Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Global prevalence of physical and psychological child abuse during COVID-19: A systematic review and meta-analysis

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ABSTRACT

Background: With the onset of COVID-19, most countries issued lockdowns to prevent the spread of the virus globally and child abuse was concerned under such a closed circumstance.
Objective: This study aims to estimate the prevalence of physical and psychological child abuse during COVID-19 and moderating variables for those abuses.
Participants and setting: The rates of child abuse reported in 10 studies encompassing 14,360 children were used, which were gathered through a systematic review.
Methods: We reviewed previous studies systematically for the appropriate data and conducted a meta-analysis.
Results: The prevalence of physical child abuse is estimated at 18 % and that of psychological abuse is estimated at 39 %. Regarding the unemployment rate, it reveals a high correlation with physical abuse (b = 0.09; $p < 0.05$) but not with psychological one (b = 0.03; no. sig).
Conclusions: To prevent child abuse during the pandemic, it is suggested to minimize COVID-19-related economic damage to families and explore factors for reducing the gap between low and high-income countries.

1. Introduction

COVID-19 was declared a pandemic on March 11, 2020 (World Health Organization, 2020). Globally, nearly all countries issued lockdowns including social distancing, school closures, movement restrictions, and telecommuting to prevent the spread of the virus. However, these measures had severe effects on economic activities (Fernandes, 2020) and all countries recorded negative growth rates in 2020 (Organization for Economic Cooperation and Development, 2022). The WHO (2020) had already announced that child abuse would increase during public health emergencies and thus expected that child abuse would increase with the onset of COVID-19. It is estimated that 1 out of 2 children aged 2–17, or over 1 billion children, experienced some form of abuse before COVID-19, although rates differed by continent (Hillis et al., 2016; Moody et al., 2018): pre-COVID-19 abuse rate estimates are 25 % for Africa, 34 % for Asia, 14 % for Latin America, 7 % for Europe, 30 % for Northern America, and 7 % for Oceania. The differences among continents are reflected in the regional economy and cultural traits (Ammerman & Hersen, 2000). Physical child abuse refers to kicking, hitting, and otherwise causing physical injury, and psychological abuse refers to harming self-esteem or emotional balance by threatening and withholding love. Each can cause death, injury, maladjustment, and behavior problems (Barnett et al., 2005). Given the need for social lockdowns and quarantines during COVID-19 and the WHO's anticipation that abuse rates would increase, it is now important to

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analyze physical and psychological child abuse under COVID-19 to compare.

Our aim with this study is to conduct a meta-analysis of the global prevalence of child physical and psychological abuse during the COVID-19 pandemic. It has been difficult to conduct surveys of child abuse during COVID-19 because of social distancing requirements including comparing the disproportionate abuse rates between high-and low-income countries. The COVID-19 pandemic began two years ago, so any meta-analysis of pandemic-related physical and psychological abuse would contain few studies. Nevertheless, our aims with this study are first to identify the global prevalence of child abuse by country or region and second to identify the factors that influenced child abuse during the COVID-19 pandemic.

2. Methods

2.1. Literature search strategy

We drafted a search strategy to identify original quantitative evidence from published original research and peer-reviewed articles on Scopus, Embase, PubMed, and Web of Science. Searching terminologies included mixing with two thematic areas: (a) COVID-19; (b) coronavirus; (c) child abuse; (d) child neglect; and (e) child maltreatment. The systematic review was registered as a protocol with Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines were as followed. 1. We specified COVID-19 to exclude other coronaviruses such as SARS and MERS (World Health Organization, 2021). Most studies were related to SARS, and we identified no articles using combinations of *SARS-CoV-2, 2019nCoV, Wuhan coronavirus 2,* and *child abuse;* to expand our results, we searched for both COVID-19 and coronavirus 2 and searched for articles on both child physical and psychological abuse. Firstly, we searched four violence types but could not find mixing terms with COVID-19 and child sexual abuse and neglect. The associated terms included mixing both COVID-19 and child physical and psychological abuse. 2. Children were defined as anyone below the age of 18. Even though risk and protective factors should precede the conducting analysis (Trickett et al., 2014), in the process of studying, we found an important comparison between high and low-income countries. That idea is rooted in the probability of child abuse being more likely to occur in the low-class groups than in high (Fang et al., 2015). Most studies of child abuse in low- and middle-income countries are revealed (UNICEF, 2014). We applied an inclusive definition to capture as broad a body of literature from these settings as possible. Past experiences of child abuse were excluded in analyses to compare before and after COVID-19. We used World Bank (2021) country criteria based on gross national income per capita to define countries as low, lower-middle-, or upper-middle-income (Fang et al., 2015) and then divided those into low or high income. We applied physical and psychological violence typologies found in UNICEF's *Hidden in Plain Sight* (2014) report to operationalize our definition of violence. To satisfy violence forms and reduce differences in our comparison of factors, we restricted the definition of physical and psychological violence to acts perpetrated by adults against children.

2.2. Inclusion and exclusion criteria

As noted above, we conducted this systematic search of the extant literature based on the PRISMA protocols (Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols). First, we searched "COVID-19", or "Coronavirus", and "Child abuse", or

Table 1
Results of subgroup analysis and meta-regression for the prevalence of physical child abuse.

Categorical moderators	No. of studies	Prevalence (95 % CI)	Subgroup differences Q	P value
Continent[a]				
North America	3	0.26 (0.10–0.51)		
Europe	2	0.07 (0.00–0.99)		
Asia	7	0.16 (0.07–0.34)	30.12	<0.001
Africa	1	0.43(0.40–0.46)		
World Bank income level				
Low income	2	0.54 (0.02–0.99)		
Middle Income	3	0.09 (0.02–0.30)	30.24	<0.001
High Income	8	0.15 (0.08–0.26)		
Sampling				
Random	8	0.23 (0.12–0.38)	1.86	0.17
Non-random	5	0.12 (0.03–0.35)		
Measure				
PCCTS	5	0.13 (0.05–0.28)		
BRFSS	4	0.31 (0.08–0.70)	3.44	0.18
Others	4	0.14 (0.03–0.44)		

Continuous moderators	Estimate	Std. Error	z value	Pr(>|z|)	Importance
Unemployment rate	0.09	0.04	2.36	0.02	0.92
Weeks since the onset of Corvid 19	0.01	0.02	0.14	0.89	0.50

[a] Due to the insufficient number of cases per continent, caution is required in analysis and interpretation.

"Child neglect" or "Child maltreatment" across the following databases: Scopus, Embase, PubMed, and Web of Science. Second, we conducted hand searches of leading journals to identify additional sources. Third, we examined the reference lists of the identified and eligible studies. Fig. 1 illustrates the PRISMA flow chart (Moher et al., 2009) of how we filtered the identified the relevant studies included in the systematic review and meta-analysis.

We selected the studies for this systematic review based on the following criteria (See Appendix 1): The study had to have a measurable and codable child abuse outcome that was assessed during the COVID-19 pandemic; the child abuse data must have been derived from parental self-report; although there was no geographic restriction to the location of the study, the study must have been published in English; only published peer-reviewed studies were considered; and we excluded qualitative studies and descriptive studies that were not empirical (literature reviews, letters to the editor, commentaries, calls-to-action, etc.) because they did not provide necessary information for our analyses. We obtained a total of 3446 results from a general search of the five databases, collecting the study titles, author names, and other reference details and saving them in Microsoft Excel spreadsheet.

2.3. Meta-analytic procedures

The research team searched the outline databases for articles from January 1, 2020, until February 13, 2022, because COVID-19 started at the end of 2019 and WHO declares the pandemic on March 11, 2020. Two members of research team examined the bibliographies of systematic reviews identified in the literature search for inclusion and exclusion decision making. To ensure comprehensive coverage, two members directly screened titles, methodologies, authors, and abstracts for reporting categories including demographic surveys; online surveys; studies with respondents who included parents, caregivers, and youth themselves; studies on child physical and psychological abuse; and studies identified from combining terms related to COVID-19 and terms related to child physical and psychological abuse.

The two research members conducted a double-blind screening using Mendeley Software of the titles and abstracts that remained after we removed duplicates and reconciled independent inclusion decisions jointly in consultation with the lead author. The research team subsequently read full article texts for independent inclusion decisions. Following consistent procedures, the research team reconciled choices and the lead author finalized the last articles. The research team conducted the corresponding authors of included publications if key information could not be deciphered from the text.

For this meta-analysis of global prevalence of child abuse during the COVID-19 pandemic, we computed effect sizes as follows. First, we estimated the pooled prevalence from child abuse rates reported in individual studies, using a forest plot to demonstrate the prevalence rate, with 95 % confidence intervals (CIs) in each study. Second, we calculated pooled odds ratio (ORs) of the impacts with 95 % CIs of the effects of specific individual and family factors. We used random-effects models to combine studies, used τ^2 and I^2 Q statistics to estimate the heterogeneity, and used I^2 statistics to calculate the observed variance between studies. We examined publication bias with Egger's test and the aid of a funnel plot. Then, depending on the type of variable, we conducted comprehensive statistical analyses (Chan et al., 2021), specifically subgroup analysis and meta-regression, to identify and examine the moderating variables that cause differences in the global prevalence of child abuse (Cerna-Turoff et al., 2021).

2.4. Study characteristics

The penultimate analyses, above, yielded 10 empirical studies that met the general inclusion criteria, and Appendix 3 gives the details for these studies: author/s, publication year, study site, time frame, and the domestic violence outcome measurement. Given the short time frame that has occurred since the emergence of the COVID-19 pandemic (March 11, 2020, according to the World Health Organization), all studies were published between 2020 and 2022, specifically, nine in 2021 and (AboKresha et al., 2021; Augusti et al., 2021; Kurata et al., 2021; Lee et al., 2021; Rodriguez et al., 2021; Sari et al., 2021; Wong et al., 2021; Yamaoka et al., 2021; Zhang et al., 2021) one in 2022 (Selvi, 2022). However, although in effect we identified 10 empirical studies, one study (Kurata et al., 2021) included four studies, so that we actually used 13 empirical studies. There was wide geographic representation among the studies, with three conducted in the United States (Kurata et al., 2021; Lee et al., 2021; Rodriguez et al., 2021) and the remainders in Egypt (AboKresha et al., 2021), Norway (Augusti et al., 2021), Netherlands (Sari et al., 2021), China (Wong et al., 2021; Zhang et al., 2021), Japan (Kurata et al., 2021; Yamaoka et al., 2021), Indonesia (Selvi, 2022), India (Kurata et al., 2021), and Malaysia (Kurata et al., 2021). All the studies focused on short period such as weeks or months immediately after COVID-19 to compare the effect of restrictions on child abuse, although they varied for instances in terms of random vs. nonrandom sampling; additionally, nearly all studies used online surveys, with one of those on a mobile phone.

2.5. Quality assessment

To measure bias in the identified studies, we used a short six-item questionnaire which adapted from the National Institute of Health Quality Assessment Tool for Observation Cohort and Cross-Sectional Studies (National Institute of Health, 2022; Racine et al., 2021). Studies were given a score of 0 (no) or 1 (yes) for each of the six criteria (focused question, valid measure, dual review, eligible population, objective outcome, exposure time) and six scores were summed to give each study a total score of six points to indicate no bias (i.e., the highest score is six, the lowest is zero). When information was unclear or authors did not provide it, we marked that item as 0. After our quality assessment, four studies (AboKresha et al., 2021; Lee et al., 2021; Rodriguez et al., 2021; Sari et al., 2021) earned the maximum score of six points to indicate no bias. One study (Selvi, 2022) received a bias score of four points, the lowest of the ten studies, and the remainders (Augusti et al., 2021; Kurata et al., 2021; Wong et al., 2021; Yamaoka et al., 2021; Zhang et al., 2021)
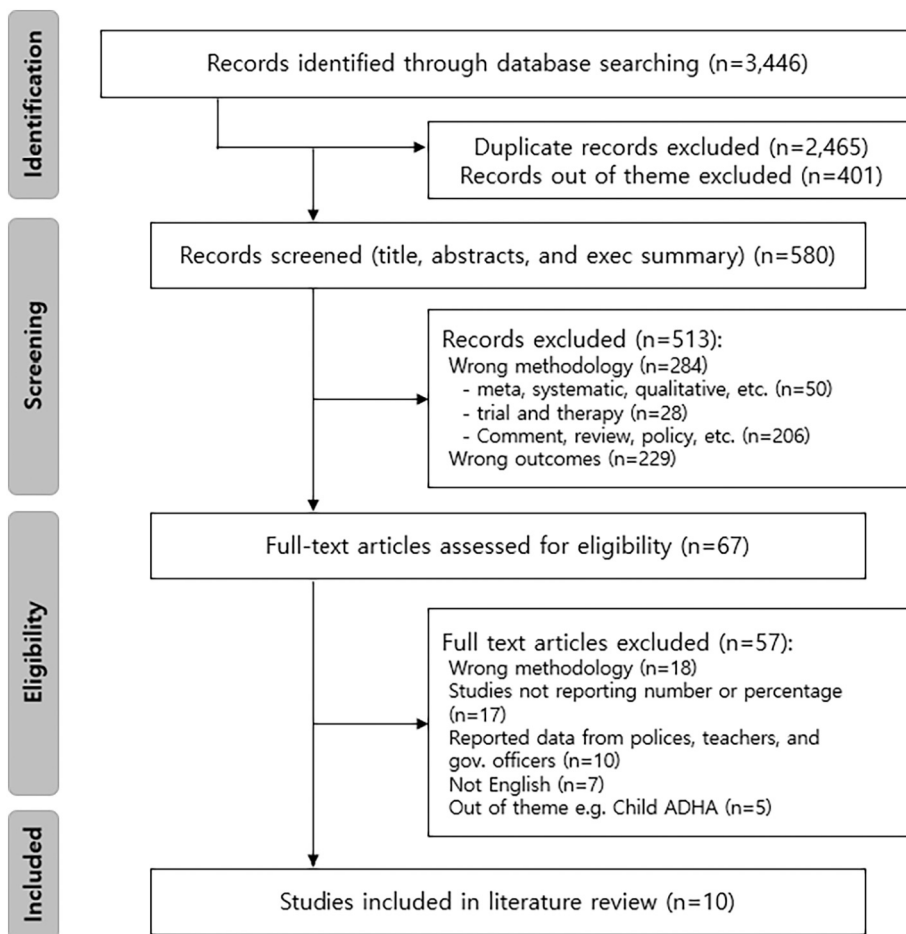
Fig. 1. PRISMA flow Diagram Outlining the Funneling Identification of Relevant Studies.

received five points.

3. Result

3.1. Physical child abuse

Fig. 2 provides a forest plot illustrating the distribution of the effect sizes with their corresponding 95 % CIs and related weights for the 10 studies (13 effect sizes) for physical child abuse. The overall mean effect size generated from a random effect restricted maximum likelihood model was 18 % (95 % CI: 10–29 %). Prevalence rates of physical child abuse were reported in 10 studies that included a total of 14,360 individuals; among those children, there were an estimation 1971 incidents reported in 10 studies. Estimates ranged from 3 % to 66 % with a pooled prevalence of 18 % but we also found high heterogeneity. The between-study heterogeneity variance was estimated at $\tau^2 = 1.10$, with an I^2 of 99 % (95%CI: 98.8–99.2 %). Egger's test revealed no significant publication bias (intercept $= -1.71$; $t = 0.26$; $P = 0.80$).

Fig. 2 provides a forest plot illustrating the distribution of the effect sizes with their corresponding 95 % CIs and related weights for the 10 studies (13 effect sizes) for psychological child abuse. The overall mean effect size generated from a random-effect restricted maximum likelihood model was 39 %. Prevalence rates of psychological child abuse were reported in 10 studies that included a total of 14,360 individuals; among those children, there were an estimated 4142 incidents reported in 10 studies. Estimates ranged from 8 % to 89 % with a pooled prevalence of 39 %, but there was evidence of high heterogeneity: Between-study heterogeneity was $\tau^2 = 1.17$ ($I^2 = 99.4$ %). Egger's test again revealed no significant publication bias.

Considering that child abuse likely varied according to different countries and cultures, we performed a subgroup analysis by

Table 2
Results of subgroup analysis and meta-regression for the prevalence of psychological child abuse.

Categorical moderators	No. of studies	Prevalence (95 % CI)	Subgroup differences Q	P value
Continent				
North America	3	0.47 (0.13–0.83)		
Europe	2	0.18 (0.01–0.99)	139.28	<0.001
Asia	7	0.35 (0.22–0.50)		
Africa	1	0.88(0.86–0.90)		
World Bank income level				
Low income	2	0.77 (0.01–0.99)		
Middle Income	3	0.31 (0.06–0.76)	8.71	0.01
High Income	8	0.33 (0.20–0.50)		
Sampling				
Random	8	0.39 (0.26–0.53)	0.00	0.95
Non-random	5	0.40 (0.09–0.81)		
Measure				
PCCTS	5	0.32 (0.12–0.60)		
BRFSS	4	0.42 (0.19–0.68)	0.99	0.61
Others	4	0.48 (0.09–0.89)		

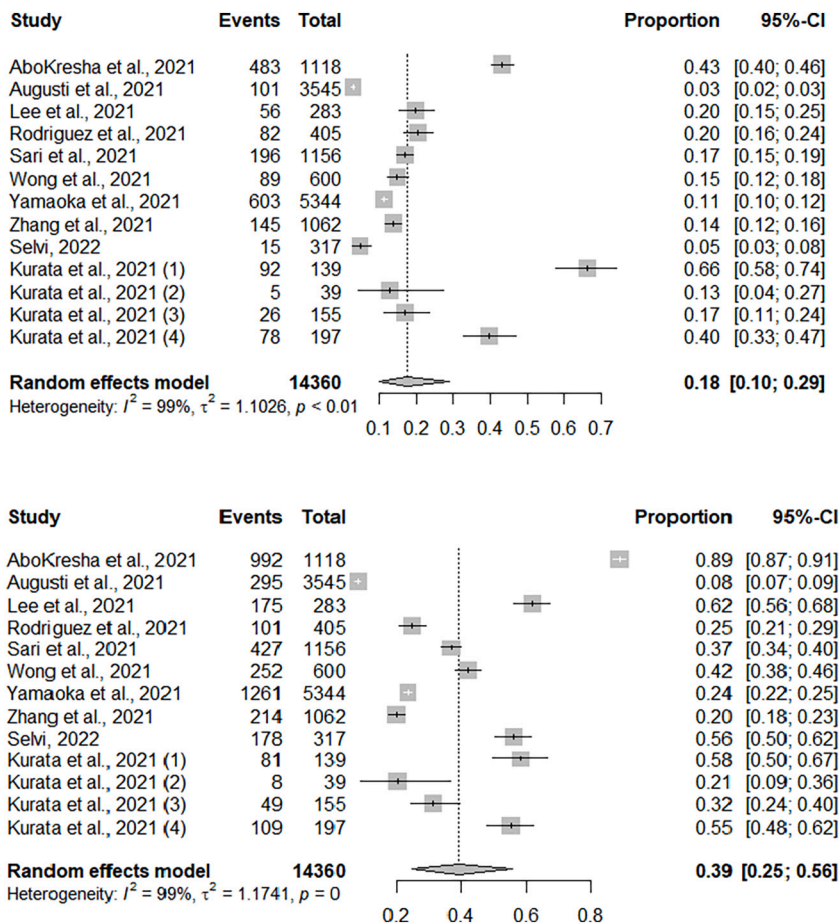| Continuous moderators	Estimate	Std. Error	z value	$Pr(>|z|)$	Importance
Unemployment rate	0.03	0.04	0.74	0.46	0.51
Weeks since the onset of Corvid 19	−0.02	0.04	0.49	0.62	0.61

Fig. 2. Forest Plot of Prevalence of Physical Child Abuse and Psychological Child Abuse ($n = 10$ studies; 13 effect sizes).
Note. Up (Forest Plot of Prevalence of Physical Child Abuse), Down (Forest Plot of Prevalence of Psychological Child Abuse).

continent of physical child abuse rates during the COVID-19 pandemic and identified rates of 26 % in North America (95 % CI: 10–51 %), 7 % in Europe (95 % CI: 0–99 %), 16 % in Asia (95 % CI: 7–34 %), and 43 % in Africa (95 % CI: 40–46 %). Classified according to World Bank national income levels,[1] the rates of physical child abuse were 54 % (95 % CI: 2–99 %) among low-income nations, 9 % in middle-income countries (95 % CI: 2–30 %), and 15 % in high-income countries (95 % CI: 8–26 %). There were differences in prevalence according to the sampling method and measure, but they were not statistically significant. Notably, physical child abuse prevalence increased significantly as unemployment rates at a very high correlation of 0.92 (b = 0.09; $p < 0.05$). The moderator weeks since the onset of COVID-19 had no significant effect on the prevalence of physical child abuse (b = 0.01; p = n.s).

3.2. Psychological child abuse

Fig. 2 provides a forest plot illustrating the distribution of the effect sizes with their corresponding 95 % CIs and related weights for the 10 studies (13 effect sizes) for psychological child abuse. The overall mean effect size generated from a random-effect restricted maximum likelihood model was 39 % (95 % CI: 25–56 %). Prevalence rates of the psychological child were in 10 studies that included a total of 14,360 individuals; among those children, there were an estimated 4142 incident reported in 10 studies. Estimates ranged from 8 % to 89 % with a pooled prevalence of 39 %, but there was evidence to suggest high heterogeneity (Fig. 2): Between-study heterogeneity was $\tau^2 = 1.17$ ($I^2 = 99.4$ %). Egger's test again revealed no significant publication bias (intercept = −1.56; $t = 1.57$; $p = 0.14$).

We also performed a subgroup analysis by continent that revealed COVID-19 rates of psychological child abuse of 47 % in North America (95 % CI: 13–83 %), 18 % in Europe (95 % CI: 1–99 %), 35 % in Asia (95 % CI: 22–50 %), and 88 % in Africa (95 % CI: 86–90 %). By World Bank national income, the rate was 77 % in low-income countries (95 % CI: 1–99 %), 31 % in middle-income countries (95 % CI: 6–76 %), and 33 % in high-income countries (95 % CI: 20–50 %). Although there were variances in prevalence depending on the sampling method and measure, these differences were not statistically significant. Separately, the unemployment rate had a weak effect on the prevalence of psychological child abuse that was not statistically significant (b = 0.03; no. sig). Weeks since the onset of COVID-19 was not significant but contributed to a slight decrease in the prevalence of psychological child abuse (b = −0.02; p = n.s).

4. Discussion

This study aims to estimate the global prevalence of physical and psychological child abuse and conduct a sub-group analysis onset of COVID-19 with a systematic review and meta-analysis.

Regarding physical child abuse immediately after COVID-19, the global prevalence was 18 % (95 % CI: 10–29 %), while heterogeneity and I^2 value were huge with no publication bias. For the prevalence in each continent, it was estimated at 26 % in North America, 7 % in Europe, 16 % in Asia, and 43 % in Africa respectively. In contrast with the above data for immediately after COVID-19, in the 168 pre-pandemic meta-analysis, the overall physical abuse prevalence was estimated 17.7 % (95 % CI: 13.0 % - 23.6 %) (Stoltenborgh et al., 2013). By continent, the estimates were 24 % in North America (54.8 % in southern North America), 22.9 % in Europe, 16.7 % in Asia, and 22.8 % in Africa. Caution is required before comparing the rates before COVID-19 pandemic and after its onset because there are so comparatively few post-pandemic studies. Despite this limitation, however, the prevalence of abuse pre-COVID-19 was similar to the prevalence of this study. Heterogeneity observed across studies highlights the need to examine demographical, geographical, and methodological moderators; moderator analyses can determine under what circumstances prevalence is higher or lower. Given our findings, in addition to deriving pooled prevalence estimates, we examined demographical, geographical, and methodological factors that could explain the subgroup differences, and found that physical child abuse occurred the most in Africa and the least in Europe. However, heterogeneity occurs the most in European countries. According to income level, physical child abuse occurs the most in low-income countries, followed by high-income and the least in middle-income countries. Physical child abuse was also documented more in random studies than in the nonrandom studies, but this difference was not significant. And there were also no significant differences between measurement methods.

Regarding psychological child abuse immediately after COVID-19, the overall prevalence was estimated at 39 % (95 % CI: 25–56 %), and by continent, the estimates were 47 % in North America, 18 % in Europe, 35 % in Asia, and 88 % in Africa respectively. Although there are limitations to interpretate owing to the small number of studies, the prevalence immediately after COVID-19 was significantly higher than pre COVID; notably, there was not a significant pre- versus post-onset difference in rates of physical child abuse. Researchers determined that the restrictions caused by COVID-19 increased family stress and in turn the incidence of psychological child abuse (Schneider et al., 2017; Xu et al., 2020). Psychological child abuse also occurred the most in low-income countries, followed by high-income and then middle-income countries. Psychological child abuse also occurred more in random studies than in nonrandom studies, but this was not statistically significant in this study. There are no significant differences between measurement methods, and the meta-regression analysis found no significant relationship between unemployment and psychological child abuse. Even though it is not significant in weeks since the onset of COVID-19, it is predicted that the removal of lockdown would lead to relieving stress so that psychological child abuse also be lessened.

Rather than specifically the period before versus immediately after the announcement of the COVID-19 pandemic, national cultural and social structures formed over time appear to explain the global differences in child abuse rates; child abuse in part reflects a

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[1] On the World Bank website (2021), there are information of economic status (income level and 2020 unemployment rate) for each country; http://data.worldbank.org/data-catalog/world-development-indicators Accessed 22.02.20

society's perceptions of its children and their human rights. From a sociopsychological perspective, economic hardships increase stress and frustration, and poverty and unemployment correlate highly with physical child abuse (Ammerman & Hersen, 2000; Fang et al., 2015; Hillis et al., 2016; McCoy et al., 2020). The sudden COVID-19-related requirement to isolate kept all but essential workers unemployed and away from coping resources led to increased rates of child abuse after COVID-19 onset. Multiple telecommuting spouses who were also solely responsible for child care faced high stress as well, which sometimes led to increased rates of child abuse (Blundell et al., 2020; Wong et al., 2021). Researchers have consistently identified that child abuse occurs disproportionately more often in groups of low socio-economic status, especially violence against children (Cerna-Turoff et al., 2021; Department of Health and Human Services, 2021). The countries of Africa show among the most serious rates of child abuse in the world, and it seems necessary to conduct cross-cultural research across Africa to gain better understanding of abuse rates and causes across the continent (Stoltenborgh et al., 2013).

Overall, the COVID-19 pandemic lockdowns kept stressed, overworked parents from obtaining needs help from official welfare facilities. Additionally, once children were not going to school, entities who could have monitored abuse were no longer able to do so, such as teachers, social workers, school coaches, physicians, and nurses. Child abuse rates might have risen right after COVID-19 onset because preventive services were not available and monitors were not available to catch signs of abuse.

We should note that we conducted this study immediately after the onset of COVID-19, and findings from later in the pandemic—between waves or variants or between before and after widespread vaccinations—might offer valuable comparisons to the early data. One limitation of this meta-analysis is that the number of studies so far is relatively small compared with the components of other meta-analyses. Nevertheless, it is a meaningful try to attempt to know the global prevalence of physical and psychological child abuse in restricted surroundings. This study considers the diversities embedded in each country and the cultural and economic factors affect physical and psychological child abuse. It is also significant that we empirically identified economic factors (i.e., income level, unemployment rate) that had been mentioned in previous studies as relevant to global child abuse.

5. Conclusion

In this study, it is confirmed that environmental factors such as social structure, cultural characteristics, and economic factors—which were known to affect child abuse even before the outbreak of COVID-19—had the similar influence at the time of COVID-19 incidence. The social environment, which has been traditionally emphasized, is considered to be a more decisive factor in the occurrence of child abuse, rather than a new specific factor caused by the corona outbreak. Improving the social and living environment and providing support for the those who have been vulnerable to child abuse are still emphasized in periods of disaster such as COVID-19.

Nevertheless, one thing that should not be overlooked is that child abuse can become more severe when a nation's economic status, which grew worse during a disaster, makes households more unstable. In a disaster situation, the implementation of case management integrated with the local community to first alleviate the economic difficulties of poor families, along with policies for reducing poverty, may be considered.

This study identified the actual conditions and influence factors of child abuse in the new situation of the COVID-19 pandemic around the world. The results showed that there is a significant relationship between the rise in the unemployment rate due to the COVID-19 pandemic and physical child abuse. Follow-up studies are needed to figure out the size of the economic factors that affect child abuse before and after the disaster through marginal effects. It would also be possible to consider a study to find out how much improvement in environments that are vulnerable to child abuse before a disaster occurrence can alleviate child abuse in actual disaster situations.

Declaration of competing interest

No potential conflict of interest relevant to this article was reported.

Data availability

Data will be made available on request.

Appendix 1. Search strategy

Search terms defined

Definitions of Child Abuses (May 2022, Child Welfare Information Gateway; https://www.childwelfare.gov/pubPDFs/define.pdf)

Physical Child Abuse: It is defined as "any nonaccidental physical injury to the child" and can include striking, kicking, burning, or biting the child, or any action that results in a physical impairment of the child.

Phychological Child Abuse: It is "injury to the psychological capacity or emotional stability of the child" as evidenced by an observable or substantial change in behavior, emotional response, or cognition and injury as evidenced by anxiety, depression, withdrawal or aggressive behavior.

Definitions of COVID-19 (WHO; https://www.who.int/health-topics/coronavirus#tab=tab_1)

COVID-19: Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols.

Definitions of Pandemic (WHO; https://www.who.int/europe/emergencies/situations/covid-19)

The COVID-19 pandemic is a global outbreak of coronavirus, an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. WHO declared a Public Health Emergency of International Concern on 30 January 2020, and to characterize the outbreak as a pandemic on 11 March 2020'.

Search terms list - keywords
COVID-19*
Coronavirus*
Child abuse*
Child neglect*
Child maltreatment*
Literature Sources

- Published study literature from the below databases:

  Scopus: https://www.scopus.com/search/form.uri?display=basic#basic
  Embase: https://www.embase.com/search/quick?phase=continueToApp
  PubMed: https://pubmed.ncbi.nlm.nih.gov/
  Web of Science: https://www.webofscience.com/wos/woscc/basic-search

- COVID-19 related policy databases:

  WHO (World Health Organisation): https://www.who.int/
  DHHS (Department of Health and Human Services): https://www.hhs.gov/
  NIH (National Institute of Health): https://www.nih.gov/

- Children related policy databases:

  UNICEF (United Nations Children's Fund): https://www.unicef.org/

- World Economic Review databases:

  OECD (Organization for Economic Cooperation and Development): https://www.oecd.org/
  WB (World Bank): https://www.worldbank.org/en/home
  Inclusion and Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria
Key Words	Child Abuse, child neglect, and child maltreatment during onset of COVID-19 or coronavirus	Other child abuse types are excluded
Type of Article	Original researches published or peer-reviewed from Jan. 1. 2020 to Feb. 13. 2022. Searching journals are only Scopus, Embase, PubMed, and Web of Science	Dissertation or other type-papers such as policy, review, comment and lesson
Research Method	Quantitative research	Other research methods such as qualitative, comment, review, meta, trial, and therapy
Language	English language	Others
Data Source	Only survey data; on-line survey and/or face to face interview	Reported data from polices, teachers, and social workers etc.
Respondents	Respondents are parents of children under 18 years or children under 18 years	Others

Search Strategy

Search Database/ website	Search terms used	Date search performed	Number of returns
Scopus Embase PubMed Web of Science	((Coronavirus*[Title/Abstract/Contents] OR COVID-19*[Title/Abstract/Contents] AND Child abuse*[Title/Abstract/Contents] OR Child neglect*[Title/Abstract/Contents] OR Child maltreatment*[Title/Abstract/Contents]))	29/11/2021–13/ 02/2022	686 954 1258 548

Appendix 2. Study Quality assessment tool

#	Criteria	Yes	No
1	Focused Question: Is the review based on focused question that is adequately formulated and described?	1	0
2	Valid Measure: Are the physical/psychological abuse measures validated questionnaires?	1	0
3	Peer Review: Was the study reviewed independently by two or more reviewers?	1	0
4	Eligible Population: Did at least 50 % of the eligible population participate?	1	0
5	Self-Report Outcome: Were the measures of physical/psychological abuse self-report as opposed to objective?	1	0
6	Exposure Time: Did short time elapse since COVID-19 for there to be an impact on child physical/psychological abuse?	1	0

Appendix 3. Study included in this review descriptions and quality assessment (10 studies; 13 effect sizes)

Author/s	Location	Survey time	Respondent	Sampling Method	Survey Tool	Measure ments	Total #	Child Physical Abuse (%)	Child Psycho- logical abuse (%)	Income Level*	2020 Unemployment Rate**
AboKresha et al., 2021	Egypt	9 to 13 April 2020	parents of children under 18 years	snowball	Online	ICAST-P	1118	483 (43.2)	992 (88.7)	Low	10.45 %
Augusti et al., 2021	Norway	June 2020	adolescents who 13 to 16-year-old	systematic sampling	Online	PCCTS	3545	101 (2.4)	295 (8.2)	High	4.60 %
Lee et al., 2021	USA	24 March 2020	parents of children aged 0–12 years	random	Online	PCCTS	283	56 (19.9)	175 (61.8)	High	8.09 %
Rodriguez et al., 2021	USA	14 April 2020	parents of children aged 0–12 years	random	Online	PCCTS	405	21(25.5)	101 (45.2)	High	8.09 %
Sari et al., 2021	Nether lands	17 April-10 May 2020	parents of children aged 1–10 years	snowball	Online	PCCTS	1156	196 (17.0)	427 (36.9)	High	4.85 %
Wong et al., 2021	China	29 May-16 June 2020	parents of child under 10 years old	random	Online	PCCTS	600	132 (22.0)	242 (40.3)	High	5.8 %
Yamaoka et al., 2021	Japan	30 April-31 May 2020	parents of children aged 0–17 years	random	Online	CMS	5344	603 (11.3)	1261 (23.6)	High	2.77 %
Zhang et al., 2021	China (Hubei)	July 2020	children who 12–16 years	Multistage sampling	Mobile phone	UNICEF Items	1062	145 (13.7)	214 (20.2)	Middle	5.0 %
Kurata et al., 2021	India	28 Sep. - 21 Oct., 2020	parents who 18–55 years	random	Online	BRFSS	139	92 (66.2)	81 (58.3)	Low	34.7 %
Kurata et al., 2021	Malaysia	Sep. - Nov., 2020	parents who 18–55 years	random	Online	BRFSS	39	5 (12.8)	8 (20.5)	Middle	4.3 %
Kurata et al., 2021	Japan	28 Sep. - 21 Oct., 2020	parents who 18–55 years	random	Online	BRFSS	155	26 (16.8)	49 (31.6)	High	2.77 %
Kurata et al., 2021	USA	28 Sep. - 21 Oct., 2020	parents who 18–55 years	random	Online	BRFSS	197	78 (39.6)	109 (55.3)	High	8.09 %
Selvi, 2022	Indonesia	during Pandemic	parents of children aged 3–12 years	random	Online	Index	317	128 (40.4)	231 (72.9)	Middle	4.11 %

Note. It is not included in each study about the information of economic status (income level and 2020 unemployment rate) for a country. However, it is necessary to analyze the effect of economic status on child abuse in subgroup as above Tables 1 and 2, economic status for each country is added through web-site of World Bank (2021); http://data.worldbank.org/data-catalog/world-development-indicators Accessed 22.02.20.

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