We implemented a cross-sectional analysis using survey Wave 1 of J-SHINE, which consisted of the main survey in 2010, the partner/spouse survey in 2011, and the children's survey in 2011.

In this survey, primary caretakers of children younger than 6 years were invited to respond to a questionnaire on acts related to CP (the questionnaire is described below). For the analyses, we restricted the child sample ($n = 522$) to children whose primary caregiver was their mother; the sample of mothers ($n = 361$) was restricted to respondents who completed a questionnaire on parenting behavior. We excluded single-parent households to allow the examination of the Spillover-Crossover Model in two-parent households. The full protocol for the J-SHINE data collection was approved by the Internal Review Board at the University of Tokyo. Secondary data use for this study was approved by the J-SHINE Data Control Committee.

Measures

Frequency of CP Use of Reported by Mothers To measure how frequently mothers used child CP, we used a scale derived from the Japanese Maltreatment Questionnaire, version 17 (Yanagawa et al. 2009), which assesses 17 types of daily caregiver acts of childrearing, including CP, physical abuse, psychological abuse, and neglect. Some of these items correspond to items on the Parent–Child Conflict Tactics Scales (Straus et al. 1998). We selected six items related to CP: “I spanked him/her on the bottom,” “I slapped him/her on the hand (the head, the face),” “I pinched him/her,” and “I hit him/her with objects.” Items were measured using a 4-point Likert scale (1 = often, 2 = sometimes, 3 = occasionally, and 4 = never) and summed to produce a total score ranging from 6 to 24. Cronbach’s alpha coefficient for the scale was 0.76.

Because of the highly skewed distribution of this scale, we used a cutoff point to dichotomize the variable. This approach is often used with the Parent–Child Conflict Tactics Scale (Lee et al. 2008). A full score of 24 (= 4 × 6 items) indicated that the parent had never used any CP in daily childcare. The most frequently parent-reported behaviors were spanking and slapping on the hand, and the least reported were pinching and hitting with objects, which may be more physically harmful to the child (Gershoff 2002; Lapré and Marsee 2016). The distribution of raw scores showed higher frequency around scores of 18 to 20 and above, corresponding approximately to occasional use or less of any type of CP. We took 19 and below as a threshold for frequent CP use, which corresponded to approximately the 15th percentile of our sample. We also referred to an existing survey in Japan on the parental use of child CP (Save the Children Japan 2018), in which 13.3% of participants reported hitting a child with objects and 18.5% reported slapping a child’s face in the past 3 months. As a sensitivity test, we also confirmed that the analytic results were similar for cutoff points of 18 and 20 (the 9th and 24th percentiles, respectively). Given that all respondents were mothers, this variable exclusively measured maternal CP. We assumed that CP perpetrated only by the father would not be measured by this variable.

Paternal Job Stress Paternal job stress was measured using the Japanese short version of the Effort–Reward Imbalance (ERI) Questionnaire (Kurioka et al. 2013), which was developed from the original English version and the validated Japanese long version of the ERI Questionnaire (Seigrist et al. 2004; Tsutsumi et al. 2001). The ERI model postulates that an imbalance of high effort and low reward at work results in adverse health outcomes, such as depression or cardiovascular diseases (Siegrist 1996). The Japanese short version of the ERI Questionnaire consists of two subscales: effort (three items) and reward (seven items). Each item is scored on a 4-point Likert scale (1 = *totally disagree* to 4 = *totally agree*).

Internal consistency reliability measures (Cronbach’s alpha) for the effort and reward subscales were 0.81 and 0.76, respectively, for our sample. The mean effort score is divided by the mean reward score to obtain the ERI ratio, which ranges from 0.33 to 4.00, with higher scores indicating greater job stress; scores greater than 1.0 indicate a situation in which the effort exceeds the reward. Following a recommended threshold, an ERI ratio of 1.3 or greater was categorized as indicating high job stress (Kurioka et al. 2013).

Maternal Psychological Distress Mothers’ psychological distress was measured using the Japanese version of the Kessler Psychological Distress Scale (K6; Furukawa et al. 2008; Sakurai et al. 2011). This scale was adapted for Japanese participants from the original scale, which is a widely used, validated instrument used to screen individuals in the general population who have non-specific psychological distress (Kessler et al. 2002). The K6 consists of six questions scored on a 5-point Likert scale (0 = *never* to 4 = *always*) used to assess how frequently in the past 30 days the respondent experienced symptoms such as nervousness, hopelessness, and restlessness. The internal consistency reliability measure (Cronbach’s alpha) of the scale was 0.88 for our sample. We selected a score of 5 or greater as a cutoff for psychological distress, following previous studies (Prochaska et al. 2012; Shimazu et al. 2009).

Other Covariates By referring to existing related literature, we identified the following variables as potential confounders: child’s age (in months), child’s gender, number of children younger than 18 years in the household, maternal educational attainment (< 13 years, 13–15 years, and ≥ 16 years), maternal job status, maternal adverse childhood experiences (abused/neglected), and annual household equivalent income. Approximately 17% of respondents in the 2010 wave were missing responses on household equivalent income, but provide a household income response on the Wave 2 survey in 2012. For these and other missing variables, we assumed the data were missing at random and conducted multiple imputations by chained equations using the *mi* command in STATA. We conducted 20 sets of imputations and combined the results following Rubin’s rule (Rubin 1987). Accordingly, descriptive statistics are presented with standard errors.

Analysis

Following the calculation of descriptive statistics for the sociodemographic characteristics of children and households, we conducted a multiple logistic regression analysis with sandwich error estimation clustered by household to estimate the odds ratio for *frequent use of child CP* by paternal job stress score (Model 1), adjusting for identified covariates. At this stage, we did not include the variable *maternal*

psychological distress because doing so could have mediated the effect of paternal job stress on *frequency of child CP*. In Model 2, we hierarchically included *maternal psychological distress* to examine whether this variable affected the coefficient of paternal job stress. All analyses were conducted using the Stata SE statistical software package, version 14 (StataCorp, Texas, USA). An alpha level of 0.05 was adopted for conventional statistical significance.

Results

Table 1 shows the descriptive statistics for participant characteristics ($n = 522$). The mean age of the children was 33.5 months, 17% of mothers had low educational attainment, and 12% of mothers reported having their own history of adverse childhood experiences (i.e., abuse or neglect). In all, 14% of fathers had high job stress, and 24% of mothers exhibited psychological distress. Among the mothers, 16% (81/522) reported frequent use of child CP.

Compared with their counterparts, parents who frequently used CP had older children (age in months), more children in the household, more male children, lower maternal education, lower household income, higher paternal job stress, and higher maternal psychological distress. In addition, mothers who more frequently used child CP were also significantly more likely to be working mothers and to report their own history of adverse childhood experiences.

The left column of Table 2 shows the results of the regression of predictors of frequent use of CP by mothers before the inclusion of the *maternal psychological distress* variable. Greater child age (in months) was associated with a higher risk of frequent CP use, whereas higher maternal educational attainment was significantly associated with a lower CP risk. Child female sex and higher household income was associated with a lower CP risk, but these associations did not reach statistical significance. Similarly, higher risk for mothers' frequent use of CP was associated with a higher number of children in the household, maternal non-working status, and maternal adverse childhood experience, but these associations were not statistically significant. Including all the covariates above, paternal job stress was significantly associated with a higher risk of mothers' frequent use of child CP (odds ratio [OR] = 3.06, 95% confidence intervals [CI] [1.13, 8.30]). After adding maternal psychological distress to this model (Model 2, right column of Table 2), the point estimate for the OR of paternal job stress was attenuated but remained significant (OR = 2.81, 95% CI [1.03, 7.69]). Maternal psychological distress by itself was significantly related to higher odds of frequent use of CP by mothers (OR = 2.38, 95% CI [1.05, 5.36]). After inclusion of maternal psychological distress, the ORs of household income were nullified.

Discussion

To the best of our knowledge, this is the first study to investigate the association between paternal job stress and likelihood of maternal frequent use of child CP. Our main findings were that paternal job stress was significantly associated with maternal frequent use of CP, and that association remained significant after including maternal psychological distress. These findings indicate that a parent's experiences of social stress caused by the environment outside the family can be transmitted to the household, and thus, affect their partner's parenting behavior choices. Such stress may also impact children's health and development through CP experiences.

Our results confirm findings from previous studies in Western countries, and suggest that known risk factors such as lower maternal educational attainment, parental adverse childhood experience, and psychological distress are associated with higher odds of maternal frequent use of CP in Japanese urban settings. The significance of maternal psychological distress is particularly noteworthy because this finding highlights the need for psychoeducational support for mothers experiencing high stress to help prevent CP and harsh parental discipline in this population.

In addition to maternal risk factors, the study findings provide evidence of the importance of paternal job stress as a risk factor for parental CP use. Moreover, the study findings indicate that the mechanism linking paternal job stress with maternal CP use was not substantially mediated by the known risk factors. It is possible that paternal job stress affects fathers' own psychological distress and induces distressed fathers to resort to using CP (Davis et al. 2011). However, because we restricted our sample to maternal respondents who completed a questionnaire on CP, we can assume that it was mothers who used CP.

The spillover stress of working fathers is likely to reduce their partner's relational satisfaction (Lavner and Clark 2017), which may further increase the likelihood of the partners' use of child CP. A previous study in China reported that marital dissatisfaction was a significant risk factor for mothers' harsh parenting, independent of maternal mental health status (Liu and Wang 2015). Unfortunately, marital satisfaction was beyond the scope of the present study, and therefore, we could not test for this mechanism in our sample. The present findings show that fathers' job stress was related to maternal CP use, independent of mothers' psychological distress.

Another potential mechanism is that paternal job stress increases fathers' psychological distress, which then increases the risk of the child developing behavioral problems, which is a known risk factor for harsh parental punishment (Connell and Goodman 2002; Mezulis et al. 2004; Ramchandani et al. 2005). We conducted an ad hoc analysis but found no meaningful correlation between paternal job stress and child

Table 1 Basic participant characteristics (unit of analysis = child)

Variables	Total (<i>n</i> = 522)		Frequent use of corporal punishment (<i>n</i> = 81)		Non-frequent use of corporal punishment (<i>n</i> = 441)		<i>p</i> value*
	Mean	(standard error)	Mean	(standard error)	Mean	(standard error)	
Child's characteristics							
Child's age (in months)	33.5	(0.87)	43.3	(2.12)	31.6	(0.93)	0.000
Number of children under 18 years in the household	1.69	(0.03)	2.05	(0.07)	1.63	(0.03)	0.000
Sex (male)	51.7	(0.02)	61.7	(0.05)	49.9	(0.02)	0.000
Parents' characteristics							
Maternal education							
Low (<13 years)	17.0	(0.02)	44.4	(0.06)	11.9	(0.02)	0.000
Middle (13–15 years)	41.4	(0.02)	27.2	(0.05)	44.1	(0.02)	
High (≥16 years)	41.6	(0.02)	28.4	(0.05)	44.1	(0.02)	
Maternal working status	28.8	(0.02)	21.0	(0.05)	30.3	(0.02)	0.000
Maternal childhood adverse experience	11.7	(0.01)	25.9	(0.05)	9.1	(0.01)	0.000
Household equivalent income							
Low	31.9	(0.02)	57.5	(0.06)	31.9	(0.02)	0.000
Middle	30.2	(0.02)	30.6	(0.06)	30.2	(0.02)	
High	37.9	(0.02)	11.9	(0.04)	37.9	(0.02)	
Paternal high job stress ^a	13.9	(0.02)	29.0	(0.05)	11.1	(0.02)	0.000
Yes							
Maternal psychological distress^b							
Yes	24.3	(0.02)	37.0	(0.05)	22.0	(0.02)	0.000

*chi2 test for the difference in proportions, t-test for the difference in means

^a Effort-Reward Imbalance ratio ≥ 1.3

^b Kessler Psychological Distress Scale (K6) score ≥ 5

Table 2 Multiple logistic regression analysis for predicting mother's frequent use of child corporal punishment

	Model 1*				Model 2**			
	OR	95% CI		p value	OR	95% CI		p value
Child's age (in months)	1.03	1.02	1.04	0.000	1.03	1.01	1.04	0.000
Child's sex								
Reference: Male	0.75	0.44	1.28	0.284	0.70	0.41	1.20	0.199
Number of children in the household	1.29	0.51	3.23	0.592	1.56	0.59	4.10	0.368
Maternal education								
Reference: Low								
Middle	0.19	0.07	0.48	0.001	0.18	0.07	0.48	0.000
High	0.26	0.10	0.67	0.005	0.27	0.11	0.69	0.006
Maternal job status								
Reference: Working mother	1.53	0.63	3.69	0.348	1.67	0.66	4.20	0.279
Maternal childhood adverse experience								
Reference: No	2.53	0.94	6.87	0.068	2.44	0.88	6.80	0.087
Household equivalent income								
Reference: Low								
Middle	0.67	0.28	1.63	0.378	0.71	0.28	1.78	0.462
High	0.31	0.09	1.04	0.058	0.39	0.11	1.41	0.152
Paternal high job stress ^a	3.06	1.13	8.30	0.028	2.81	1.03	7.69	0.044
Maternal psychological distress ^b					2.38	1.05	5.36	0.037

OR = odds ratio; CI = confidence interval

*Adjusted for all covariates except maternal psychological distress

**Model 1 + Maternal psychological distress

^a Effort-Reward Imbalance ratio ≥ 1.3

^b Kessler Psychological Distress Scale (K6) score ≥ 5

internal and external behavioral problems, as measured by the Child Behavior Checklist (Achenbach 1999), for children 2 years and older (data not shown).

Although we are unable to specify which explanatory pathway is the most plausible owing to the cross-sectional nature of the study design, the possibility of an association between paternal job stress and maternal use of CP is notable for several reasons. First, following previous studies (Gershoff 2002; Peltonen et al. 2014), this study provides evidence that the situational and contextual factors surrounding the family system constitute a promising new research area that could elucidate the parental use of child CP in Japan and perhaps other Asian countries. Second, these findings may contribute to broad efforts to improve children's well-being and safety in the household through policy interventions at worksites, psychoeducational programs for highly stressed mothers, and welfare policies to support households in need. Third, these results have research implications for the assessment of parental risk factors for CP. Existing assessments have mainly focused on child-level factors (e.g., psychobehavioral problems), parent-child dysfunction, and parental distress

(Abidin 1995). The current findings suggest that causes of parental distress could include stressors outside the household, particularly stressors in the work environment.

Implications

The study findings suggest that, in addition to policy supporting welfare programs and psychoeducational support for primary high-risk caregivers and households in need, public policy interventions that target the wider social environments surrounding the family could be used to prevent child CP. Hot topics on the policy agendas of Japan as well as several other countries include long working hours and the subsequent work-family imbalance. However, policy discussions of these have generally been limited to "reform of working styles" (Ministry of Health, Labour, and Welfare 2015) that primarily aims to enhance labor productivity and to formalize workforce participation for women. Notably, the findings of this study indicate that improvements in parents' labor conditions may contribute to the enhancement of children's security and health in the household in the context of Asian

family and work life. Therefore, policy discussions of labor reforms should be broadened to consider the ways in which improved workplace environments can benefit the health and well-being of children.

Several study limitations must be considered when interpreting the study findings. Because of the cross-sectional nature of the study, we could not specify causality between paternal job stress and maternal use of child CP. Nevertheless, reverse causality (e.g., job stress caused by CP) is unlikely, and the association between paternal job stress and maternal use of child CP was observed independent of other known risk factors such as low income, low educational attainment, and (particularly) maternal psychological distress. Further, other potential confounders (e.g., social support within and outside of parental couples and neighborhood social capital) could explain the association. As Gershoff (2002) noted, identifying the causal direction and mediational processes of multiple contexts to explain the mechanism and impact of child CP use in the household remains a research challenge.

Second, the generalizability of our findings needs to be carefully considered because the participants were limited to residents of the greater Tokyo metropolitan area. The sample demographics in terms of age, gender, and school attainment were representative of the general population in the region (Takada et al. 2014). This region has a women's labor participation rate close to the national average (67.5% as of 2010; Statistics Bureau 2010). However, differences might exist between urban and rural populations regarding traditional family values, gender norms, and childrearing practices; therefore, this study needs to be replicated in a rural setting to determine the generalizability of the present findings. Finally, to confirm the findings of the present study, replication of this study is needed in another Asian country with family norms and related values similar to those in Japan, especially regarding gender roles and childrearing.

Conclusion

This study indicates that paternal job stress is associated with maternal frequent use of child CP, independent of maternal psychological distress. The results suggest the need for workplace policies that consider the effects of employees' stress on their household environments and the health and development of children.

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