Risk factors of self-reported physical child abuse during the COVID-19 pandemic in Japan: Work-related changes in men and fear of COVID-19 in women

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Abstract

Background: There is no global consensus on whether pandemic-related factors are related to child abuse. How the pandemic reinforces the risk factors of child abuse might depend largely on individuals' current and past lifestyles in each country. Some changes of lifestyles continue after the pandemic, and it is important to understand which factors are strongly associated with child abuse. We analyzed the pandemic-related characteristics of offenders and non-offenders of self-reported child physical abuse from Internet survey data in Japan and discussed how the pandemic affected physical child abuse and what caused the difference by gender.

Methods: We conducted a cross-sectional study on physical child abuse by caregivers based on the Internet survey conducted from September to October 2021. We divided the participants who were living with their child aged less than 14 years into offenders and non-offenders based on the answer to the question about physical child abuse. The population distribution of the sample was compared to that of caregivers under the same conditions in a large Japanese dataset. The association between their characteristics and physical child abuse was analyzed by univariable and multivariable analysis.

Results: The caregivers analyzed in the cohort had similar population distributions to those in the large Japanese dataset. As risk factors of male offenders, "work from home 4-7 days/week," "decreased work," "normal relationships with household members (compared to good relationships)," "COVID-19 infected, both themselves and household members, within a year," "unwillingness to receive COVID-19 vaccination because the license process of the vaccine is doubtful," "high levels of benevolent sexism," and "history of child abuse" were observed. As risk factors of female offenders, "bad relationships with household members (compared to good

45   relationships),” “fear of COVID-19,” “COVID-19 infected, both themselves and household

46   members, within a year,” “feelings of discrimination related to COVID-19 in the past two

47   months,” and “history of child verbal abuse” were observed.

48   Conclusions: Among male offenders, a significant relationship was observed regarding work-

49   related changes, which may have been reinforced by the pandemic. Furthermore, the extent of

50   the influence and fear of losing jobs caused by these changes may have varied according to the

51   strength of gender roles and financial support in each country. Among female offenders, a

52   significant relationship was observed regarding fear of infection itself, which is consistent with

53   the findings of other studies. In terms of factors related to dissatisfaction with families, in some

54   countries with prominent stereotyped gender roles, men are thought to experience difficulties

55   adapting to work-related changes induced by crises, while women are thought to experience

56   intense fear of the infection itself.

57

58   ## Background

59   The negative impacts of child abuse are maintained throughout the victims’ lifespan, and result

60   in various mood disorders, anxiety disorders, suicidal behavior, and the intergenerational cycle

61   of child abuse (Chapman et al., 2004; Fujiwara & Kawakami, 2011; Stickley et al., 2020;

62   Horikawa et al., 2016; Berlin, Appleyard & Dodge, 2011). Many studies have concluded that

63   more attention to child abuse is necessary during the COVID-19 pandemic because some risk

64   factors such as mental stress, economic stress, social isolation, and a decrease in the chances of

65   detecting child abuse must be reinforced by the pandemic (Romanou & Belton, 2020; Pereda &

66   Díaz-Faes, 2020; Brown et al., 2020; Amin & Parveen, 2022).

67

68   However, there is a fundamental question of whether the pandemic equally reinforces the risk

69   factors of child abuse in every country. A systematic review that analyzed 12 articles reported

70   that the number of areas where abuse increased and decreased from pre-COVID-19 pandemic

71   was approximately the same (Rapp et al., 2021). The impact of the COVID-19 pandemic on

72   child abuse might largely depend on each country's past and current conditions, including the

73   extent of fear of COVID-19, the degree of telework penetration, and attitudes toward gender

74   roles.

75

76   Hence, we used Internet survey data and performed statistical analysis by including various

77   factors directly and indirectly related to the COVID-19 pandemic. There are several drawbacks

78   to using official reports or self-reports of child abuse concerning the quality and number of child

79   abuse cases (Gilbert et al., 2009). However, it is plausible to estimate that self-reports were

80   closer to the true number of child abuse cases during the pandemic when many child protection

81   agencies and schools—major resources of official reports of child abuse—reduced their

82   activities. This study is the first in Japan to report that some pandemic-related characteristics in

83   offenders were significantly associated with physical child abuse; notable differences by gender

84   were also observed. To the best of our knowledge, no study in Japan has identified a significant

85   relationship between physical child abuse and pandemic-related factors of offenders.

86

87   Methods

88   *Data collection*

89   Data was obtained from the Japan COVID-19 and Society Internet Survey (JACSIS) 2021. The

90   target population of JACSIS 2021 consisted of the respondents of JACSIS 2020, the respondents

91   of New Tobacco Internet Survey (JASTIS) 2015-2020, and new participants. JACSIS survey

92   focused on public health issues regarding COVID-19 pandemic and was conducted by an

93   Internet research company (Rakuten Insight, Inc.), which had 2.3 million registered panelists.

94   JASTIS survey focused on issues about new types of cigarettes in Japan and was also conducted

95   by the same company from 2015. Before these surveys, the target number of responses was set in

96   each group, stratified by age, sex, and prefecture, based on the population distribution. The

97   population distribution was calculated using the Comprehensive Survey of Living Conditions

98   (CSLC) in Japan. From September 27 to October 5, 2021, questionnaires with pre-defined

99   options were distributed through the Internet to the 33,081 respondents of JACSIS 2020 and

100   JASTIS 2015-2020 aged 16–81 years, in seven waves. From October 23 to 28, the target

101   numbers were not reached in some stratified groups; therefore, questionnaires were distributed to

102   the new 26,138 panelists by random sampling, based on the difference between the target and

103   collected numbers in each group. In the second wave, all groups reached the target numbers and

104   the survey was completed. Hence, questionnaires were distributed to 59,219 panelists, and the

105   respondents represented the Japanese population regarding age, gender, and residential

106   prefecture using a simple random sampling process (the Japan COVID-19 and Society Internet

107   Survey, 2022).

108

109   Invalid responses were measured using three questions, Q18, Q26, and Q68, which were similar

110   to the exclusion criteria used in previous JACSIS studies (Yamada et al., 2021; Minoura et al.,

111   2021). In Q18, "Please choose the second option from the bottom," people who did not choose

112   the correct option were excluded. In Q26 about 20 types of diseases, people who answered

113   "currently" to all nine types of diseases (hypertension, diabetes, asthma, atopic dermatitis,

114   allergic rhinitis, myocardial infarction or angina, stroke, cancer, and chronic pain over three

115   months) were excluded. In Q68, regarding the use of alcohol and drugs, people who answered

116   "almost every day" or "sometimes" to all the options i.e., alcohol, sleeping pills, anxiolytic,

117   illegal opioids, organic solvent, dangerous drugs, cannabis, stimulant drugs, cocaine, and heroin,

118   were also excluded. From the 31,000 responses, 2,825 invalid responses were excluded, and

119   finally 4,393 were analyzed according to the aim of this study. The detailed participants selection

120   has been described in Figure 1.

121   ***Outcome Variables***

122   We focused on the question about child physical abuse:

123   "Have you used violence on your child in the past two months?"

124   The question was only asked to caregivers living with child aged less than 14 years. Those who

125   answered "Yes" were classified as an experimental group, and those who answered "No" were

126   classified as a control group. Those who answered "not sure" or "not want to answer" were

127   excluded from the analysis.

128   ***Explanatory Variables***

129   The following sociodemographic characteristics of the subjects were obtained: "age (20-29, 30-

130   39, 40-49, and 50-59 years)," "work from home (none, 1-3 days/month, 1-3 days/week, 4-7

131   days/week, and unemployed)," "change of job status within a year (did not change, work

132   decreased, leave of absence or furlough, resigned, and others)," "relationships with household

133   members (good, normal, and bad)," "benevolent sexism scale (<=24 and >24)," "experienced or

134   witnessed physical abuse by parents before age of 18 (no and yes)," and "experienced verbal

135   abuse by parents before the age of 18 (no and yes)."

136

137   The following pandemic-related characteristics of the subjects were also obtained: "fear of

138   COVID-19 (not strong and strong)," "infection with COVID-19 within a year (neither myself nor

139   household member, only myself, only household member, and both myself and household

140   member)," "feelings of discrimination related to COVID-19 (never, before two months ago, and

141   in the past two months)," and "willingness to receive COVID-19 vaccination (yes, no because

142   the license process of the vaccine is doubtful, and no due to other reasons)."

143

144   Regarding "fear of COVID-19," those who answered "very applicable" to any one of the

145   questions regarding physically or mentally serious reactions to simply considering COVID-19

146   were defined as having a strong fear of COVID-19. Among the all reasons of "unwillingness to

147   receive COVID-19 vaccination," "the license process of the vaccine is doubtful" is the most

148   skeptical reason. Other reasons indicate that people did not want to receive the vaccination

149   because they were concerned with the side effects, doubted its effectiveness, had low risk of

150   serious complications, were previously infected, or did not have time to get the vaccine.

151   "Benevolent sexism scale" was set to see whether the attitudes toward gender role are related to

152   child abuse. Glick et al. proposed that sexism is divided into hostile and benevolent one in

153   modern times, and that benevolent individuals have a more negative impact on women's career

154   advancement than hostile ones (Glick & Fiske, 1996; Dardenne, Dumont & Bollier, 2007; King

155   et al., 2012; Jones et al., 2014). The original sexism scale by Glick and Fiske consists of 11

156   questions each for hostile and benevolent individuals. In 2018, to make the scale more practical

157   to measure benevolent sexism in Japan, a new benevolent sexism scale with eight questions

158   corresponding to question numbers 1, 4, 8, 14, 15, 16, 18, and 19 in the original scale, was

159   developed (Morinaga et al., 2018). The JACSIS 2019 fully used the scale in Q38. Victims of

160   dating violence or child abuse had reportedly higher scores for benevolent sexism (Cuadrado-

161   Gordillo, Fernández-Antelo & Martín-Mora Parra, 2020; Vives-Cases et al., 2021; Melissa Abi

162   Rached, Ahmed Hankir & Rashid Zaman, 2021). To our knowledge, common criteria for the

163   benevolent sexism scale do not exist; we set 24 out of 48 as a cut-off value for the explanatory

164   variable.

165   ***Statistical analysis***

166   First, our sample was compared to that of caregivers in the CSLC data in 2019 under the same

167   conditions, to show the representativeness of the valid respondents. Second, Pearson's chi-square

168   (χ^2) test was performed to determine the significance of the overall variables. Third, a

169   multivariable logistic regression analysis was performed to estimate the strength of associated

170   risk factors to physical child abuse. Variance inflation factor (VIF) values were calculated to

171   indicate that there was no multicollinearity issue among the variables. At 5% significance level,

172   these gender-stratified analyses were conducted by EZR ver. 1.54.

173   ***Ethics approval***

174   Ethical approval was obtained from the Research Ethics Committee of the Osaka International

175   Cancer Institute (approval no. 20084). Before answering the distributed questionnaire, in the first

176   page of the questionnaire, all the participants read the purpose of the study, how personal

177   information would be handled, and how to decline participation in the study. Those who

178   answered the questionnaire were considered to have consented to participate in the study.

179

180   # Results

181 Figure 1 shows the flowchart of participant selection. Of the 2,296 male caregivers with children

182 aged less than 14 years, 134 answered "Yes," 2,034 answered "No," and 128 answered

183 "Unknown/Do not want to answer" to the question of physical child abuse over the past 2

184 months. Of the 2,329 female caregivers with children aged less than 14 years, 187 answered

185 "Yes," 2,038 answered "No," and 104 answered "Unknown/Do not want to answer" to the same

186 question.

187

188 Table 1 shows the comparison between our sample and that of caregivers from the CSLC data

189 under the same conditions, aged 20–59 years with children aged less than 14 years. In our study

190 cohort, of both male and female caregivers, 15.6% answered "YES" or "No" to the question. Of

191 both male and female caregivers, 0.7–0.9% answered "Unknown" or "Do not want to answer."

192 In the CSLC data, the caregivers under the same conditions were 17.1-18.6% men aged 16–81

193 years. Regarding age, the study cohort caregivers had a similar distribution to that of the

194 caregivers from CSLC, compared with the non-analyzed caregivers. Regardless of the responses,

195 the respondents of JACSIS had a higher prevalence of International Standard Classification of

196 Education (ISCED)≥6 (men: 67.2–69.3%, women: 43.6–44.2%) than those from the CSLC data

197 (men: 36.7%, women: 21.1%).

198

199 Table S1 shows the numbers of male offenders and non-offenders according to their

200 characteristics and the results of Pearson's χ^2 test and multivariable logistic regression analysis.

201 Among men, self-reported physical child abuse was significantly associated with "work from

202 home 4-7 days/week (Odds Ratios [ORs]=1.81, P value [P]=0.028)," "decrease of work

203 (ORs=1.66, P=0.025)," "normal relationships with household members (compared to good

204 relationships, ORs=1.57, P=0.039)," "COVID-19 infected, both themselves and household

205 members, within a year (ORs=4.10, P=0.007)," "unwillingness to receive COVID-19 vaccination

206 because the license process of the vaccine is doubtful (ORs=2.85, P=0.006)," "high levels of

207 benevolent sexism (ORs=1.65, P=0.018)," "history of physical child abuse (ORs=2.96,

208 P<0.001)," and "history of verbal child abuse (ORs=2.24, P=0.004)." All VIF values were less

209 than 1.5, indicating a lack of collinearity among predictor variables.

210

211 Table S2 shows the number of female offenders and non-offenders according to their

212 characteristics and the results of Pearson's χ^2 test and multivariable logistic regression analysis.

213 Among women, self-reported physical child abuse was significantly associated with "bad

214 relationships with household members (compared to good relationships, ORs=3.51, P<0.001),"

215 "strong fear of COVID-19 (ORs=1.44, P=0.028)," "COVID-19 infected, both themselves and

216 household members, within a year (ORs=3.22, P=0.038)," "feelings of discrimination related to

217 COVID-19 in the past two months (ORs=2.08, P=0.044)," and "history of verbal child abuse

218 (ORs=2.66, P<0.001)." It was significantly and negatively associated with "aged 50-59

219 (compared to aged 20-29, ORs=0.29, P=0.029)" and "unwillingness to receive COVID-19

220 vaccination for other reasons than the license process of the vaccine is doubtful (ORs=0.55,

221 P=0.037)." All VIF values were less than 2.2, indicating a lack of collinearity among predictor

222 variables.

223

224 **Discussion**

225 ***The importance of self-reported child abuse***

226 Compared to officially reported child abuse data, self-reported data may include a greater

227   number of milder cases. However, society is busy with specific responses to address previously

228   reported severe cases. The number of officially reported child abuse cases is increasing across

229   developed countries, while the number of cases identified or suggested as child abuse has not

230   changed significantly (Ministry of Health, Labour and Welfare, 2022; Department for Education,

231   2019; Children's Bureau, 2020; Australian Institute of Health and Welfare, 2020). This may

232   indicate that people are more conscious of abuse or that mild cases are actually increasing, but

233   society has a limited capacity to respond to all officially reported cases. Although mild violence

234   is not necessarily consistent with severe violence, it is a risk factor for difficult cases in

235   previously reported data.

236   ***The validity of our sample***

237   As Table 1 shows, the caregivers analyzed in our study cohort had a similar population

238   distribution with regard to sex and age, compared with those from the CSLC data, while the non-

239   analyzed caregivers did not. This may have been caused by a trend of younger people being

240   more likely to respond "Unknown/Do not want to answer" to the question about physical child

241   abuse. While we cannot determine how many offenders answered "Unknown/Do not want to

242   answer," these options are factors that support the quality of submitted data. In this web-based

243   survey, panelists had to fill in all the questions to submit the data, and these additional options

244   prevented them from giving contradictory answers, and enabled us to set the exclusion criteria.

245   In addition, web-based surveys are reported to have better quality responses to delicate questions

246   than do face-to-face interactions (Hasegawa, 2007). Our sample was biased toward people with

247   higher educational backgrounds, similar to a previous report comparing the CSLC data and

248   Internet surveys (Taniguchi & Omori, 2022). Considering the relationship between low

249   educational background and child abuse, our results may be adaptable to a group in which child

250   abuse is unlikely.

251   ***Common risk factors for both genders***

252   The common risk factors of self-reported physical child abuse in offenders of both genders are

253   "COVID-19 infected, both themselves and household members, within a year," "poor

254   relationships with household members," and "history of child abuse." The intergenerational

255   cycle of child abuse is known worldwide as a major risk factor (Berlin, Appleyard & Dodge,

256   2011; Horikawa et al., 2016; Assink et al., 2018; Anderson et al., 2018). In this pandemic,

257   "COVID-19 infected, both themselves and household members, within a year" had a high odds

258   ratio, exceeding that of "history of child abuse." Considering that "only themselves being

259   infected" did not show a high prevalence of self-reported physical child abuse, depression

260   symptoms due to COVID-19 or Long COVID would not significantly change their responses.

261   Therefore, physical child abuse is very likely to occur in a household where the offender and

262   someone else were infected within a year. Considering the high odds ratios exceeding those of

263   "history of child abuse," abuse is more likely to occur during periods of physical, mental, or

264   social stress, when household members are frustrated with each other. For offenders, this stress

265   may differ between "only offender infected (with COVID-19)" and "Offender and another

266   household member infected." For example, it is difficult to determine the source of the infection

267   in most cases. When several family members are simultaneously infected, they may often

268   assume that others might be responsible for the infection. Some strong risk factors were found

269   like intergenerational chain of child abuse and low socioeconomic status, but practical

270   intervention is not possible. The negative impacts of COVID-19 have been widely studied, and

271   this result might be one of the risks for increased stress, especially toward their families in

272 particular situations (Amin & Parveen, 2022).

273 ***Male offenders***

274 Risk factors specific to male offenders were "work from home 4-7 days/week," "decreased work,"

275 "unwillingness to receive COVID-19 vaccination because the license process of the vaccine is

276 doubtful," and "high benevolent sexism scale." Benevolent sexism measures the attitude toward

277 stereotyped gender roles; men should work, and women should do household chores. We estimate

278 that high levels of benevolent sexism of men reflect an emphasis on the importance of an

279 occupation, leading to the strong stress caused by "work from home 4-7 days/week" and

280 "decreased work." The strength of gender roles is inferred from the gender gap in the labor force

281 participation. Substantial gaps in labor force participation prevalence between married men and

282 women (25-30%) were observed in countries such as Japan, South Korea, Italy, and Brazil,

283 compared to the gaps (less than 15%) in countries such as France, Sweden, Finland, England, and

284 Denmark (ILOSTAT, 2022). In Japan, half of the employed women quit their jobs after childbirth

285 (Ministry of Health, Labour and Welfare in Japan, 2021). As Japan has very established gender

286 roles, it is unclear whether the work-related risk factors in our results are also found in countries

287 with gender roles as prominent, such as in Italy and Brazil. Notably, low telework penetration is

288 consistent with high gender gap in the labor force participation to some extent. It is reported that

289 telework penetration before the pandemic was low in Japan, Italy, and Brazil and high in France,

290 Sweden, Finland, England, and Denmark (OECD, 2021). The pandemic has increased telework

291 globally, but it was a rapid change for the country with prominent stereotyped gender roles, such

292 as Japan. Moreover, "work from home 4-7 days/week" and "decreased work" are associated with

293 increased time spent at home and anxiety about potential job loss. For men with strong stereotyped

294 gender roles, the sudden increase in time with their children is largely inconsistent with their

295   previous lifestyles. This may be a primary cause of dissatisfaction with their children and spouses

296   because they were previously uninvolved in childcare. In addition, the situation where the husband

297   is the only working member can increase their dissatisfaction with their family when faced with

298   the uncertainty of unemployment. It is reported that "working remotely" and "becoming

299   unemployed during the COVID-19 pandemic" were not associated with anxiety symptoms in

300   Finland (Savolainen et al., 2021). The telework system introduced during the pandemic will likely

301   continue in many companies. Globally, as there was no precedent for the sudden increase in time

302   at home for men, it is difficult to speculate how long the estimated risk factors due to men's familial

303   dissatisfaction will continue in countries with strong gender roles.

304

305   Anxiety over decreasing or losing jobs is also influenced by financial support in each country.

306   Many developed countries have job retention schemes and support the income of workers who

307   are temporarily unemployed or whose work hours have been decreased. Japan, England, and

308   Germany showed the lowest unemployment rates before and during the pandemic (OECD,

309   2020). On the other hand, in Japan, wages supported by job retention schemes for workers with

310   100% reductions in work hours are much higher than the amounts provided by unemployment

311   benefits. In countries with large differences, such as in Japan, Portugal, Denmark, and Poland,

312   anxiety surrounding job loss might be high (OECD, 2020).

313

314   "Unwillingness to receive COVID-19 vaccination because the license process of the vaccine is

315   doubtful" was a risk factor for male offenders. Considering that "fear of COVID-19" and

316   "feelings of discrimination related to COVID-19 infection" were risk factors associated with

317   female offenders, men with no vaccination owing to skepticism might be subject to domestic

318 discord due to their uncooperative attitude toward infection prevention.

319 ***Female offenders***

320 Risk factors specific to female offenders were "bad relationships with household members

321 (compared to good relationships)," "strong fear of COVID-19," and "feelings of discrimination

322 related to COVID-19 in the past two months." Unlike the discussion on the work-related risk

323 factors in men, the infection-related risk factors are not always explained by gender roles. In

324 Northern European countries, women showed a higher prevalence of anxiety and depression

325 symptoms due to the COVID-19 pandemic (Savolainen et al., 2021; Johansson et al., 2013).

326 Importantly, infection-related factors are gradually reduced with the abatement of the pandemic.

327

328 This study had some limitations. First, we found that self-reported physical child abuse was

329 likely to occur in the household where the offender and someone were infected within a year,

330 with a high odds ratio similar to "history of child abuse." However, we could not identify who

331 the someone is, and a particular combination might influence the relationship with child abuse.

332 For example, while the combination of infected offender and child might indicate a simple

333 mechanism of child abuse, the combination of infected offender and spouse might indicate a

334 complex mechanism of child abuse regarding childcare, partly explained by the strength of

335 gender roles. Second, we could not determine whether the offenders were biological parents or

336 parents-in-law because there was no definition of parents in JACSIS. It has been reported that

337 parents-in-law abuse children more than biological parents, and different types of abuse are

338 observed (Turner et al., 2013; Daly & Wilson, 1994; Baba et al., 2020). Third, this was a cross-

339 sectional study for which causality was not identified. Fourth, although the analyzed respondents

340 were representative of the population in terms of age and sex, they may have biased the

341   characteristics and influenced the results. Our sample included many people with high

342   educational backgrounds, similar to a previous study (Taniguchi & Omori, 2022). Respondents

343   may have had milder personalities than the average for the population, which may have in turn

344   resulted in a mild and low prevalence of self-reported child abuse.

345

346   Conclusion

347   Physical child abuse was very likely to be reported in the "COVID-19 infected, both themselves

348   and household members, within a year" households. Among male offenders, a significant

349   relationship was observed in the change in work situations, such as "work from home 4–7

350   days/week" and "decreased work." Difficulty adapting to work-related changes and the fear of

351   losing jobs may be high in countries with established gender roles and insufficient financial

352   support. Among female offenders, a significant relationship was observed regarding fear of

353   infection, which is consistent with the findings of previous studies on other pandemics (Savolainen

354   et al., 2021; Johansson et al., 2013). When emergencies, such as pandemics, keep people at home

355   or change past lifestyles, the parental stress might be more prevalent in countries with strong

356   stereotyped gender roles.

357

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361

362   References

363   Amin UA, Parveen AP. 2022. Impact of COVID-19 on children. *Middle East Current Psychiatry*

364   29:94. DOI: 10.1186/s43045-022-00256-3.

365   Australian Institute of Health and Welfare. 2020.Child protection Australia 2018–19. *Available at*

366   *https://www.aihw.gov.au/reports/child-protection/child-protection-australia-2018-*

367   *19/summary* (accessed February 17, 2023).

368   Baba S, Eshak ES, Shirai K, Fujiwara T, Yamaoka Y, Iso H. 2020. Factors Associated With Family

369   Member's Spanking of 3.5-year-old Children in Japan. *Journal of Epidemiology* 30:464–

370   473. DOI: 10.2188/jea.JE20190160.

371   Berlin LJ, Appleyard K, Dodge KA. 2011. Intergenerational Continuity in Child Maltreatment:

372   Mediating Mechanisms and Implications for Prevention. *Child development* 82:162–176.

373   DOI: 10.1111/j.1467-8624.2010.01547.x.

374   Brown SM, Doom JR, Lechuga-Peña S, Watamura SE, Koppels T. 2020. Stress and parenting

375   during the global COVID-19 pandemic. *Child Abuse & Neglect* 110:104699. DOI:

376   10.1016/j.chiabu.2020.104699.

377   Chapman DP, Whitfield CL, Felitti VJ, Dube SR, Edwards VJ, Anda RF. 2004. Adverse childhood

378   experiences and the risk of depressive disorders in adulthood. *Journal of Affective*

379   *Disorders* 82:217–225. DOI: 10.1016/j.jad.2003.12.013.

380   Children's Bureau. 2020.Child Maltreatment 2018. *Available at*

381   *https://www.acf.hhs.gov/cb/report/child-maltreatment-2018* (accessed February 17, 2023).

382   Cuadrado-Gordillo I, Fernández-Antelo I, Martín-Mora Parra G. 2020. Search for the Profile of

383   the Victim of Adolescent Dating Violence: An Intersection of Cognitive, Emotional, and

384   Behavioral Variables. *International Journal of Environmental Research and Public Health*

385   17:8004. DOI: 10.3390/ijerph17218004.

386   Daly M, Wilson MI. 1994. Some differential attributes of lethal assaults on small children by

387   stepfathers versus genetic fathers. *Ethology and Sociobiology* 15:207–217. DOI:

388   10.1016/0162-3095(94)90014-0.

389   Dardenne B, Dumont M, Bollier T. 2007. Insidious dangers of benevolent sexism: Consequences

390   for women's performance. *Journal of Personality and Social Psychology* 93. DOI:

391   10.1037/0022-3514.93.5.764.

392   Department for Education. 2019.Characteristics of children in need: 2018 to 2019. *Available at*

393   *https://www.gov.uk/government/statistics/characteristics-of-children-in-need-2018-to-*

394   *2019* (accessed February 17, 2023).

395   Fujiwara T, Kawakami N. 2011. Association of childhood adversities with the first onset of mental

396   disorders in Japan: Results from the World Mental Health Japan, 2002–2004. *Journal of*

397   *Psychiatric Research* 45:481–487. DOI: 10.1016/j.jpsychires.2010.08.002.

398   Gilbert R, Widom CS, Browne K, Fergusson D, Webb E, Janson S. 2009. Burden and

399   consequences of child maltreatment in high-income countries. *The Lancet* 373:68–81.

400   DOI: 10.1016/S0140-6736(08)61706-7.

401   Glick P, Fiske ST. 1996. The Ambivalent Sexism Inventory: Differentiating hostile and benevolent

402   sexism. *Journal of Personality and Social Psychology* 70:491–512. DOI: 10.1037/0022-

403   3514.70.3.491.

404   Hasegawa K. 2007. "You do not have to answer the question?" [Translated from Japanese].

405   *Advanced social research*:49–64.

406   Horikawa H, Suguimoto SP, Musumari PM, Techasrivichien T, Ono-Kihara M, Kihara M. 2016.

407   Development of a prediction model for child maltreatment recurrence in Japan: A historical

408   cohort study using data from a Child Guidance Center. *Child Abuse & Neglect* 59:55–65.

409   DOI: 10.1016/j.chiabu.2016.07.008.

410   ILOSTAT. 2022.Labour force participation rate by sex, age and marital status (%). *Available at*

411   *https://ilostat.ilo.org/topics/women/* (accessed November 22, 2022).

412   Johansson R, Carlbring P, Heedman Å, Paxling B, Andersson G. 2013. Depression, anxiety and

413   their comorbidity in the Swedish general population: point prevalence and the effect on

414   health-related quality of life. *PeerJ* 1:e98. DOI: 10.7717/peerj.98.

415   Jones K, Stewart K, King E, Morgan WB, Gilrane V, Hylton K. 2014. Negative consequence of

416   benevolent sexism on efficacy and performance. *Gender in Management: An International*

417   *Journal* 29:171–189. DOI: 10.1108/GM-07-2013-0086.

418   King EB, Botsford W, Hebl MR, Kazama S, Dawson JF, Perkins A. 2012. Benevolent Sexism at

419   Work: Gender Differences in the Distribution of Challenging Developmental Experiences.

420   *Journal of Management* 38:1835–1866. DOI: 10.1177/0149206310365902.

421   Melissa Abi Rached, Ahmed Hankir, Rashid Zaman. 2021. Patriarchal Upbringing in the 21st

422   Century: The Impact Emotional Abuse Related to Parental Styles Has on the Genesis of

423   Gender Inequality and the Development of Unresolved Trauma in Children. *Psychiatria*

424   *Danubina* 33:121–132.

425   Ministry of Health, Labour and Welfare. 2022.Number of cases of child abuse consultation in

426   Japan, 1992-2021 (only in Japanese). *Available at*

427   *https://www.mhlw.go.jp/content/11900000/000987725.pdf*

428   Ministry of Health, Labour and Welfare in Japan. 2021.Overview of the 11th longitudinal survey

429   of children born in 2010 and the mothers (only in Japanese). *Available at*

430   *https://www.mhlw.go.jp/toukei/saikin/hw/syusseiji/20/index.html* (accessed November 28,

431   2022).

432   Minoura A, Ishimaru T, Kokaze A, Tabuchi T. 2021. Increased Work from Home and Low Back
433   Pain among Japanese Desk Workers during the Coronavirus Disease 2019 Pandemic: A
434   Cross-Sectional Study. *International Journal of Environmental Research and Public*
435   *Health* 18:12363. DOI: 10.3390/ijerph182312363.

436   Morinaga Y, Sakata K, Kitakaji Y, Oike M, Fukudome K. 2018. Benevolent Sexism Scale for
437   Japanese (only in Japanese). *The Proceedings of the Annual Convention of the Japanese*
438   *Psychological Association* 82:1AM – 140. DOI: 10.4992/pacjpa.82.0_1AM-140.

439   OECD. 2020.Job retention schemes during the COVID-19 lockdown and beyond. *Available at*
440   *https://www.oecd.org/coronavirus/policy-responses/job-retention-schemes-during-the-*
441   *covid-19-lockdown-and-beyond-0853ba1d/* (accessed February 16, 2023).

442   OECD. 2021.Teleworking in the COVID-19 pandemic: Trends and prospects. *Available at*
443   *https://www.oecd.org/coronavirus/policy-responses/teleworking-in-the-covid-19-*
444   *pandemic-trends-and-prospects-72a416b6/* (accessed November 22, 2022).

445   Pereda N, Díaz-Faes DA. 2020. Family violence against children in the wake of COVID-19
446   pandemic: a review of current perspectives and risk factors. *Child and Adolescent*
447   *Psychiatry and Mental Health* 14:40. DOI: 10.1186/s13034-020-00347-1.

448   Rapp A, Fall G, Radomsky AC, Santarossa S. 2021. Child Maltreatment During the COVID-19
449   Pandemic. *Pediatric Clinics of North America* 68:991–1009. DOI:
450   10.1016/j.pcl.2021.05.006.

451   Romanou E, Belton E. 2020.The impact of COVID-19 on child abuse in the UK. *Available at*
452   *https://learning.nspcc.org.uk/research-resources/2020/social-isolation-risk-child-abuse-*
453   *during-and-after-coronavirus-pandemic/* (accessed January 30, 2023).

454   Savolainen I, Oksa R, Savela N, Celuch M, Oksanen A. 2021. COVID-19 Anxiety—A

455  Longitudinal Survey Study of Psychological and Situational Risks among Finnish

456  Workers. *International Journal of Environmental Research and Public Health* 18. DOI:

457  10.3390/ijerph18020794.

458 Stickley A, Waldman K, Ueda M, Koyanagi A, Sumiyoshi T, Narita Z, Inoue Y, DeVylder JE, Oh

459  H. 2020. Childhood neglect and suicidal behavior: Findings from the National Comorbidity

460  Survey Replication. *Child Abuse & Neglect* 103:104400. DOI:

461  10.1016/j.chiabu.2020.104400.

462 Taniguchi M, Omori S. 2022.Bias in Internet-Based Surveys- A Comparative Study Using the

463  Census and an Interview-Based Survey-. *Available at*

464  *https://english.nira.or.jp/papers/research_reports/2022/03/bias-in-internet-based-*

465  *surveys---a-comparative-study-using-the-census-and-an-interview-based-survey-*

466  *.html?_ga=2.159685438.2030227239.1676684935-*

467  *1829064643.1676684935&_gl=1*1ehpmp2*_ga*MTgyOTA2NDY0My4xNjc2Njg0OTM1*

468  *_ga_RE51W1NQ6C*MTY3NjY4NDkzNS4xLjEuMTY3NjY4NTc0NS40NS4wLjA.*

469 the Japan COVID-19 and Society Internet Survey. 2022.Homepage of JACSIS study (only in

470  Japanese). *Available at https://jacsis-study.jp/* (accessed April 20, 2022).

471 Turner HA, Finkelhor D, Hamby SL, Shattuck A. 2013. Family structure, victimization, and child

472  mental health in a nationally representative sample. *Social Science & Medicine* 87:39–51.

473  DOI: 10.1016/j.socscimed.2013.02.034.

474 Vives-Cases C, Sanz-Barbero B, Ayala A, Pérez-Martínez V, Sánchez-SanSegundo M, Jaskulska

475  S, Antunes das Neves AS, Forjaz MJ, Pyżalski J, Bowes N, Costa D, Waszyńska K,

476  Jankowiak B, Mocanu V, Davó-Blanes MC. 2021. Dating Violence Victimization among

477  Adolescents in Europe: Baseline Results from the Lights4Violence Project. *International*

478   *Journal   of   Environmental   Research   and   Public   Health*   18:1414.   DOI:

479   10.3390/ijerph18041414.

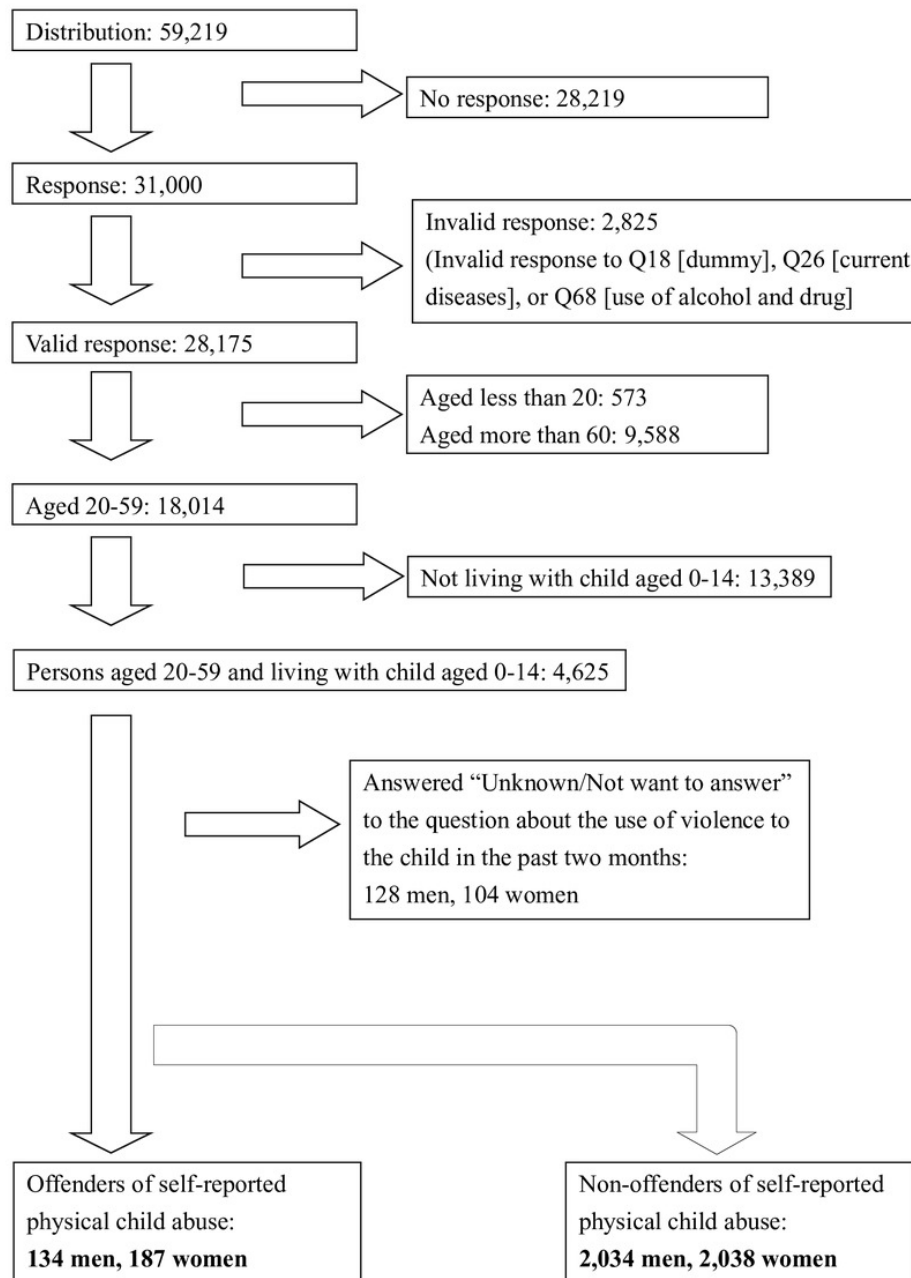
480   Yamada K, Wakaizumi K, Kubota Y, Murayama H, Tabuchi T. 2021. Loneliness, social isolation,

481   and pain following the COVID-19 outbreak: data from a nationwide internet survey in

482   Japan. *Scientific Reports* 11:18643. DOI: 10.1038/s41598-021-97136-3.

483

Figure 1

Flowchart of the analyzed participants selection.

Epidemiological characteristics of caregivers from the Japan COVID-19 and Society Internet Survey (JACSIS) 2021 and the Comprehensive Survey of Living Conditions (CSLC) 2019.

1 **Table 1:**

2 **Epidemiological characteristics of caregivers from the Japan COVID-19 and Society**

3 **Internet Survey (JACSIS) 2021 and the Comprehensive Survey of Living Conditions (CSLC)**

4 **2019.**

	n (%)	Analyzed caregivers	Non-analyzed caregivers	Caregivers from CSLC
Men	**Number/Total**	2168/13870 (15.6)	128/13870 (0.9)	35819/206437 (17.4)
	Age			
	20-29	105 (4.8)	13 (10.0)	1807 (5.0)
	30-39	820 (37.8)	55 (43.0)	12887 (36.0)
	40-49	1004 (46.3)	53 (41.4)	17033 (47.6)
	50-59	239 (11.0)	7 (5.5)	4092 (11.4)
	ISCED >=6	1503 (69.3)	86 (67.2)	13129 (36.7)
Women	**Number/Total**	2225/14305 (15.6)	104/14305 (0.7)	40464/217960 (18.6)
	Age			
	20-29	222 (10.0)	16 (15.4)	2949 (7.3)
	30-39	952 (42.8)	53 (51.0)	16821 (41.6)
	40-49	930 (41.8)	30 (28.8)	18083 (44.7)
	50-59	121 (5.4)	5 (4.8)	2611 (6.5)
	ISCED >=6	969 (43.6)	46 (44.2)	8549 (21.1)

5 ISCED: International Standard Classification of Education