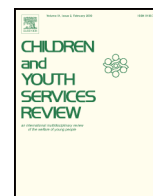




| | |
|------------|---|
| Title | Association between social support and child abuse potential among Japanese mothers |
| Author(s) | 萩原 (小野) , 真代 |
| Citation | Nagasaki University (長崎大学), 博士(医学) (2017-09-20) |
| Issue Date | 2017-09-20 |
| URL | http://hdl.handle.net/10069/37821 |
| Right | © 2016 Elsevier Ltd. All rights reserved. |

This document is downloaded at: 2018-12-14T02:05:38Z



Association between social support and child abuse potential among Japanese mothers



Mayo Ono ^{*,1}, Sumihisa Honda ¹

Department of Community-based Rehabilitation Sciences, Graduate School of Biomedical Sciences, Nagasaki University, 1-12-4 Sakamoto, Nagasaki 852-8523, Japan

ARTICLE INFO

Article history:

Received 5 August 2016

Received in revised form 2 December 2016

Accepted 2 December 2016

Available online 06 December 2016

Keywords:

Child abuse potential

Child maltreatment

Social support

Child rearing

Questionnaire survey

ABSTRACT

Child abuse is a global public health problem and a serious social issue in Japan. Social support is beneficial for parents faced with childrearing challenges. The aim of this study was to clarify the association between social support and child abuse potential. A cross-sectional study was conducted using a structured questionnaire. The target population was mothers of children at nine public nursery schools. Bivariate and multiple linear regression analysis were performed to examine the effects of socio-demographic, social support and psychological distress factors on child abuse potential. Among 309 mothers, 29 (9.4%) had a high child abuse potential score. Bivariate analysis indicated that mothers with a higher child abuse potential score were more likely to be divorced or unmarried ($P < 0.001$); living in single-female-parent households ($P < 0.001$); have low perceived economic status ($P < 0.001$); have a low level of child care support ($P = 0.01$); have a low Multidimensional Scale of Perceived Social Support (MSPSS) score ($P < 0.001$); and/or a high General Health Questionnaire-12 score (GHQ-12) ($P < 0.001$). Important predictors of child abuse potential among the mothers surveyed included living in single-female-parent households, having low perceived economic status, low MSPSS score, and high GHQ-12 score. Improving approaches that help mothers build social support relationships and ease them into child rearing in a psychologically healthy condition is recommended to prevent child abuse.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Child abuse is a global public health problem with immediate and long-term health consequences (World Health Organization, 1999; Springer, Sheridan, Kuo, & Carnes, 2007). It is also a serious social issue in Japanese society. The most recent statistics from the Ministry of Health, Labour and Welfare (2015) indicate that 69 children died in 2013 because of child abuse, including cases of parent-child suicide. The number of child abuse consultations increased from 1,101 cases in 1990 to 88,931 cases in 2014. More than 50% of abused children were abused by their mothers, and 34.5% were abused by their fathers. Looking at abused children by age, newborns to 2-year-old children accounted for 19.7%, 3- to 5-year-old children for 23.8%, and school-aged children (6 to 12 years) for 34.5%. Overall, a total of 43.5% of abused children were pre-primary school age.

In 1947, the Child Welfare Act was established to protect the welfare of children; however, this law was virtually unenforced until around 1990. The Convention on the Rights of the Child was adopted by the

United Nations General Assembly in 1989. In the wake of this, the Japanese Ministry of Health, Labour and Welfare began publishing statistics on cases of child abuse and neglect. In 2000, a paradigm shift in the prevention of child abuse occurred when the Child Abuse Prevention Law came into effect. The definition of child abuse was established in this law for the first time. “Early detection of child abuse” and “notice concerning child abuse” appealed for the discovery and notification of suspected abuse to school faculty staff, child welfare facility staff, public health nurses, lawyers, and others. Around the same time, the national plan of the early 21st century for the health of mothers and children from 2001 to 2010, referred to as “Healthy Parents and Children 21,” was formulated. Mostly through the activities of public health nurses, child care support increased nationwide. Moreover, the Child Abuse Prevention Law was amended in 2004, and the prevention of child abuse was added to the law. Strategies for child abuse prevention have been developing rapidly since the early 2000s. The second phase of “Healthy Parents and Children 21” was launched in April 2015 and now includes the prevention of child abuse from the time of pregnancy as part of its major agenda.

1.1. Child abuse

Previous research has identified many factors associated with an increased risk of child abuse (Brown, Cohen, Johnson, & Salzinger, 1998;

* Corresponding author.

E-mail addresses: mayonoko@gmail.com (M. Ono), honda@nagasaki-u.ac.jp

(S. Honda).

¹ Graduate School of Biomedical Sciences, Nagasaki University, 1-12-4 Sakamoto, Nagasaki 852-8523, Japan.

Kotch et al., 1995; Sidebotham & Heron, 2006). These include factors in the parents' backgrounds, such as low educational achievement and past psychiatric history (Chaffin, Kelleher, & Hollenberg, 1996; Sidebotham & Heron, 2006). In addition, a study in Japan (Umeda, Kawakami, Kessler, Miller, & World Mental Health Japan Survey Group 2002–2006, 2015) and one in the United States (Milner et al., 2010) reported an intergenerational transmission of child physical abuse. Another study in Japan revealed that partner violence during pregnancy is associated with abusive behavior by the mother (Amemiya & Fujiwara, 2016). Furthermore, child abuse has been linked to child characteristics, including early childhood anxiety, low verbal IQ, and disability (Brown et al., 1998).

1.2. Association between social support and child abuse

Families with abused children are distinguished by their social isolation (Garbarino, 1977). Social support is advantageous when parents are faced with childrearing challenges. (Ceballo & McLoyd, 2002; Taylor & Roberts, 1995). One study reported that early support is directly related to adult perceptions of support, which are inversely associated with child physical abuse risk (Crouch, Milner, & Thomsen, 2001). In addition, individuals with histories of child abuse reportedly have significantly lower levels of social support in adulthood (Sperry & Widom, 2013). Social support has also been found to mitigate the effects of stress on child abuse (Kotch et al., 1995). However, few studies have focused on the relationship between social support and child abuse in Japan (Fujiwara, Yamaoka, & Kawachi, 2016; Fujiwara, Yamaoka, & Morisaki, 2016). Therefore, the aims of the present study were: 1) to clarify the association between social support and child abuse potential; and 2) to clarify the association between socio-demographic factors and child abuse potential.

2. Material and methods

2.1. Participants

This cross-sectional study was conducted from July to August 2014 at all nine public nursery schools in Nagasaki City, Japan. Data were obtained by means of a self-reported structured questionnaire. A sample of 547 parents/guardians with children aged 5 years or less, attending the nine nursery schools, were recruited for this study, and 346 (63.3%) answered the questionnaire. Participants who were not mothers and those with missing data relating to child abuse potential were excluded, resulting in a sample of 309 mothers for the analysis. The median age of these 309 participants was 34 ± 5.6 years (range, 19 to 48 years).

2.2. Procedure

Questionnaires were distributed to participants through each nursery school. After each participant completed their questionnaire anonymously, they put it into a sealed envelope and returned it to a box installed at their child's nursery school. All participants were informed that they had the right to refuse participation or to withdraw from this study at any time without prejudice to themselves. This study was approved by the institutional ethics committee of Nagasaki University Graduate School of Biomedical Sciences (Nagasaki, Japan) in February 2014.

2.3. Questionnaire

The questionnaire included demographic characteristics, the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988), and the General Health Questionnaire-12 (GHQ-12) (Goldberg, 1972). We collected data related to age, marital status, family structure, perceived economic status, education level, and support for child care. In addition, the Brief Form of the

Child Abuse Potential Inventory (BCAP), a shorter version of the Child Abuse Potential Inventory (CAP) (Milner, 1986), was used to evaluate child abuse potential (Ondersma, Chaffin, Mullins, & LeBreton, 2005).

2.4. Measures

2.4.1. BCAP

The BCAP is a shorter version of a self-report measure of child abuse that has been shown to correlate highly with the CAP, which comprises 160 items and provides case classification for respondents at risk of child abuse (Ondersma et al., 2005). Participants are asked to indicate whether they agree or disagree with the statements provided. The 24 items of the BCAP are divided into seven scales, and scores of all 24 items are summed to determine the BCAP score, which ranges from 0 to 24. Higher scores indicate a higher child abuse potential risk. The BCAP has an estimated internal consistency of 0.89 (Ondersma et al., 2005). The Japanese version of the CAP was developed in a former study (Kawamura, Takahashi, Akiyama, Sasaki, & Kako, 2009); the authors of the present study modified the Japanese version of the BCAP by referring to this previous study.

2.4.2. MSPSS

The MSPSS is a 12-item scale used to assess an individual's overall perceived social support, including that from family, friends, and significant others. The 12 items are scored using a 7-point Likert scale with response options ranging from 1 (very strongly disagree) to 7 (very strongly agree). The scores of the 12 items are summed to give a total MSPSS score, which ranges from 12 to 84. Higher scores indicate a higher level of perceived social support. Zimet et al. (1988) reported internal reliability (Cronbach's alpha) estimates of 0.88 for total MSPSS score, and 0.87, 0.85, and 0.91 for the three subscales of Family, Friends, and Significant others, respectively. The Japanese version of the MSPSS (Iwasa et al., 2007) was used in the present study. The internal consistency (Cronbach's alpha) for the Japanese version of the MSPSS was 0.91 (Iwasa et al., 2007).

2.4.3. GHQ-12

The GHQ-12 is a popular screening tool to assess psychological distress in the general population. The GHQ-12 is the shortest version of the original 60-item GHQ, and it has reasonable test-retest reliability as well as both content and construct validity (Goldberg, 1972). It is used to identify the severity of psychological distress experienced by an individual over the past few weeks. Each item on the scale has four responses on a bimodal scoring scale (0, 0, 1, 1), and the maximum obtainable score is 12. Higher scores indicate a higher psychological distress. The Japanese version of the GHQ-12, which has a sensitivity of 78% and specificity of 57%, was used in this study (Honda, Shibata, & Nakane, 2001).

2.5. Data analysis

2.5.1. Dependent variable

The primary dependent variable was the BCAP score. It was analyzed as a continuous measure.

2.5.2. Independent variables

The independent variables were demographic characteristics (age, marital status, family structure, perceived economic status, and education level), social support variables (total MSPSS and subscale scores, and from whom child care support is received), and psychological distress (GHQ-12). In the bivariate analysis, independent variables were classified as follows: age (19 to 34 years and 35 to 48 years); marital status (married, unmarried and divorced); family structure (single-female-parent household and other); perceived economic status (very low/slightly low and moderate/slightly well-off/very well-off); education level (junior high school, high school, and vocational school/

college/university or higher). Scores for the MSPSS subscales of Family, Friends and Significant others, were classified as low (4 to 23) and high (24 to 28); and GHQ-12 scores were classified as low (0 to 3) and high (4 or more). The total MSPSS scores were classified as low (12 to 48), intermediate (49 to 68) and high (69 to 84).

2.5.3. Statistical analysis

To compare the proportion of participants with high BCAP scores according to independent variable, the chi-square test was used for nominal scale data, and the Cochran-Armitage test was used for ordinal scale data. Furthermore, simultaneous effects of independent variables on the frequency of high BCAP scores were analyzed using multiple linear regression models. The following factors were included in stepwise regression: marital status, family structure, perceived economic status, education level, child care support level, total MSPSS score, and GHQ-12 score. All factors were dichotomized as follows: family structure (single-female-parent household and other) perceived economic status (very low/slightly low and moderate/slightly well-off/very well-off) education level (junior high school/high school and vocational school/college/university or higher) total MSPSS score (low [12 to 72] and high [73 to 84]; GHQ-12 score (low [0 to 3] and high [4 or more]). IBM SPSS Statistics Version 21 was used for statistical analysis (SPSS Inc., Chicago, IL, USA).

3. Results

Among the 309 participants, 29 mothers (9.4%) had a high child abuse potential score (BCAP score ≥ 9). Table 1 presents the associations between socio-demographic characteristics and BCAP score. The internal consistency (Cronbach's alpha) for the BCAP scale used in this study was 0.85, which was above the cut off of 0.7 and showed reliability. Bivariate analysis indicated that mothers with a higher child abuse potential score were more likely to be unmarried or divorced ($P < 0.001$), living in single-female-parent households ($P < 0.001$), have low perceived economic status ($P < 0.001$), and/or have low level of child care support ($P = 0.01$). In addition, mothers with a higher child abuse potential score were associated with not having child care support from people as follows: their husbands ($P < 0.001$), fathers ($P = 0.006$), or mothers-in-law ($P = 0.05$).

The associations between MSPSS score/GHQ-12 score and BCAP score are shown in Table 2. Mothers with a low MSPSS score were more likely to have a higher BCAP score. The median BCAP score was higher in mothers with a low MSPSS score than in mothers with a high MSPSS score (low MSPSS score, 9 and high MSPSS score, 1; $P < 0.001$). As for the MSPSS subscales, mothers with low scores on the Family, Friends and Significant others subscales were more likely to have high BCAP scores ($P < 0.001$). Mothers with a high GHQ-12 score were more likely to have a higher BCAP score ($P < 0.001$). The median BCAP score was higher in mothers with a high GHQ-12 score than in mothers with a low GHQ-12 score (high GHQ-12 score, 9 and low GHQ-12 score, 1; $P < 0.001$).

To determine factors influencing child abuse potential, multiple linear regression analysis was conducted (Table 3). Results indicated that the BCAP score was higher by approximately 1.69 points in single-female-parent households, about 1.34 points higher in those with low perceived economic status, about 0.7 points higher in those with a low MSPSS score, and about 6.02 higher points those in having high GHQ-12 scores, compared with respective controls.

4. Discussion

The present study found that <10% of the mothers surveyed had a high child abuse potential risk. This was a lower proportion than previous findings in both Japan (23.1%) (Kako & Imazeki, 1999) and the United States (22.7%, 38.0%) (Beatty et al., 2011; Merritt, 2009). We believe the reason for this is because mothers with a high child abuse potential

Table 1

Associations between socio-demographic factors and BCAP^a score ($n = 309$).

| | n | BCAP ^a score | | | P |
|---|-----|-------------------------|--------|-----------------|---------------------|
| | | Q1 ^b | Median | Q3 ^c | |
| Age (years) | | | | | |
| 19–34 | 158 | 1 | 2 | 5 | |
| 35–48 | 143 | 1 | 2 | 4.5 | 0.41 ^d |
| Unknown | 8 | | | | |
| Marital status | | | | | |
| Married | 254 | 1 | 1 | 4 | |
| Unmarried | 14 | 1 | 1.5 | 4 | |
| Divorced | 40 | 2 | 5 | 7.5 | <0.001 ^e |
| Unknown | 1 | | | | |
| Family structure | | | | | |
| Single-female-parent household | 32 | 2 | 4 | 7.5 | |
| Other ^f | 273 | 1 | 1 | 4 | <0.001 ^d |
| Unknown | 4 | | | | |
| Perceived economic status | | | | | |
| Very low/slightly low | 143 | 1 | 3 | 6.5 | |
| Moderate | 146 | 0 | 1 | 2 | |
| Slightly well-off/very well-off | 17 | 0 | 0 | 3 | <0.001 ^e |
| Unknown | 3 | | | | |
| Education level | | | | | |
| Junior high school | 18 | 1 | 1.5 | 9 | |
| High school | 142 | 1 | 1 | 5 | |
| Vocational/college/ university or higher | 145 | 1 | 2 | 5 | 0.56 ^e |
| Unknown | 4 | | | | |
| Who provides child care support | | | | | |
| Husband | | | | | |
| Yes | 227 | 0 | 1 | 3 | |
| No ^g | 82 | 2 | 4 | 7 | <0.001 ^d |
| Mother | | | | | |
| Yes | 203 | 1 | 2 | 5 | |
| No | 106 | 1 | 2 | 5 | 0.26 ^d |
| Father | | | | | |
| Yes | 122 | 0 | 1 | 4 | |
| No | 187 | 1 | 2 | 5 | 0.006 ^d |
| Mother-in-law | | | | | |
| Yes | 115 | 0.5 | 1 | 3 | |
| No | 194 | 1 | 2 | 5 | 0.05 ^d |
| Father-in-law | | | | | |
| Yes | 62 | 0 | 1 | 3 | |
| No | 247 | 1 | 2 | 5 | 0.1 ^d |
| Sister and/or brother ^h | | | | | |
| Yes | 97 | 1 | 2 | 4 | |
| No ⁱ | 212 | 1 | 2 | 5 | 0.34 ^d |
| Friend | | | | | |
| Yes | 54 | 1 | 3 | 5 | |
| No | 255 | 1 | 2 | 5 | 0.1 ^d |
| Acquaintance | | | | | |
| Yes | 15 | 0.5 | 1 | 2.5 | |
| No | 294 | 1 | 2 | 5 | 0.2 ^d |
| Nursery school teacher | | | | | |
| Yes | 134 | 1 | 2 | 5 | |
| No | 175 | 1 | 2 | 5 | 0.6 ^d |
| Child care support level ^j | | | | | |
| High (4–9) | 117 | 0 | 1 | 3 | |
| Low (0–3) | 192 | 1 | 2 | 5 | 0.01 ^d |

^a Brief Form of the Child Abuse Potential Inventory.

^b The first quartile.

^c The third quartile.

^d Mann–Whitney *U* test.

^e Kruskal–Wallis test.

^f Included nuclear families, and extended families.

^g Included mothers who did not have a husband and therefore did not receive support from the husband.

^h Included sister and sister-in-law, brother and brother-in-law.

ⁱ Included mothers who did not have any sisters (-in-law) and brothers (-in-law) and therefore did not receive support from them.

^j Number of support from following categories, husband, mother, father, mother-in-law, father-in-law, sister and/or brother, friend, acquaintance, nursery school teacher.

risk might refuse to participate in such a study. However, the response rate was 63%, which was not considered low. Bivariate analysis showed that child abuse potential was associated with marital status, family structure, perceived economic status, psychological distress, child care support level, and social support. Multiple linear regression analysis revealed that child abuse potential was associated with family structure, perceived economic status, social support, and psychological distress.

Many studies have investigated risk factors influencing child abuse potential. Our study showed that child abuse potential was associated with a lower level of perceived economic status and single-female-parent households. A previous study in the United States reported that low income and being a single parent were potential risk factors for child

Table 2
Associations between MSPSS^a/GHQ-12^b score and BCAP^c score (*n* = 309).

| | | n | BCAP ^c score | | | | |
|------------------------------------|----------------------|--------------|-------------------------|--------|-----------------|---------------------|---------------------|
| | | | Q1 ^d | Median | Q3 ^e | P | |
| Total MSPSS ^a score | Low (12–48) | 30 | 5 | 9 | 12 | | |
| | Intermediate (49–68) | 89 | 1 | 3 | 6 | | |
| | High (69–84) | 185 | 0 | 1 | 2 | <0.001 ^f | |
| | Unknown | 5 | | | | | |
| MSPSS ^a subscale scores | Family | Low (4–23) | 110 | 2 | 5 | 8 | |
| | | High (24–28) | 196 | 0 | 1 | 2.5 | <0.001 ^g |
| | | Unknown | 3 | | | | |
| | Friends | Low (4–23) | 155 | 1 | 4 | 7 | |
| | | High (24–28) | 152 | 0 | 1 | 2 | <0.001 ^g |
| | | Unknown | 2 | | | | |
| | Significant others | Low (4–23) | 102 | 2 | 5 | 8 | |
| | | High (24–28) | 202 | 0 | 1 | 3 | <0.001 ^g |
| | | Unknown | 5 | | | | |
| | GHQ-12 ^b | Low (0–3) | 273 | 0 | 1 | 4 | |
| | | High (≥4) | 35 | 6.5 | 9 | 12 | <0.001 ^g |
| | | Unknown | 1 | | | | |

^a Multidimensional Scale of Perceived Social Support.^b General Health Questionnaire-12.^c Brief Form of the Child Abuse Potential Inventory.^d The first quartile.^e The third quartile.^f Kruskal-Wallis test.^g Mann-Whitney *U* test.

abuse (Brown et al., 1998). These findings are consistent with our results. On the other hand, one article reported that while marriage was not necessarily a protective factor of child abuse, fathers' positive involvement with their children most discernibly predicted lower child abuse risk among mothers (Guterman, Lee, Lee, Waldfogel, & Rathouz, 2009). Mothers who have support from their husbands had a significantly lower child abuse potential in our study as well. In Japan, around 85% of mothers living in single-female-households assess their economic status as very low or slightly low (Ministry of Health, Labour and Welfare, 2013). Thus, type of household and economic status is highly correlated, and living in a single-female-parent-household is associated with a higher child abuse potential risk. We also found a positive correlation between child abuse potential and psychological distress. A previous study reported that child abuse is a serious risk factor that has a detrimental long-term impact on psychological well-being (Dion et al., 2016).

Our research showed that mothers with higher child abuse potential scores had significantly lower levels of perceived social support. There are few studies investigating the correlation between the MSPSS and child abuse potential. One study using the MSPSS and the CAP revealed that neighborhood and individual factors are related to child abuse (Coulton, Korbin, & Su, 1999). Another previous study reported that the correlations of total MSPSS score, MSPSS subscale scores, and depression symptoms show gender differences (Zimet et al., 1988). One

study in the United States revealed that child abuse potential decreased when individuals had support from family and friends (Merritt, 2009). In the present study, all three MSPSS subscales for social support from Friends, Family and Significant others were related to child abuse potential. In addition, previous research showed that the Friends and Significant others subscales were strongly correlated with each other and that the Family subscale functions were more independent (Dahlem, Zimet, & Walker, 1991). The Family subscale is more a stable factor than the other subscales; therefore, support from the husband/partner and other family members is an important element in preventing child abuse. On the other hand, it is easier to enhance support from friends and significant others than from family.

In Japan, friendships between mothers rearing small children, so called "mom friends," are well known in general. Mothers receive parenting information and a sense of security about parenting from mom friends. After childbirth, mothers continue to have relationships with their old friends, but the frequency of contact is reduced. Instead, the network of mom friends expands (Jitsukawa, 2010). One study in the United States also reported that peer relationships become a source of support for adolescent mothers (Richardson, Barbour, & Bubenzer, 1995). Friendships with other mothers are important interpersonal relationships. At the same time, they give rise to negative feelings and interpersonal conflict (Nakayama & Ikeda, 2014); therefore, social support can include both positive and negative support. (Antonucci, 1990). However, mothers who spend all their time alone with their child can become isolated, and this situation should be avoided. Mothers make mom friends in parks near their home, at children's facilities, and/or at child care support centers. Construction and maintenance of both indoor and outdoor facilities for children to play in have been promoted in Japan, but further enhancement is required. Public parks should be easily accessible for mothers to walk to with small children, and the number of playrooms that are free of charge and open even on rainy days and/or national holidays should be increased. These approaches can help ease mothers into child rearing, enhance social support, and lead to the prevention of child abuse.

This study had several limitations. First, participants with a high child abuse potential risk might refuse to participate in this study, which raises the possibility of selection bias. Second, the reliability and validity of the Japanese version of BCAP have not been fully investigated; therefore, the generalizability of our findings may accordingly be limited.

5. Conclusions

In conclusion, our study found that mothers with higher child abuse potential scores tended to have lower levels of perceived social support and psychological distress. Furthermore, child abuse potential was also related to perceived economic status and family structure, especially in single-female-parent households. We expect these findings to be useful for policy makers, planners, educators and healthcare professionals when considering social support issues and other factors that affect the implementation of child abuse prevention strategies and

Table 3
Multiple linear regression analysis of factors associated with child abuse potential (*n* = 309).

| Factor | | Regression coefficient | Standard error | P |
|--------------------------------|---|------------------------|----------------|--------|
| Family structure | 1, Single-female-parent household | 1.69 | 0.54 | 0.002 |
| | 0, Other | | | |
| Perceived economic status | 1, Very low/slightly low | 1.34 | 0.35 | <0.001 |
| | 0, Moderate/slightly well-off/very well-off | | | |
| Total MSPSS ^a score | 1, Low (12 to 72) | 0.7 | 0.35 | 0.05 |
| | 0, High (73 to 84) | | | |
| GHQ-12 ^b | 1, High (4 or more) | 6.02 | 0.54 | <0.001 |
| | 0, Low (0 to 3) | | | |

^a Multidimensional Scale of Perceived Social Support.^b General Health Questionnaire-12.

interventions. In addition, it is important to identify mothers and their children at risk of abuse before it occurs. On the other hand, it is crucial not to stigmatize these mothers while identifying these risk factors. Improving social support approaches that help mothers build social support relationships, including those with other mothers, and ease them into child rearing in a psychologically healthy condition is recommended for the prevention of child abuse.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Conflicts of interest

The authors declare that they have no competing interests.

Acknowledgments

We would like to acknowledge the nine public nursery schools and respondents who participated in this study.

References

- Amemiya, A., & Fujiwara, T. (2016). Association between maternal intimate partner violence victimization during pregnancy and maternal abusive behavior towards infants at 4 months of age in Japan. *Child Abuse & Neglect*, 55, 32–39. <http://dx.doi.org/10.1016/j.chiabu.2016.03.008>.
- Antonucci, T. C. (Ed.). (1990). *Social support and social relationships* (3rd ed.). San Diego, CA: Academic Press.
- Beatty, J. R., Stacks, A. M., Partridge, T., Tzilos, G. K., Loree, A., & Ondersma, S. J. (2011). LoTTS parent–infant interaction coding scale: Ease of use and reliability in a sample of high-risk mothers and their infants. *Children and Youth Services Review*, 33(1), 86–90. <http://dx.doi.org/10.1016/j.childyouth.2010.08.016>.
- Brown, J., Cohen, P., Johnson, J. G., & Salzinger, S. (1998). A longitudinal analysis of risk factors for child maltreatment: Findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse & Neglect*, 22(11), 1065–1078. [http://dx.doi.org/10.1016/S0145-2134\(98\)00087-8](http://dx.doi.org/10.1016/S0145-2134(98)00087-8).
- Ceballo, R., & McLoyd, V. C. (2002). Social support and parenting in poor, dangerous neighborhoods. *Child Development*, 73(4), 1310–1321. <http://dx.doi.org/10.1111/1467-8624.00473>.
- Chaffin, M., Kelleher, K., & Hollenberg, J. (1996). Onset of physical abuse and neglect: Psychiatric, substance abuse, and social risk factors from prospective community data. *Child Abuse & Neglect*, 20(3), 191–203. [http://dx.doi.org/10.1016/S0145-2134\(95\)00144-1](http://dx.doi.org/10.1016/S0145-2134(95)00144-1).
- Coulton, C. J., Korbin, J. E., & Su, M. (1999). Neighborhoods and child maltreatment: A multi-level study. *Child Abuse & Neglect*, 23(11), 1019–1040. [http://dx.doi.org/10.1016/S0145-2134\(99\)00076-9](http://dx.doi.org/10.1016/S0145-2134(99)00076-9).
- Crouch, J. L., Milner, J. S., & Thomsen, C. (2001). Childhood physical abuse, early social support, and risk for maltreatment: Current social support as a mediator of risk for child physical abuse. *Child Abuse & Neglect*, 25(1), 93–107. [http://dx.doi.org/10.1016/S0145-2134\(00\)00230-1](http://dx.doi.org/10.1016/S0145-2134(00)00230-1).
- Dahlem, N. W., Zimet, G. D., & Walker, R. R. (1991). The multidimensional scale of perceived social support: A confirmation study. *Journal of Clinical Psychology*, 47(6), 756–761. [http://dx.doi.org/10.1002/1097-4679\(199111\)47:6<756::AID-JCLP2270470605>3.0.CO;2-L](http://dx.doi.org/10.1002/1097-4679(199111)47:6<756::AID-JCLP2270470605>3.0.CO;2-L).
- Dion, J., Matte-Gagne, C., Daigneault, I., Blackburn, M. E., Hebert, M., McDuff, P., ... Perron, M. (2016). A prospective study of the impact of child maltreatment and friend support on psychological distress trajectory: From adolescence to emerging adulthood. *Journal of Affective Disorders*, 189, 336–343. <http://dx.doi.org/10.1016/j.jad.2015.08.074>.
- Fujiwara, T., Yamaoka, Y., & Kawachi, I. (2016a). Neighborhood social capital and infant physical abuse: A population-based study in Japan. *International Journal of Mental Health Systems*, 10, 13. <http://dx.doi.org/10.1186/s13033-016-0047-9>.
- Fujiwara, T., Yamaoka, Y., & Morisaki, N. (2016b). Self-reported prevalence and risk factors for shaking and smothering among mothers of 4-month-old infants in Japan. *Journal of Epidemiology*, 26(1), 4–13. <http://dx.doi.org/10.2188/jeaJE20140216>.
- Garbarino, J. (1977). The price of privacy in the social dynamics of child abuse. *Child Welfare*, 56(9), 565–575.
- Goldberg, D. (1972). *The detection of psychiatric illness by questionnaire*. London: Oxford University Press (Maudsley Monograph No.21).
- Guterman, N. B., Lee, Y., Lee, S. J., Waldfogel, J., & Rathouz, P. J. (2009). Fathers and maternal risk for physical child abuse. *Child Maltreatment*, 14(3), 277–290. <http://dx.doi.org/10.1177/1077559509337893>.
- Honda, S., Shibata, Y., & Nakane, Y. (2001). Screening of psychiatric disorders using the general health questionnaire-12. *Journal of Health and Welfare Statistics*, 48(10), 5–10 (in Japanese).
- Iwasa, H., Gondou, Y., Masui, Y., Inagaki, H., Kawaai, C., Ohtsuka, R., ... Suzuki, T. (2007). Reliability and validity of Japanese version of social support scale. *Journal of Health and Welfare Statistics*, 54(6), 26–33 (in Japanese).
- Jitsukawa, N. (2010). Changes in the friend networks of child-rearing mothers: Differences between “acquaintances” and “friends”. *The Japanese Journal for the Education of Young Children*, 19, 37–47 (in Japanese).
- Kako, M., & Imazeki, S. (1999). Prevalence of parents at risk of physical child abuse in residents of M city: Pilot survey with a Japanese version of the CAPL. *Ann. Gunma University School of Health Sciences*, 20, 113–116. <http://hdl.handle.net/10087/1621> (in Japanese).
- Kawamura, Y., Takahashi, Y., Akiyama, T., Sasaki, T., & Kako, M. (2009). Reliability and validity of the Japanese version of the child abuse potential inventory abuse scale. *Asia-Pacific Psychiatry*, 1(3), 138–142. <http://dx.doi.org/10.1111/j.1758-5872.2009.00033.x>.
- Kotch, J. B., Browne, D. C., Ringwalt, C. L., Stewart, P. W., Ruina, E., Holt, K., ... Jung, J. W. (1995). Risk of child abuse or neglect in a cohort of low-income children. *Child Abuse & Neglect*, 19(9), 1115–1130. [http://dx.doi.org/10.1016/0145-2134\(95\)00072-G](http://dx.doi.org/10.1016/0145-2134(95)00072-G).
- Merritt, D. H. (2009). Child abuse potential: Correlates with child maltreatment rates and structural measures of neighborhoods. *Children and Youth Services Review*, 31(8), 927–934. <http://dx.doi.org/10.1016/j.childyouth.2009.04.009>.
- Milner, J. S. (1986). *The child abuse potential inventory manual* (2nd ed.). Dekalb, IL: Psytec.
- Milner, J. S., Thomsen, C. J., Crouch, J. L., Rabenhorst, M. M., Martens, P. M., Dyslin, C. W., ... Merrill, L. L. (2010). Do trauma symptoms mediate the relationship between childhood physical abuse and adult child abuse risk? *Child Abuse & Neglect*, 34(5), 332–344. <http://dx.doi.org/10.1016/j.chiabu.2009.09.017>.
- Ministry of Health, Labour and Welfare (2013). *Graphical review of Japanese household. From comprehensive survey of living conditions. 2013*. Statistics and Information Department, Minister’s Secretariat, Ministry of Health Labour and Welfare. Retrieved from <http://www.mhlw.go.jp/toukei/list/20-21.html> (in Japanese).
- Ministry of Health, Labour and Welfare (2015). Current status of child abuse. Retrieved from http://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kodomo/kodomo_kosodate/dv/about.html (in Japanese).
- Nakayama, M., & Ikeda, Y. (2014). The relationship between interpersonal conflicts and personality traits in friendship between mothers rearing little children. *The Japanese Journal of Personality*, 22(3), 285–288. Retrieved from <http://hdl.handle.net/10935/3574> (in Japanese).
- Ondersma, S. J., Chaffin, M. J., Mullins, S. M., & LeBreton, J. M. (2005). A brief form of the child abuse potential inventory: Development and validation. *Journal of Clinical Child and Adolescent Psychology*, 34(2), 301–311. http://dx.doi.org/10.1207/s15374424jccp3402_9.
- Richardson, R. A., Barbour, N. E., & Bubenzer, D. L. (1995). Peer relationships as a source of support for adolescent mothers. *Journal of Adolescent Research*, 10(2), 278–290. <http://dx.doi.org/10.1177/0743554895102005>.
- Sidebotham, P., & Heron, J. (2006). Child maltreatment in the “children of the nineties”: A cohort study of risk factors. *Child Abuse & Neglect*, 30(5), 497–522. <http://dx.doi.org/10.1016/j.chiabu.2005.11.005>.
- Sperry, D. M., & Widom, C. S. (2013). Child abuse and neglect, social support, and psychopathology in adulthood: A prospective investigation. *Child Abuse & Neglect*, 37(6), 415–425. <http://dx.doi.org/10.1016/j.chiabu.2013.02.006>.
- Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *Child Abuse & Neglect*, 31(5), 517–530. <http://dx.doi.org/10.1016/j.chiabu.2007.01.003>.
- Taylor, R. D., & Roberts, D. (1995). Kinship support and maternal and adolescent well-being in economically disadvantaged African-American families. *Child Development*, 66(6), 1585–1597. <http://dx.doi.org/10.1111/j.1467-8624.1995.tb00953.x>.
- Umeda, M., Kawakami, N., Kessler, R. C., Miller, E., & World Mental Health Japan Survey Group 2002–2006 (2015). Childhood adversities and adult use of potentially injurious physical discipline in Japan. *Journal of Family Violence*, 30(4), 515–527. <http://dx.doi.org/10.1007/s10896-015-9692-z>.
- World Health Organization (1999). *Report of the Consultation on Child Abuse Prevention, 29–31 March 1999*. WHO, Geneva. *Consultation child abuse prevention*. World Health Organization. Violence and Injury Prevention Team, & Global Forum Health Research Retrieved from <http://www.who.int/iris/handle/10665/65900>
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30–41.