UC Irvine

Title

Identification and Incidence of Child Maltreatment During the COVID-19 Pandemic.

Permalink

Journal

ISSN

Authors

Metcalf, Stacy
Marlow, J Alex
Rood, Corey J
et al.

Publication Date

DOI

Psychology, Public Policy, and Law

Identification and Incidence of Child Maltreatment During the COVID-19 Pandemic

Stacy Metcalf, J. Alex Marlow, Corey J. Rood, Mark A. Hilado, Catherine A. DeRidder, and Jodi A. Quas

Identification and Incidence of Child Maltreatment During the COVID-19 Pandemic

Stacy Metcalf[1], J. Alex Marlow[2], Corey J. Rood[2], Mark A. Hilado[3], Catherine A. DeRidder[3], and Jodi A. Quas[1]

[1] Department of Psychological Science, University of California Irvine
[2] School of Medicine, University of California Irvine
[3] Department of Pediatrics, University of Southern California Keck School of Medicine

The COVID-19 pandemic raised serious concerns about child maltreatment, which is known to increase in frequency and severity during times of high stress. The present study used diverse data sets to concurrently examine changes in identification and medical evaluation of maltreatment allegations from before to during COVID-19. Four sources of data were collected from two counties for the months of March through December, 2019 and 2020, including reports to social services and child maltreatment evaluation center medical evaluations (CMECs). The number of reports, number of children reported, and rate of children reported were used to evaluate identification. Incidence was estimated based on the number of medical evaluations conducted at the CMECs. Maltreatment type, reporter type, and child demographics were also considered. Across both counties, there were significantly fewer reports and reported children in 2020 compared with in 2019, signifying decreased identification of suspected maltreatment cases. This was especially true in spring and fall when children are typically in school. Across both counties, the proportion of children reported to the county that received medical evaluations was higher in 2020 compared with in 2019. This suggests that the pandemic was related to an increase in the occurrence of maltreatment serious enough to warrant medical evaluations, or perhaps in the relative number of serious cases identified. Findings show divergent trends in reporting and evaluation of suspected maltreatment cases from before to during COVID-19. Identification and service delivery methods need creative solutions to adapt to changing environments. Medical, social, and legal systems need to prepare for increases in families seeking services as pandemic-related restrictions are lifted.

Keywords: COVID-19, coronavirus disease, child maltreatment, pandemic

Stacy Metcalf https://orcid.org/0000-0003-1167-9875
J. Alex Marlow https://orcid.org/0000-0002-6546-8750
Corey J. Rood https://orcid.org/0000-0003-4136-5121
Mark A. Hilado https://orcid.org/0000-0001-8065-508X
Catherine A. DeRidder https://orcid.org/0000-0002-3624-5996
Jodi A. Quas https://orcid.org/0000-0002-3789-3733

Unprecedented changes resulting from the COVID-19 pandemic have raised serious concerns about child maltreatment, which is known to increase in frequency and severity during times of high stress, such as following economic crises and natural disasters (Brooks-Gunn et al., 2013; Curtis et al., 2000; Frioux et al., 2014; I. Katz et al., 2021; Schenck-Fontaine et al., 2017; Seddighi et al., 2021). The COVID-19 pandemic paralleled these events at the individual and community levels but diverged in important ways that likely led to unique and significant patterns of risk for children. Across the world, policies were implemented to mitigate the spread of the virus, including "stay-at-home" orders and social distancing measures. These often resulted in families spending more time together in potentially crowded homes, while parents and children navigated novel requirements of remote work and school, in contexts not conducive to these competing demands. These challenges combined with pervasive economic instability, increased stress, and ongoing uncertainty created environments ripe for maltreatment. However, these same measures also limited children's exposure to the range of adults, including teachers, coaches, and neighbors, who serve as key individuals who report suspicions of maltreatment to authorities, potentially hindering the identification of child maltreatment.

These co-occurring phenomena—a potential increase in the incidence of maltreatment combined with a decrease in reporting of suspected maltreatment—may have led to children being identified only after the abuse they suffered was substantially more severe than it would have otherwise been. We tested this possibility in the present research by examining administrative data on both county reports and medical evaluations for suspected maltreatment in two large, diverse southern California counties.

Contextual Factors Impacting Child Maltreatment

Research relevant to the present investigation includes studies examining how child maltreatment varies following economic downturns and natural disasters in the United States and internationally, both of which are contextual experiences that share similarities with the COVID-19 pandemic. Also relevant are recent studies on how parenting behaviors (e.g., aggression) and maltreatment reporting trends (e.g., police or hotline calls) changed following the start of the COVID-19 pandemic. Together, these lines of research suggest the possibility of differences in identification and incidence of maltreatment.

Economic Conditions

Studies examining economic conditions and maltreatment rates have relied on a range of indicators to assess economic change, including macrolevel economic indicators (e.g., median property value, unemployment rates, or federal assistance rates; Ernst, 2000; Molnar et al., 2016) and community-level characteristics correlated with poverty (e.g., substance abuse rates, school district educational achievement, and childcare availability; Freisthler et al., 2005; Klein, 2011), and compared changes on these indicators to changes in maltreatment reports. Across indicators, maltreatment is often higher in lower income communities and in times of economic downturns relative to higher income communities and times of economic growth (Berger et al., 2015; Berger & Waldfogel, 2011; Brooks-Gunn et al., 2013; Brown & De Cao, 2017; Frioux et al., 2014; Millett et al., 2011; Schenck-Fontaine et al., 2017; Schenck-Fontaine & Gassman-Pines, 2020; Steinberg et al., 1981; Wood et al., 2012, 2016). Of note, the magnitude of these relations varies by the economic indicator and type of maltreatment. For example, although several studies have found increases in child physical abuse (CPA) during periods of economic recessions (Berger & Waldfogel, 2011; Schenck-Fontaine & Gassman-Pines, 2020; Steinberg et al., 1981; Wood et al., 2012, 2016), fewer have reported similar increases in neglect (Brown & De Cao, 2017; Steinberg et al., 1981). Likewise, no significant associations between macroeconomic indicators of economic change and federal data on maltreatment rates were reported by Drake and Jonson-Reid (2014), and Millett et al. (2011) found only small positive relations between both unemployment and food stamp usage and maltreatment rates according to state-level data.

In summary, although increased rates of child maltreatment have been reported in depressed socioeconomic and low-income communities, rates vary based on the type of maltreatment (e.g., CPA but not neglect increases), and at times do not increase in conjunction with macroeconomic indicators. National or even state level economic data, however, may not adequately capture community-level shifts in economic conditions, which can vary widely across regions and communities. Moreover, economic changes typically unfold gradually, potentially giving communities and families sufficient time to adapt and seek alternative resources or support, thereby possibly muting how changes impact maltreatment.

Natural Disasters

Unlike the slow change of economic downturns, natural disasters lead to near immediate change. They are also largely unanticipated, and preparation is minimal, especially for long-term consequences. The economic strain on communities and families following disasters is significant and quick, as infrastructure is damaged, businesses are disrupted, and property is destroyed (Hochrainer, 2009; Panwar & Sen, 2019). Resources, such as food and shelter, become scarce or variable at the same time social bonds are disrupted (Fothergill & Peek, 2004; Prelog, 2016; Sampson, 2006). All these experiences, combined with high levels of collective feelings of helplessness, powerlessness, and frustration, raise stress in caregivers and families, and raise children's risk for harm (R. Baron & Richardson, 2004; Berkowitz, 1993; Miller & Kraus, 1994). Indeed, consistent and robust increases in maltreatment rates, primarily in terms of physical abuse and family violence, have been reported following earthquakes, tsunamis, and floods in multiple countries (see Seddighi et al., 2021, for a review). In addition, the larger the level of food, shelter, and economic insecurity that resulted from the disaster, and the poorer the community was beforehand, the greater the magnitude of increase in abuse (Seddighi et al., 2021). Rates of neglect may also increase, but this has rarely been the focus of empirical research on natural disasters, which instead has been primarily concerned with changes in physical and sexual abuse.

COVID-19

On the one hand, the COVID-19 pandemic shares much in common with economic downturns and natural disasters: The pandemic led to significant and rapid declines in economic stability, disruptions to social systems (e.g., changes to work, school, and daily life activities), and reductions in the availability of resources often vital to families (e.g., free and reduced lunch, childcare). Unemployment rose from 3.8% to 14.4% in 2 months, and job loss disproportionately affected lower income families that have fewer resources in reserve (Béland et al., 2020; Bennett et al., 2020; Kochhar, 2020; U.S. Bureau of Labor Statistics, 2021). Families experienced significant and sudden uncertainty (if not insecurity) in housing and food. Furthermore, like economic crises (Frasquilho et al., 2016; Oyesanya et al., 2015) and natural disasters (Makwana, 2019; World Health Organization, 2019), negative psychosocial consequences occurred, including increased stress, loneliness, helplessness, and anxiety (Lee, 2020; Reger et al., 2020; Tull et al., 2020). All these placed burdens and stress on caregivers that could undermine their caregiving, thereby increasing risk for children.

On the other hand, the COVID-19 pandemic diverged in important ways. Unlike natural disasters and even economic recessions, the effects of the COVID-19 pandemic have been more ubiquitous, affecting nearly all individuals across the world. The policies imposed to reduce the spread of the virus (i.e., the stay-at-home and social distancing requirements) altered virtually every domain of families' lives (Brooks et al., 2020; Kapteyn et al., 2020; Marroquín et al., 2020). Caregivers and children were confined into

often crowded homes. Social connectedness with those outside of the home was nearly eliminated, including connections with extended relatives, who often serve as buffers and support for families under stress and as reporting sources when risk is evident. Fear and uncertainty were constant, not lasting hours or days as is the case with natural disasters, but for months as the pandemic's spread continued. Finally, despite the economic consequences being greatest for low-income families and in disadvantaged communities, those at greatest risk for contracting the virus extended well beyond marginalized populations. Frontline workers, individuals with preexisting health conditions, and the elderly were all especially vulnerable.

The multitude of unique facets of the pandemic may have affected maltreatment in ways that differ from those observed following economic changes and natural disasters. Specifically, the same mandates imposed to reduce the spread of the virus significantly impeded the primary system used in the U.S.—and in many other countries—to identify cases of maltreatment. Reports made by adults who interact with children as a part of their job (e.g., teachers, coaches, daycare workers) represent a primary referral source for investigations of maltreatment (Thomas et al., 2020; U.S. Department of Health and Human Services et al., 2021). These individuals observe indicators (e.g., parenting behaviors, marks on a child) or hear statements from a child that prompt the individuals to report their concerns to authorities. Seasonal trends in reporting rates of child maltreatment have shown that, when children have fewer interactions with these individuals, such as in summer when school is not in session, reporting is lower (Jonson-Reid et al., 2020). The pandemic appears to have produced a similar but more exaggerated decrease in reporting of suspected maltreatment (Rapoport et al., 2021). Yet, at the same time, the pandemic may have also led to an increase in the severity of identified cases, given that maltreatment was not being recognized and interventions were not occurring after only mild incidents (Musser et al., 2021).

A rapidly growing number of studies has begun to examine these trends (see Fore, 2021; C. Katz & Fallon, 2021 for relevant discussions). Although results are preliminary and largely limited to the first several months of the pandemic, results are already suggestive of divergent patterns in reporting, incidence, and severity of harm to children. One set of studies, for instance, has investigated changes in parenting behaviors and family experiences commonly linked to maltreatment. Pandemic-related increases in parents' reports of both psychological distress (i.e., loneliness, stress, poor coping, depression) and economic strain (i.e., job loss, food insecurity, income reduction) have been linked to increases in parents' reported conflict with their children, CPA, psychological abuse, and neglect (Connell & Strambler, 2021; Lawson et al., 2020; Rodriguez et al., 2020; Wong et al., 2021). In one such investigation, Rodriguez et al. (2020) assessed parenting practices as reported by 106 parents before and during the pandemic. As expected, parents reported higher levels of parent–child conflict, neglectful behaviors, and maltreatment risk compared with before the COVID-19 pandemic. This was particularly true in parents who said that their families had experienced job loss, food insecurity or financial distress as a result of the pandemic. Of course, parent-report measures tend to index children's risk of harm rather than actual experiences of maltreatment and parents may not be fully forthcoming about their behaviors, leading to underreporting of maltreatment or harm. Moreover, studies of parenting practices often assess their tendencies toward conflict and aggression, which are linked to CPA but not necessarily to child sexual abuse (CSA) or neglect.

Another set of studies, though, has relied on administrative data from social service records, police crime reports, and hotline calls to compare rates of child maltreatment before and during the COVID-19 pandemic (Musser et al., 2021; Petrowski et al., 2021; Rapoport et al., 2021; Whelan et al., 2021). Administrative data have consistently shown significant drops in reports of suspicions of maltreatment during the first several months of the COVID-19 pandemic relative to beforehand (Barboza et al., 2021; E. Baron et al., 2020; Bullinger et al., 2020; Jonson-Reid et al., 2020; Rapoport et al., 2021). Similar trends in reporting rates have emerged in cross-national data on maltreatment from seven countries with diverse populations, economic situations, governments, and social service systems (e.g., Brazil, Canada, England, Israel, South Africa) using different types of administrative data (e.g., hotlines, nonprofit reporting) and interviews with workers (e.g., child protection social work management), with the size of the drops ranging from slight to large (Baginsky & Manthorpe, 2021; I. Katz et al., 2021). With few exceptions, though, administrative data have only focused on reporting statistics, and very little information is available regarding whether the actual occurrence of maltreatment changed. Nor have studies examined changes in maltreatment reports over longer time frames as states adjusted stay-at-home orders, as children rolled into summer months (when reporting typically drops), and as children returned to school in the fall of 2020, albeit in modified formats.

Analyses of a third type of data (i.e., hospital visits), however, suggest that, despite drops in reporting, actual incidences have not dropped but may have even gone up during the pandemic (Kovler et al., 2021; Sidpra et al., 2021). For instance, Sharma et al. (2021) found that, during the first 5 months of the pandemic, there was an increase in child abuse reports for neglect at a county pediatric emergency department. Swedo et al. (2020) found similar increases in both the incidence and severity of maltreatment, reflected in a greater proportion of emergency room visits being maltreatment-related (i.e., increased incidence) and a greater proportion of those visits leading to hospitalizations (i.e., increased severity) during the first six months of COVID-19 pandemic relative to beforehand.

Somewhat different results were reported by Kaiser et al. (2021), who analyzed CPA incidents among children under age six in 52 emergency departments across the U.S. and found a decrease in the number of such incidents from January 2020 to August 2020 as compared with the same time periods in 2017, 2018, and 2019. Moreover, analyses of the type of injuries revealed no differences in severity across the same period. While these data suggest that maltreatment may have decreased during the pandemic, the 2020 timeframe included several months prior to the stay-at-home orders being implemented in most states, which could have muted effects. In addition, the total number of emergency department visits decreased during the same period. Had the proportion of emergency visits for CPA to total emergency visits been calculated (see Swedo et al., 2020 for such an approach), the patterns may have differed. Finally, given that infants and young children are not yet in school and only some are in daycare or preschool, the pandemic-associated changes in daily life may have had less of an impact on their exposure to maltreatment or its identification than for older children. Thus, age-related

changes in incidents resulting from the pandemic need to be examined directly.

In summary, although the different types of studies in combination suggest divergent patterns of maltreatment reporting versus incidence as a result of the COVID-19 pandemic, the narrow scope of these studies, which focused on just one part of the co-occurring phenomena, on restricted age ranges, or on overall numbers and not proportions, limits their generalizability and the ability to assess the hypothesized paradoxical patterns. To gain a complete understanding of how the COVID-19 pandemic and associated policy changes have impacted child maltreatment, a comprehensive examination of diverse data sets, which integrate reports to authorities and actual cases of child maltreatment across age, is needed.

The Present Study

The overarching aim of the present study was to investigate how identification and medical evaluation of child maltreatment allegations changed after the onset of the COVID-19 pandemic. To pursue this goal, two sources of data were collected from each of two diverse counties in southern California (i.e., Los Angeles and Orange): county reports of suspected maltreatment cases and medical evaluations conducted at child maltreatment evaluation centers (CMECs). Specifically, reported cases within the county deemed serious enough to warrant further investigation are referred to a county CMEC so that medical evaluations can be conducted. Of importance, data included county reports and medical evaluations for all types of maltreatment for children ages 0 to 18 years, which allowed us to test our hypotheses about COVID-19-related changes in identification, estimated incidence via medical evaluations, and characteristics of maltreatment. Regarding identification, we expected reporting to be lower in 2020 after the pandemic began than in 2019. We expected these differences to be largest in spring when the stay-at-home orders were nearly universal, and less dramatic during summer when children are not in school generally and fall when some children returned to school intermittently. In contrast to expected decreases in identification, we anticipated that both the number of medical evaluations (which are indicative of, but do not perfectly index, maltreatment's actual occurrence) and proportion of medical evaluations to reports to be higher during that same period (i.e., in 2020 compared with in 2019). The latter trends would suggest that the COVID-19 pandemic was related to a likely increase in the occurrence or seriousness of child maltreatment, as reflected in cases considered credible or serious enough to warrant medical attention.

Method

All study procedures were approved with a waiver of informed consent by the appropriate institutional review boards. In California, where the data were collected, the stay-at-home order was issued March 19, 2020. To align with the start of the stay-at-home order and to compare maltreatment before and during COVID-19, data collection spanned the months of March to December in both 2019 and 2020. County restrictions then varied throughout the year depending on virus transmission. Los Angeles County (LAC) consists of over 10 million people across 4,058 square miles (21.4% under age 18). Demographically, 48.6% of people identify as Latinx, 11.1% go without health insurance, and 13.4% live below the poverty line (U.S. Census Bureau, 2021). Orange County (OC), which is located just south of LAC, is relatively smaller, consisting of over 3.1 million people across 790 square miles (21.7% under age 18). In OC, 34% identify as Latinx, 8.8% go without health insurance, and 9.5% live below the poverty line (U.S. Census Bureau, 2021).

Measures

County Reports

Monthly reports of suspected child maltreatment were obtained from LAC and OC social services agency (SSA) websites. Monthly data included the number of reports received by SSA (i.e., numbers of reports and children reported), primary type of maltreatment suspected, and for one county, the report source (e.g., school and daycare staff, government employees, nonmandated reporters). Using the counties' population data from the U.S. Census, rates per 1,000 children were calculated. This adjusted for population changes across the two years and allowed for comparisons between the two counties, which differ dramatically in overall population. Data were in aggregate and not available at the child-level.

Child Maltreatment Evaluation Center Medical Evaluations

Among the aforementioned cases reported to the county, those deemed sufficiently concerning or credible were referred to a county CMEC. Once referred, a determination was made as to whether the report was particularly serious or additional information or assessment was required. If so, medical evaluations were then conducted at the CMEC. Children who received medical evaluations at a CMEC, therefore, represent a subset of those reported to the county. In OC, the CMEC is the only one in the county, receiving all referrals. In LAC, the CMEC included in the present study is the largest in the county. Although the LAC CMEC receives referrals from across the county, it most often receives referrals from urban, low-income communities in relatively close proximity to its location. Medical evaluation data included the following: number of children evaluated; week, month, and year of referral; child demographics (i.e., age, sex, race/ethnicity); and type(s) of maltreatment suspected (i.e., CSA, CPA/neglect, each coded separately as present or not). Though less severe cases of neglect (e.g., failure to protect) are unlikely to be referred for medical evaluations, more severe cases (e.g., ingestion of chemicals, burns due to lack of supervision) may warrant medical intervention. Cases of neglect that require medical evaluation often overlap with CPA in their presentation (e.g., burns; Chester et al., 2006; Dubowitz & Bennett, 2007), and were therefore documented into a single category (i.e., CPA/neglect). Moreover, data were obtained at the child-level, then grouped by week and month for additional analyses.

Evaluation Proportions

The proportion of county reports referred to the CMECs for medical evaluations indicates the number of cases considered sufficiently serious or concerning to require further intervention relative to the total number of incoming reports. Because county report data are only available by month (rather than by week or at the individual-level), proportions were created for each month in the study period, for each

county separately. To calculate these proportions, the number of medical evaluations conducted at the CMEC was divided by the number of children reported to the county.

Results

All analyses were conducted in SPSS, Version 26 (IBM, 2019). Descriptive and inferential statistics examined trends and tested for differences in reporting and evaluations. In addition to year, data were divided into seasons aligning with the school year: Spring (March through May), Summer (June through August), and Fall (September through November).

County Reports

Number of Reports

For both LAC and OC, the number and rate of children reported for suspected maltreatment by month and season, separated into before versus during COVID-19, are shown in Figure 1 and Tables 1 and 2. Looking at the percent change rate columns for each index, maltreatment reporting was substantially lower in 2020 during the COVID-19 pandemic than it was before in 2019. On average, 28% to 29% fewer children were reported each month. In both counties, this equates to approximately a 28% decrease in the rate per 1,000 children. Reporting further differed based on season: The decrease in children reported for suspected maltreatment from 2019 to 2020 was greater in spring and fall than in summer (decreases of 38.1%, 27.3%, and 20.4%, respectively for LAC, and 35.8%, 29.9%, and 18.7%, respectively for OC). These decreases were lowest in summer likely because in a typical year, reporting already tends to be lower in the summer months when children are not in school.

These trends were confirmed statistically using *t*-tests to compare numbers and rates from before and during COVID-19. In both LAC and OC, the average monthly reports were significantly lower during the pandemic across all indices (see Table 3). Thus, as

expected, there were consistently fewer reported concerns about harm to children during the pandemic compared with before.

Maltreatment Type

Collapsed across years and counties, the greatest proportion of children were reported to the county for suspected neglect (35.30% and 43.47% in LAC and OC, respectively), followed by risk due to abuse of a sibling. The reason for reports differed slightly across years: A greater proportion of reports were for suspected neglect or CSA in 2020 compared with 2019, whereas a lower proportion were for risk due to abuse of a sibling or for CPA (see Table 4).

Reporter Type

Data from OC also included information on the types of individuals reporting their suspicions to the county. In 2019, 25.59% of reports came from school and daycare workers, compared with only 13.42% in 2020. This dramatic drop coincided with increases in the proportion of reports coming from nonmandated reporters (6.08% and 8.89% in 2019 and 2020, respectively), medical personnel (7.70% and 8.77% in 2019 and 2020, respectively), and government workers (e.g., law enforcement; 21.53% and 27.21% in 2019 and 2020; respectively).

CMEC Medical Evaluations

Number of Evaluations

The number of children evaluated medically at the CMECs followed different patterns depending on the county. Thus, LAC and OC are described separately. In LAC, the total number of medical evaluations was lower in 2020 compared with 2019, mirroring the county reports. Overall, 15.64% fewer children were evaluated medically for maltreatment in 2020 ($n = 847$) compared with 2019 ($n = 1004$). To statistically test this difference, data were grouped weekly, and a two-way ANOVA with year and season predicting

Figure 1

Rate of Children Reported for Suspected Maltreatment Before and During COVID-19 in Los Angeles and Orange Counties
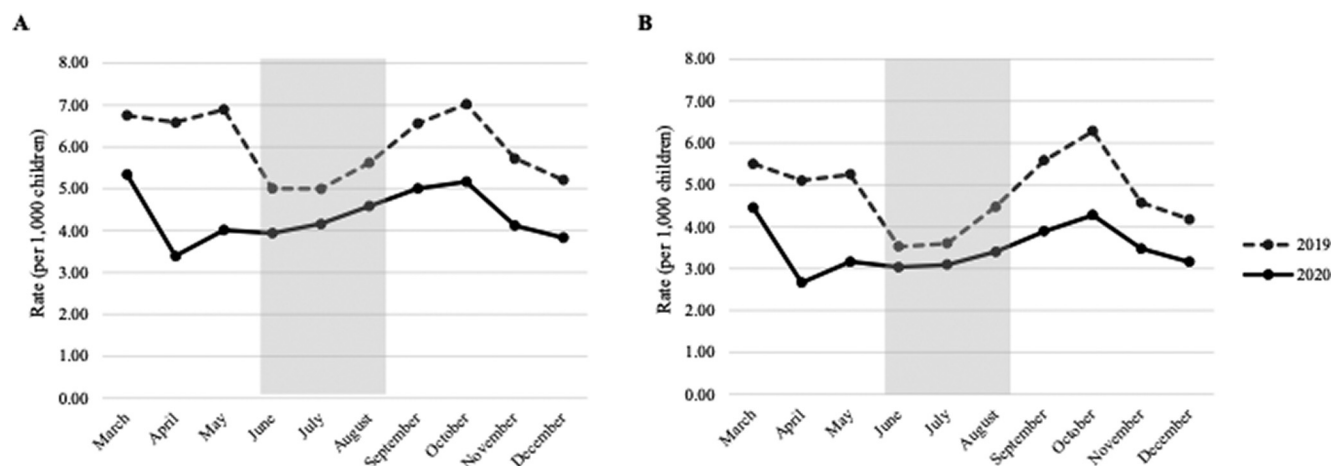
Note. In both Los Angeles (A) and Orange (B) Counties, the rate of children reported for suspected maltreatment (per 1,000 children) was lower in 2020, during COVID-19, than in the year prior; this was especially evident during the initial months of the stay-at-home order (April and May). The shaded box indicates summer months when students are not typically in school.

Table 1
Number and Rate of Children Reported and Evaluated in Los Angeles County

Time period	No. of children reported			Rate of children reported			No. of children evaluated		
	2019	2020	% change	2019	2020	% change	2019	2020	% change
Month									
March	14,449	11,220	−22.3%	6.75	5.34	−20.9%	117	79	−32.5%
April	14,090	7,127	−49.4%	6.58	3.39	−48.4%	126	73	−42.1%
May	14,743	8,431	−42.8%	6.89	4.02	−41.7%	99	81	−18.2%
June	10,708	8,266	−22.8%	5.00	3.94	−21.3%	95	71	−25.3%
July	10,697	8,738	−18.3%	5.00	4.16	−16.7%	87	84	−3.4%
August	12,030	9,626	−20.0%	5.62	4.58	−18.4%	100	71	−29.0%
September	14,032	10,515	−25.1%	6.56	5.01	−23.6%	94	99	5.3%
October	15,025	10,855	−27.8%	7.02	5.17	−26.4%	98	116	18.4%
November	12,244	8,653	−29.3%	5.72	4.12	−28.0%	98	81	−17.3%
December	11,153	8,046	−27.9%	5.21	3.83	−26.5%	90	92	2.2%
Total	129,171	91,477	−29.2%	60.37	43.57	−27.8%	1,004	847	−15.6%
Season									
Spring	43,282	26,778	−38.1%	20.23	12.75	−36.9%	342	233	−31.9%
Summer	33,435	26,630	−20.4%	15.63	12.68	−18.8%	282	226	−19.9%
Fall	41,301	30,023	−27.3%	19.30	14.30	−25.9%	290	296	2.1%

Note. The "rate of children reported" column shows the rate of children repored to the county per 1,000 children. The time periods labeled Spring, Summer, and Fall consist of 3 months each (i.e., March through May, June through August, and September through November, respectively).

the number of exams per week was conducted (see Figure 2A). There was a significant main effect of year, $F(1, 74) = 5.94$, $p = .02$, $d = .55$. That is, there were fewer medical evaluations conducted each week in 2020 ($M = 18.88$, $SD = 6.61$, 95% CI [16.83, 21.03]) compared with 2019 ($M = 22.85$, $SD = 7.81$, 95% CI [20.21, 25.38]). The main effect of season, $F(2, 74) = 1.27$, $p = .29$, and the Year × Season interaction, $F(2, 74) = 2.34$, $p = .10$, were nonsignificant.

Medical evaluations in OC, however, followed a different pattern. Overall, 15.91% more children received medical evaluations in 2020 ($n = 102$) compared with in 2019 ($n = 85$). As with LAC, to statistically test this difference, data were grouped weekly, and a two-way ANOVA with year and season predicting

the number of exams per week was conducted (see Figure 2B). The Year × Season interaction was significant, $F(2, 74) = 5.89$, $p = .004$. Multiple comparison procedures with Bonferroni corrections indicated that, in summer, there were significantly more evaluations per week in 2020 ($M = 2.85$, $SD = 1.91$, 95% CI [2.00, 4.00]) than in 2019 ($M = .85$, $SD = 1.14$, 95% CI [.44, 1.44], $p = .009$, $d = 1.27$). The number of exams per week in Spring ($p = .38$, $d = .59$) and Fall ($p = .50$, $d = .56$) did not differ between years. However, given the moderate effect sizes, it is worth noting that the number of evaluations per week increased in spring, but decreased in the Fall between 2019 and 2020. Main effects of year, $F(1, 74) = 2.12$, $p = .15$, and season, $F(1, 74) = .54$, $p = .59$, were nonsignificant.

Table 2
Number and Rate of Children Reported and Evaluated in Orange County

Time period	No. of children reported			Rate of children reported			No. of children evaluated		
	2019	2020	% change	2019	2020	% change	2019	2020	% change
Month									
March	3,790	3,035	−19.9%	5.50	4.45	−19.1%	6	19	—
April	3,517	1,817	−48.3%	5.10	2.66	−47.8%	9	8	—
May	3,617	2,158	−40.3%	5.25	3.16	−39.7%	11	9	—
June	2,427	2,071	−14.7%	3.52	3.04	−13.8%	4	10	—
July	2,481	2,109	−15.0%	3.60	3.09	−14.1%	3	18	—
August	3,084	2,319	−24.8%	4.48	3.40	−24.0%	4	9	—
September	3,848	2,652	−31.1%	5.58	3.89	−30.4%	17	9	—
October	4,328	2,919	−32.6%	6.28	4.28	−31.9%	15	9	—
November	3,153	2,372	−24.8%	4.58	3.48	−24.0%	5	5	—
December	2,879	2,153	−25.2%	4.18	3.16	−24.5%	11	6	—
Total	33,124	23,605	−28.7%	48.08	34.61	−28.0%	88	102	15.91%
Season									
Spring	10,924	7,010	−35.8%	15.86	10.28	−35.18%	26	36	33.3%
Summer	7,992	6,499	−18.7%	11.60	9.53	−17.86%	11	37	184.6%
Fall	11,329	7,943	−29.9%	16.44	11.65	−29.18%	37	23	−37.8%

Note. The "rate of children reported" column shows the rate of children reported to the county per 1,000 children. The time periods labeled Spring, Summer, and Fall consist of 3 months each (i.e., March through May, June through August, and September through November, respectively). Dashes indicate that the number of children evaluated each month was fewer than 20 children, thus the percentage change was not interpretable and therefore not provided for the monthly data.

Table 3

Comparing Monthly Reports From Before and During-COVID-19 in Los Angeles County and Orange County

Measure	2019 M (SD)	2020 M (SD)	t	df	p	d
Los Angeles County						
Reports received	6,740.90 (857.95)	4,937.20 (702.95)	5.14	18	<.001	2.30
Children reported	12,917.10 (1,728.96)	9,147.70 (1,346.11)	5.44	18	<.001	2.43
Rate of children reported	6.04 (0.81)	4.36 (0.64)	5.15	18	<.001	2.30
Proportion evaluated	7.84 (0.88)	9.34 (1.37)	−2.91	18	.009	1.30
Orange County						
Reports received	2,546.30 (498.67)	1,926.40 (331.08)	3.28	18	.004	1.46
Children reported	3,312.40 (616.59)	2,360.50 (391.61)	4.12	18	.001	1.84
Rate of children reported	4.81 (0.89)	3.46 (0.57)	4.00	18	.001	1.79
Proportion evaluated	2.56 (1.10)	4.34 (1.87)	−2.59	18	.018	1.16

Note. Rate of Children Reported is presented as the rate per 1,000 children. Proportion evaluated was calculated by dividing the number of medical evaluations conducted at the child maltreatment evaluation center by the number of county reports for each month in each county; proportion evaluated is presented as the number of children evaluated medically per 1,000 children reported to the county.

Maltreatment Type

Using child-level data from the counties, we examined the type (s) of maltreatment suspected (CPA/neglect and CSA, each coded separately as present or not) in the medical evaluations. Across both years, in LAC, CPA/neglect was the most common type of maltreatment suspected in the medical evaluations (87.65% in 2019 and 86.54% in 2020); but in OC, CSA was more commonly suspected (80.00% in 2019 and 69.61% in 2020). When comparing the proportion of cases seen for CPA/neglect or CSA in 2019 and 2020; no significant differences emerged in either county ($ps > .10$; see Table 5). To adjust for inflation of the type I error rate when conducting multiple tests, the familywise alpha level was adjusted ($\alpha_{FW} = .0125$).

Child Demographics

We next examined whether child age, gender (boy, girl), or ethnicity (Hispanic/Latinx, not Hispanic/Latinx) were related to changes in medical evaluations before versus during-COVID-19, again using child-level data. To adjust for inflation of the type I error rate when conducting multiple tests, family-wise alpha levels were determined for each demographic category: $\alpha_{FW} = .0125$ for age, $\alpha_{FW} = .025$ for gender, and $\alpha_{FW} = .0125$ for ethnicity. No

significant COVID-19-related differences were found for age, gender, or ethnicity in LAC or OC (see Table 5).

Overall, the mean age of children who received medical evaluations at the CMECs did not significantly differ between 2019 and 2020 in LAC, $t(1,849) = 1.61$, $p = .11$, $d = .15$, or in OC, $t(185) = .93$, $p = .35$, $d = .15$. Considering Kaiser et al.'s (2021) findings concerning children under age 6, and age 6 being the typical age to begin school (when identification might increase), we separated children into younger (<6) and older (≥6) age groups. Differences were non-significant in both counties. The patterns of data in both counties showed that a slightly higher proportion of medical evaluations were conducted for younger children <6 years old in 2020 compared with 2019, $\chi^2(1) = 5.16$, $p = .02$ in LAC and $\chi^2(1) = .86$, $p = .35$ in OC. In LAC, medical evaluations were fairly evenly split between boys and girls across years, $\chi^2(1) = 1.65$, $p = .20$. In OC, medical evaluations were conducted primarily with girls across years, $\chi^2(1) = .18$, $p = .67$. Across both counties and both years, most children who received medical evaluations identified as Hispanic/Latinx (see Table 5).

Evaluation Proportions

Finally, because the number of medical evaluations is likely affected by the number and type of reports, we examined how the

Table 4

Type of Maltreatment Suspected for Children Reported to the Counties in 2019 and 2020

Type of maltreatment	2019 N	2019 %	2020 N	2020 %
Los Angeles County	129,171		91,477	
Neglect	43,922	34.00	34,655	37.88
Sibling risk	27,867	21.57	16,179	27.69
CPA	22,608	17.50	13,742	15.02
CSA	12,680	9.82	9,765	10.67
Orange County	33,124		23,605	
Neglect	13,210	41.84	10,480	46.98
Sibling risk	7,629	23.03	4,214	17.85
CPA	5,787	17.47	3,870	16.39
CSA	4,219	12.74	3,282	13.90

Note. The notation "CPA" refers to child physical abuse and the notation "CSA" refers to child sexual abuse. Values are the number and percentage of children reported for suspected neglect, risk due to abuse of a sibling (i.e., sibling risk), physical abuse, or sexual abuse in 2019 and 2020. Percentage refers to the total percentage of children reported from March through December of the respective year.

Figure 2

Average Number of Medical Evaluations Per Week at the Los Angeles (A) and Orange (B) County Child Maltreatment Evaluation Centers
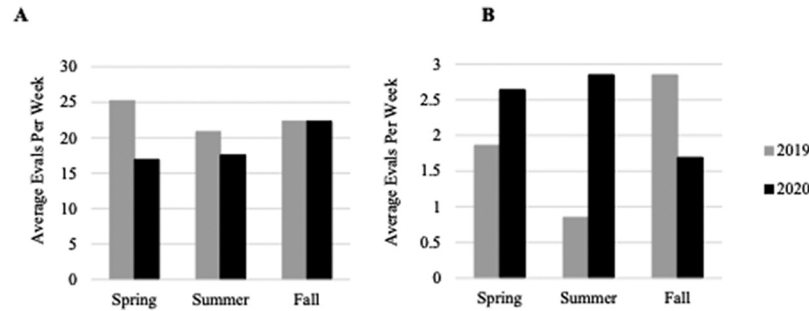
Note. Regarding Los Angeles County (A), collapsed across season, the number of medical evaluations conducted per week was significantly lower in 2020 during COVID-19 compared with 2019. This difference was largest in the spring, and nearly non-existent in the fall. Regarding Orange County (B), the difference between years varied depending on the season. In the summer, the number of medical evaluations was significantly higher in 2020 than in 2019. Although nonsignificant, this pattern was evident when comparing the spring of 2020 and of 2019; but the opposite pattern emerged in the fall, with fewer medical evaluations in 2020 than in 2019.

proportion of reports that received medical evaluations in each county changed after the pandemic began. Across both counties, this proportion significantly increased from 2019 to 2020 (see Figure 3 and Table 3). Concerning LAC, in 2019 7.77 per 1,000 children reported had received medical evaluations, compared with 9.26 in 2020. For OC, this increase was even greater, nearly doubling from 2019 to 2020 (2.66 and 5.14 per 1,000 children reported, respectively). This suggests, that despite differences in the direction of change in the overall number of medical evaluations conducted in LAC and OC during the pandemic (LAC decreasing, OC increasing), both counties saw a significant increase in the proportion of reported cases that could be considered sufficiently credible or serious and hence require medical evaluation during COVID-19 as compared with before.

Discussion

The COVID-19 pandemic and associated stay-at-home orders have had significant and pervasive effects on families across the U.S. and around the world. As we have shown, consequences for the identification of suspected child maltreatment and evaluation of allegations have been nuanced. Although the pandemic was associated with a reduced likelihood of maltreatment being identified and reported, patterns related to medical evaluations of such cases were more nuanced. Our findings suggest that maltreatment may have been increasing in number and/or severity (alternatively, characteristics of cases reported to the counties may have changed). This possible paradox highlights the need for greater attention to vulnerable children in times of stress and to the

Table 5

Demographics of Medical Evaluations Conducted in 2019 and 2020

Demographic variable	2019		2020		$\chi^2(1)$	p
	N	%	N	%		
Los Angeles County	1,004		847			
CSA	133	13.25	133	15.70	2.51	0.13
CPA/Neglect	880	87.65	733	86.54	0.50	0.48
≥6 years old	571	56.87	437	51.59	5.16	0.02
Boys	519	51.69	412	48.64	1.65	0.20
Hispanic/Latinx	405	54.4	318	50.3	2.25	0.13
Orange County	85		102			
CSA	68	80.00	71	69.61	2.62	0.11
CPA/Neglect	18	21.18	32	31.37	2.46	0.12
≥6 years old	62	72.94	68	66.67	0.86	0.35
Boys	16	18.82	22	21.57	0.18	0.67
Hispanic/Latinx	58	68.24	72	70.59	0.11	0.74

Note. The notation "CSA" refers to child sexual abuse and the notation "CPA" refers to child physical abuse. A familywise alpha level was determined for each demographic category to adjust for multiple tests: α = .0125 for maltreatment type, α = .0125 for age, α = .025 for gender, and α = .025 for ethnicity. Percentages were calculated using only the children who had complete data—those with unknown gender or ethnicity were not included in the calculations. Gender was designated as unknown for one child in Los Angeles County (LAC) and one child in Orange County (OC). Ethnicity was designated as unknown for 474 children in LAC and two children in OC.

Figure 3

Proportion of Children Reported to the Counties That Received Medical Evaluations at the Child Maltreatment Evaluation Centers
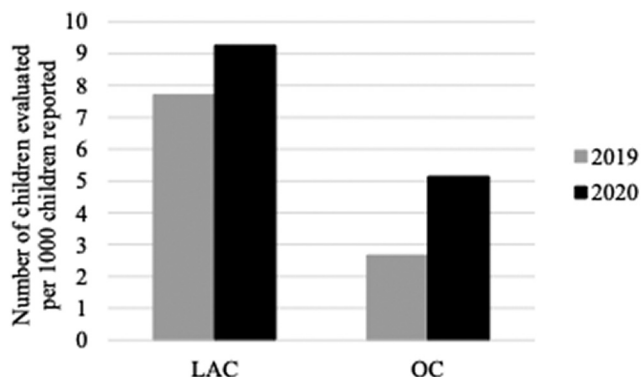
Note. LAC refers to Los Angeles County and OC refers to Orange County. Across both counties, the proportion of children reported to the county that received medical evaluations at the child maltreatment evaluation center was higher in 2020 than in 2019.

development of novel approaches for identifying cases of maltreatment that do not rely on traditional reporting channels.

Perhaps most striking, but also expected, was the association between the onset of the COVID-19 pandemic and substantial decrease in reports to county SSA of children suspected of having been exposed to maltreatment in two southern California counties. These trends are consistent with findings from initial administrative studies that uncovered similar trends during the first months of the pandemic (E. Baron et al., 2020; Jonson-Reid et al., 2020; Rapoport et al., 2021). Unfortunately, given our evaluation data and the evidence of ongoing stress and uncertainty caused by the pandemic (Lee, 2020; Tull et al., 2020), it is unlikely that the decrease in reporting was due to an actual reduction in the occurrence of child maltreatment. Instead, the decrease was likely due to disruptions in the systems that identify maltreated children. With the implementation of stay-at-home orders and social distancing measures, mandated reporters and other adults had significantly fewer interactions with children and interactions that did occur were typically remote (e.g., telehealth exams, zoom classes), restricting professionals' ability to detect reportable indicators of harm.

As a side note, in both counties, the proportion of reports for suspected neglect and CSA increased during COVID-19, while the proportion of reports for suspected CPA decreased. Little empirical work has attempted to disentangle how contextual events, such as natural disasters, economic downturns, or the COVID-19 pandemic, differentially affect relative rates of maltreatment types, making interpretation of these findings particularly challenging. Regarding CSA, perhaps the proportional increase is related to children being isolated with potential perpetrators and hence exposed to CSA more often, or to children having more time online at home and are thus exposed or enticed into online sexual abuse. Alternatively, the increase could also be due to others within the family becoming more aware of and hence reporting suspicions of CSA more frequently (i.e., an increase in reporting rather than incidence). With regard to neglect, because of school

and daycare closures, children may have been left home unattended while parents worked; or perhaps children were watched by people not accustomed to all-day childcare (e.g., older siblings), both of which could have led to increases in concerns and hence reports about neglect. Decreases in income within a family may also have meant that parents were providing less, which is often linked to or interpreted as neglect (Dickerson et al., 2020). Greater experiences of economic problems, substance abuse, or domestic violence due to the COVID-19 pandemic may have reduced parents' ability to attend to their children's needs, hence increasing children's exposure to neglect (Anurudran et al., 2020; Czeisler et al., 2020; Leslie & Wilson, 2020; Taylor et al., 2021). An alternative or co-occurring explanation may have been that the relative increases in CSA and neglect were due to a substantially larger relative decrease in reports of CPA. Suspicions of CPA are linked to physical indicators (e.g., bruises) noticed by others (English et al., 2002) rather than by children's own admissions (Rush et al., 2014). Insofar as the adults who might notice physical marks, including mandated reporters, are not exposed to children, relative reports of CPA would be expected to drop most dramatically, leading to evident variations in relative proportions observed here.

Turning back to the general trends, differences emerged between counties in the direction of change in the number of medical evaluations conducted at the CMECs. In LAC, changes in medical evaluations mirrored changes in county reports, both significantly decreasing from 2019 to 2020. In contrast, in OC, medical evaluations conducted at the CMEC increased during COVID-19. This divergence in trends may be due to policy or structural differences in the criteria used to screen children for medical evaluations. The clinic in LAC conducts medical evaluations on nearly every child referred with a direct allegation of CPA and CSA. As such, their medical evaluation rate would be strongly related to the county reporting rate, and the decrease in medical evaluations in LAC may have simply been a function of fewer reports coming in. In contrast, in OC, nearly all CSA cases automatically receive medical evaluations, but CPA cases are not automatically referred for such evaluations. Instead, allegations have to meet certain criteria for a medical evaluation to be ordered. Perhaps the reduction in OC county referrals due to COVID-19 provided often overworked social service professionals with more time to investigate CPA cases and identify documentation that led to medical evaluation referrals. Or, as we hypothesized, a greater proportion of reported CPA cases were severe enough to meet the criteria for medical evaluation. Further work will need to be conducted to determine the precise cause of these differences and ascertain how variations in county-level referral and evaluation policies shaped identification and evaluation efforts for vulnerable children during COVID-19. Moreover, because both counties saw decreases in reports and only one also saw decreases in medical evaluations, it continues to be crucial to consider multiple sources of data in conjunction when investigating maltreatment and the pandemic.

In both counties, the proportion of medical evaluations to county reports increased from 2019 to 2020, suggesting an increase in the proportion of reported cases considered credible or severe enough to need medical evaluation. It could be that by the time children were identified, the maltreatment they endured was more severe than it otherwise may have been, leading to a need for medical evaluation. Related, the unprecedented levels of stress,

uncertainty, and financial hardship on families could have contributed to more severe behavior in parents. Prior work by Schenck-Fountaine et al. (2017) and Swedo et al. (2020) concerning changes in child maltreatment related to economic downturns and COVID-19 support this possible interpretation. Alternatively, it could be that the actual severity of cases was not increasing, but the identification of less severe cases was decreasing. Cases that do not involve injury or need for medical intervention may have remained more hidden during COVID-19 because of children's limited exposure to mandated reporters. As a result, reports would consist of more severe cases, leading to a greater proportion of such reports receiving medical evaluations. Finally, it is important to consider these changes in the context of the two counties' different policies regarding medical evaluations. In OC, where cases must meet certain criteria to be referred for medical evaluations, the increase in proportion of reports may reflect increases in both the credibility and severity of cases reported. In LAC, where nearly every credible allegation of CPA or CSA that is referred from a report receives a medical evaluation, the higher proportion of medical evaluations to county reports is likely a reflection of a greater proportion of reports being viewed as credible and hence warranting a referral and evaluation. With larger data sets collected as stay-at-home orders changed (e.g., were lifted and reimplemented), it may be possible to disentangle some of these interpretations.

Characteristics of cases (i.e., maltreatment type, gender, ethnicity) seen for medical evaluations remained consistent across years and in both counties. This suggests that the COVID-19 pandemic did not differentially influence children of different ages, genders, or ethnicities, at least in terms of the identification of suspected cases of maltreatment or in the medical evaluations conducted on such children.

These findings emphasize the need to conjointly assess diverse data sets to truly understand the implications of the COVID-19 pandemic for child maltreatment. The between-county (i.e., LAC vs. OC) and between-source (i.e., reports vs. evaluations) differences indicate that it is not sufficient to look at one single county, facility, or data source. Data on substantiation rates would be a valuable addition to these data sets given that evaluations, though correlated with incidence, are not identical to actual child maltreatment. Areas (facilities, counties, and even countries) differ in both their baseline approaches to dealing with suspicions of maltreatment and their implementation of COVID-19-related policies aimed at improving identification and service delivery during the pandemic. Both would have a significant influence on child maltreatment reporting and evaluation trends. Moreover, as we have seen here and with others' recent work (Kaiser et al., 2021; Swedo et al., 2020), considering only raw numbers may not provide a complete understanding of the changing trends in maltreatment.

Implications and Future Directions

The paradox created by the COVID-19 pandemic has significant implications for the future of child welfare. First is the exponential increase in the number of children and families in need of services. Our findings suggest that, as schools and businesses reopen and mandated reporters interact directly with children, those who endured maltreatment will be identified at high rates. Given the likely increased severity of cases, these children will need not only social service intervention, but also medical attention and possibly out-of-home care.

Second is the need to reexamine and adapt child welfare policies that dictate identification and intervention models. Although the COVID-19 pandemic is a unique culmination of factors, evidence from studies of natural disasters and economic downturns show similar trends and emphasize the need to create system-level responses that adapt to these circumstances. Current identification methods, which rely primarily on mandated reporters raising concerns, are flawed in times of crisis. Expanding the definition of "mandated reporters" to include a broader collective of adult individuals from the community, like states that have universal reporting laws (Palusci & Vandervort, 2014), could increase reporting. However, research evaluating the effectiveness of doing so on identification rates is inconsistent: Some find a greater number of mandated reporters to be associated with increased reporting (e.g., Palusci & Vandervort, 2014), whereas others find no effects (e.g., Steen & Duran, 2014). Changes in mandated reporter policies, therefore, may need to be accompanied by adequate education on what to look for and how to report to confer benefits.

And third, service delivery systems need to be adaptable to changing needs and restrictions. One service delivery approach, remote health care visits (i.e., telehealth), grew exponentially as the COVID-19 pandemic unfolded (Comer et al., 2017; Jones et al., 2014; Racine et al., 2020; Ramsetty & Adams, 2020). However, telehealth requires both access to and familiarity with technology, both of which are more limited in low-income families who are at higher risk for child maltreatment (Ramsetty & Adams, 2020; van Dijk, 2020). In addition, caregivers may be present during telehealth visits with an inability to adequately separate for privacy, limiting the information that is possible to gather in comprehensive assessment. Medical providers may also be precluded in their ability to fully examine children for sentinel injuries, such as cutaneous injuries hidden by clothing and oral injuries. Thus, reliable technology needs to be paired with creative approaches to evaluations to identify risk and harm.

Limitations

Our findings contribute to the emerging literature by combining multiple data sets to assess patterns in identification and medical evaluations of child maltreatment during the COVID-19 pandemic. There are, however, important limitations. First, data from only two southern California counties were included, and the data spanned only two years in time. Replication with other national and international data sets over longer periods is needed, along with more sophisticated (e.g., time-series) analyses that are appropriate with such data. Our results, however, align with prior studies that separately assessed reporting and incidence of child maltreatment (e.g., Musser et al., 2021; Rapoport et al., 2021; Sharma et al., 2021). Second, we were unable to directly assess change in severity related to the COVID-19 pandemic. We did, however, find an increase in the proportion of reported cases receiving medical evaluations. These findings may be a result of the seriousness of cases increasing during COVID-19, which would align with work conducted on emergency department visits (Swedo et al., 2020). Alternatively, it is also possible that the actual occurrence or seriousness of maltreatment cases did not change in relation to the pandemic, but rather the characteristics of

cases reported to the counties changed. Data on substantiation, especially proportional to referrals and evaluations, would complement our findings well. Third, the nature of our data limited our ability to assess the precise mechanisms underlying the changes. It would be beneficial to examine more detailed case characteristics to further elucidate the types of cases that increased during the pandemic. Fourth, since the LA County CMEC from which we collected data receives referrals from primarily urban, low-income communities and only some referrals from across the county, we caution generalizing data from that county to counties with substantial rural populations.

Conclusion

The COVID-19 pandemic was associated with a decrease in reports of suspected child maltreatment to social services, but an increase in the proportion of those reports that went on to receive medical evaluations at the counties' CMECs. This suggests that a greater proportion of cases reported to the counties were serious or concerning enough to warrant medical evaluation (due to either the actual characteristics of cases changing or characteristics of reports to the county changing). Further study is needed to determine the generalizability of these findings and to further elucidate how the characteristics of these cases changed in relation to the pandemic.

References

Anurudran, A., Yared, L., Comrie, C., Harrison, K., & Burke, T. (2020). Domestic violence amid COVID-19. *International Journal of Gynaecology and Obstetrics: The Official Organ of the International Federation of Gynaecology and Obstetrics*, *150*(2), 255–256. https://doi.org/10.1002/ijgo.13247

Baginsky, M., & Manthorpe, J. (2021). The impact of COVID-19 on children's social care in England. *Child Abuse & Neglect: The International Journal, 116, 104739.* https://doi.org/10.1016/j.chiabu.2020.104739

Barboza, G. E., Schiamberg, L. B., & Pachl, L. (2021). A spatiotemporal analysis of the impact of COVID-19 on child abuse and neglect in the city of Los Angeles, CA. *Child Abuse & Neglect: The International Journal*, *116*, 104740. https://doi.org/10.1016/j.chiabu.2020.104740

Baron, E. J., Goldstein, E. G., & Wallace, C. T. (2020). Suffering in silence: How COVID-19 school closures inhibit the reporting of child maltreatment (Paper No. 3601399). *SSRN.* https://doi.org/10.2139/ssrn.3601399

Baron, R. A., & Richardson, D. R. (2004). *Human aggression.* Springer Science & Business Media.

Béland, L.-P., Brodeur, A., & Wright, T. (2020). *The short-term economic consequences of COVID-19: Exposure to disease, remote work and government response* (Paper No. 13159). Retrieved March 6, 2021, from http://ftp.iza.org/dp13159.pdf

Bennett, D., Kapteyn, A., & Saw, H.-W. (2020, March 25). This recession may be different, but many of the victims may look the same. *USC Schaeffer. The Evidence Base.* Retrieved April 5, 2021, from https://healthpolicy.usc.edu/evidence-base/this-recession-may-be-different-but-many-of-the-victims-may-look-the-same/

Berger, L. M., Collins, J. M., Font, S. A., Gjertson, L., Slack, K. S., & Smeeding, T. (2015). Home foreclosure and child protective services involvement. *Pediatrics*, *136*(2), 299–307. https://doi.org/10.1542/peds.2014-2832

Berger, L. M., & Waldfogel, J. (2011). *Economic determinants and consequences of child maltreatment (Working Paper No. 111).* OECD. https://doi.org/10.1787/5kgf09zj7h9t-en

Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control.* McGraw-Hill.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet*, *395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Brooks-Gunn, J., Schneider, W., & Waldfogel, J. (2013). The Great Recession and the risk for child maltreatment. *Child Abuse & Neglect: The International Journal*, *37*(10), 721–729. https://doi.org/10.1016/j.chiabu.2013.08.004

Brown, D., & De Cao, E. (2017). *The impact of unemployment on child maltreatment in the United States.* University of Oxford, Department of Economics. Discussion Paper Series.

Bullinger, L., Raissian, K., Feely, M., & Schneider, W. (2020). The neglected ones: Time at home during COVID-19 and child maltreatment (Paper No. 3674064). *SSRN.* https://doi.org/10.2139/ssrn.3674064

Chester, D. L., Jose, R. M., Aldlyami, E., King, H., & Moiemen, N. S. (2006). Non-accidental burns in children—Are we neglecting neglect? *Burns*, *32*(2), 222–228. https://doi.org/10.1016/j.burns.2005.08.018

Comer, J. S., Furr, J. M., Miguel, E. M., Cooper-Vince, C. E., Carpenter, A. L., Elkins, R. M., Kerns, C. E., Cornacchio, D., Chou, T., Coxe, S., DeSerisy, M., Sanchez, A. L., Golik, A., Martin, J., Myers, K. M., & Chase, R. (2017). Remotely delivering real-time parent training to the home: An initial randomized trial of Internet-delivered parent-child interaction therapy (I-PCIT). *Journal of Consulting and Clinical Psychology*, *85*(9), 909–917. https://doi.org/10.1037/ccp0000230

Connell, C. M., & Strambler, M. J. (2021). Experiences with COVID-19 stressors and parents' use of neglectful, harsh, and positive parenting practices in the northeastern United States. *Child Maltreatment*, *26*(3), 255–266. https://doi.org/10.1177/10775595211006465

Curtis, T., Miller, B. C., & Berry, E. H. (2000). Changes in reports and incidence of child abuse following natural disasters. *Child Abuse & Neglect: The International Journal*, *24*(9), 1151–1162. https://doi.org/10.1016/S0145-2134(00)00176-9

Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., Weaver, M. D., Robbins, R., Facer-Childs, E. R., Barger, L. K., Czeisler, C. A., Howard, M. E., & Rajaratnam, S. M. W. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic–United States, June 24–30, 2020. *Morbidity and Mortality Weekly Report*, *69*(32), 1049–1057. https://doi.org/10.15585/mmwr.mm6932a1

Dickerson, K. L., Lavoie, J., & Quas, J. A. (2020). Do laypersons conflate poverty and neglect? *Law and Human Behavior*, *44*(4), 311–326. https://doi.org/10.1037/lhb0000415

Drake, B., & Jonson-Reid, M. (2014). Poverty and child maltreatment. In J. E. Korbin & R. D. Krugman (Eds.), *Handbook of child maltreatment* (pp. 131–148). https://doi.org/10.1007/978-94-007-7208-3_7

Dubowitz, H., & Bennett, S. (2007). Physical abuse and neglect of children. *Lancet*, *369*(9576), 1891–1899. https://doi.org/10.1016/S0140-6736(07)60856-3

English, D. J., Graham, J. C., Brummel, S. C., & Coghlan, L. K. (2002). *Factors that influence the decision not to substantiate a CPS referral phase I: Narrative and empirical analysis* (Final report, Grant 90-CA-1590). http://thesociologycenter.com/GeneralBibliography/CPSFctrs1.pdf

Ernst, J. S. (2000). Mapping child maltreatment: Looking at neighborhoods in a suburban county. *Child Welfare*, *79*(5), 555–572.

Fore, H. H. (2021). Violence against children in the time of COVID-19: What we have learned, what remains unknown and the opportunities that lie ahead. *Child Abuse & Neglect: The International Journal*, *116*, 104776. https://doi.org/10.1016/j.chiabu.2020.104776

Fothergill, A., & Peek, L. A. (2004). Poverty and disasters in the United States: A review of recent sociological findings. *Natural Hazards*, *32*(1), 89–110. https://doi.org/10.1023/B:NHAZ.0000026792.76181.d9

Frasquilho, D., Matos, M. G., Salonna, F., Guerreiro, D., Storti, C. C., Gaspar, T., & Caldas-de-Almeida, J. M. (2016). Mental health outcomes in times of economic recession: A systematic literature review. *BMC Public Health*, *16*(1), 115. https://doi.org/10.1186/s12889-016-2720-y

Freisthler, B., Needell, B., & Gruenewald, P. J. (2005). Is the physical availability of alcohol and illicit drugs related to neighborhood rates of child maltreatment? *Child Abuse & Neglect: The International Journal*, *29*(9), 1049–1060. https://doi.org/10.1016/j.chiabu.2004.12.014

Frioux, S., Wood, J. N., Fakeye, O., Luan, X., Localio, R., & Rubin, D. M. (2014). Longitudinal association of county-level economic indicators and child maltreatment incidents. *Maternal and Child Health Journal*, *18*(9), 2202–2208. https://doi.org/10.1007/s10995-014-1469-0

Hochrainer, S. (2009). Assessing the macroeconomic impacts of natural disasters: Are there any? *Policy Research Working Papers, World Bank Group*. https://doi.org/10.1596/1813-9450-4968

IBM Corp. (2019). IBM SPSS Statistics for Macintosh, Version 26.0 [Computer software].

Jones, A. M., Shealy, K. M., Reid-Quiñones, K., Moreland, A. D., Davidson, T. M., López, C. M., Barr, S. C., & de Arellano, M. A. (2014). Guidelines for establishing a telemental health program to provide evidence-based therapy for trauma-exposed children and families. *Psychological Services*, *11*(4), 398–409. https://doi.org/10.1037/a0034963

Jonson-Reid, M., Drake, B., Cobetto, C., & Ocampo, M. G. (2020, April 14). *Child abuse prevention month in the context of COVID-19*. Retrieved January 11, 2021, from https://cicm.wustl.edu/child-abuse-prevention-month-in-the-context-of-covid-19/

Kaiser Kornblith, A. E., Richardson, T., Pantell, M. S., Fleegler, E. W., Fritz, C. Q., Parikh, K., Zagel, A., Sills, M. R., de Souza, H. G., Goyal, M. K., Hogan, A. H., Heller, K. R., DeLaroche, A. M., Cooper, J. N., & Puls, H. T. (2021). Emergency visits and hospitalizations for child abuse during the COVID-19 pandemic. *Pediatrics*, *147*(4), e2020038489. https://doi.org/10.1542/peds.2020-038489

Kapteyn, A., Angrisani, M., Bennett, D., de Bruin, W. B., Darling, J., Gutsche, T., Liu, Y., Meijer, E., Perez-Arce, F., Schaner, S., Thomas, K., & Weerman, B. (2020). Tracking the effect of the COVID-19 pandemic on the lives of American households. *Survey Research Methods*, *14*(2), 179–186. https://doi.org/10.18148/srm/2020.v14i2.7737

Katz, C., & Fallon, B. (2021). Protecting children from maltreatment during COVID-19: Struggling to see children and their families through the lockdowns. *Child Abuse & Neglect: The International Journal*, *116*, 105084. https://doi.org/10.1016/j.chiabu.2021.105084

Katz, I., Katz, C., Andresen, S., Bérubé, A., Collin-Vezina, D., Fallon, B., Fouchí, A., Haffejee, S., Masrawa, N., Muñoz, P., Priolo Filho, S. R., Tarabulsy, G., Truter, E., Varela, N., Wekerle, C. (2021). Child maltreatment reports and Child Protection Service responses during COVID-19: Knowledge exchange among Australia, Brazil, Canada, Colombia, Germany, Israel, and South Africa. *Child Abuse & Neglect: The International Journal*, *116*, 105078. https://doi.org/10.1016/j.chiabu.2021.105078

Klein, S. (2011). The availability of neighborhood early care and education resources and the maltreatment of young children. *Child Maltreatment*, *16*(4), 300–311. https://doi.org/10.1177/1077559511428801

Kochhar, R. (2020, June 11). *Unemployment rose higher in three months of COVID-19 than it did in two years of the Great Recession. Pew Research Center*. https://www.pewresearch.org/fact-tank/2020/06/11/unemployment-rose-higher-in-three-months-of-covid-19-than-it-did-in-two-years-of-the-great-recession/

Kovler, M. L., Ziegfeld, S., Ryan, L. M., Goldstein, M. A., Gardner, R., Garcia, A. V., & Nasr, I. W. (2021). Increased proportion of physical child abuse injuries at a level 1 pediatric trauma center during the COVID-19 pandemic. *Child Abuse & Neglect: The International Journal*, *116*, 104756. https://doi.org/10.1016/j.chiabu.2020.104756

Lawson, M., Piel, M. H., & Simon, M. (2020). Child maltreatment during the COVID-19 pandemic: Consequences of parental job loss on psychological and physical abuse towards children. *Child Abuse & Neglect: The International Journal*, *110*, 104709. https://doi.org/10.1016/j.chiabu.2020.104709

Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet. Child & Adolescent Health*, *4*(6), 421. https://doi.org/10.1016/S2352-4642(20)30109-7

Leslie, E., & Wilson, R. (2020). Sheltering in place and domestic violence: Evidence from calls for service during COVID-19. *Journal of Public Economics*, *189*, 104241. https://doi.org/10.1016/j.jpubeco.2020.104241

Makwana, N. (2019). Disaster and its impact on mental health: A narrative review. *Journal of Family Medicine and Primary Care*, *8*(10), 3090–3095. https://doi.org/10.4103/jfmpc.jfmpc_893_19

Marroquín, B., Vine, V., & Morgan, R. (2020). Mental health during the COVID-19 pandemic: Effects of stay-at-home policies, social distancing behavior, and social resources. *Psychiatry Research*, *293*, 113419. https://doi.org/10.1016/j.psychres.2020.113419

Miller, T. W., & Kraus, R. F. (1994). Natural and environmental disasters: Psychological issues and clinical responses. *Integrative Psychiatry*, *10*(3), 128–132.

Millett, L., Lanier, P., & Drake, B. (2011). Are economic trends associated with child maltreatment? Preliminary results from the recent recession using state level data. *Children and Youth Services Review*, *33*(7), 1280–1287. https://doi.org/10.1016/j.childyouth.2011.03.001

Molnar, B. E., Goerge, R. M., Gilsanz, P., Hill, A., Subramanian, S. V., Holton, J. K., Duncan, D. T., Beatriz, E. D., & Beardslee, W. R. (2016). Neighborhood-level social processes and substantiated cases of child maltreatment. *Child Abuse & Neglect: The International Journal*, *51*, 41–53. https://doi.org/10.1016/j.chiabu.2015.11.007

Musser, E. D., Riopelle, C., & Latham, R. (2021). Child maltreatment in the time of COVID-19: Changes in the Florida foster care system surrounding the COVID-19 safer-at-home order. *Child Abuse & Neglect: The International Journal*, *116*, 104945. https://doi.org/10.1016/j.chiabu.2021.104945

Oyesanya, M., Lopez-Morinigo, J., & Dutta, R. (2015). Systematic review of suicide in economic recession. *World Journal of Psychiatry*, *5*(2), 243–254. https://doi.org/10.5498/wjp.v5.i2.243

Palusci, V. J., & Vandervort, F. E. (2014). Universal reporting laws and child maltreatment report rates in large U.S. counties. *Children and Youth Services Review*, *38*, 20–28. https://doi.org/10.1016/j.childyouth.2013.12.010

Panwar, V., & Sen, S. (2019). Economic impact of natural disasters: An empirical re-examination. *Margin–The Journal of Applied Economic Research*, *13*(1), 109–139. https://doi.org/10.1177/0973801018800087

Petrowski, N., Cappa, C., Pereira, A., Mason, H., & Daban, R. A. (2021). Violence against children during COVID-19: Assessing and understanding change in use of helplines. *Child Abuse & Neglect: The International Journal*, *116*, 104757. https://doi.org/10.1016/j.chiabu.2020.104757

Prelog, A. J. (2016). Modeling the relationship between natural disasters and crime in the United States. *Natural Hazards Review*, *17*(1), 04015011. https://doi.org/10.1061/(ASCE)NH.1527-6996.0000190

Racine, N., Hartwick, C., Collin-Vézina, D., & Madigan, S. (2020). Telemental health for child trauma treatment during and post-COVID-19: Limitations and considerations. *Child Abuse & Neglect: The International Journal*, *110*, 104698. https://doi.org/10.1016/j.chiabu.2020.104698

Ramsetty, A., & Adams, C. (2020). Impact of the digital divide in the age of COVID-19. *Journal of the American Medical Informatics Association*, *27*(7), 1147–1148. https://doi.org/10.1093/jamia/ocaa078

Rapoport, E., Reisert, H., Schoeman, E., & Adesman, A. (2021). Reporting of child maltreatment during the SARS-CoV-2 pandemic in New York City from March to May 2020. *Child Abuse & Neglect: The International Journal*, *116*, 104719. https://doi.org/10.1016/j.chiabu.2020.104719

Reger, M. A., Stanley, I. H., & Joiner, T. E. (2020). Suicide mortality and coronavirus disease 2019—A perfect storm? *JAMA Psychiatry*, *77*(11), 1093–1094. https://doi.org/10.1001/jamapsychiatry.2020.1060

Rodriguez, C. M., Lee, S. J., Ward, K. P., & Pu, D. F. (2020). The perfect storm: Hidden risk of child maltreatment during the COVID-19 pandemic. *Child Maltreatment*, *26*(2), 139–151. https://doi.org/10.1177/1077559520982066

Rush, E. B., Lyon, T. D., Ahern, E. C., & Quas, J. A. (2014). Disclosure suspicion bias and abuse disclosure: Comparisons between sexual and physical abuse. *Child Maltreatment*, *19*(2), 113–118. https://doi.org/10.1177/1077559514538114

Sampson, R. J. (2006). Collective efficacy theory: Lessons learned and directions for future inquiry. In F. T. Cullen (Ed.), *Taking stock: The status of criminological theory* (Vol. 15, pp. 149–167). Transaction Publishers.

Schenck-Fontaine, A., & Gassman-Pines, A. (2020). Income inequality and child maltreatment risk during economic recession. *Children and Youth Services Review*, *112*, 104926. https://doi.org/10.1016/j.childyouth.2020.104926

Schenck-Fontaine, A., Gassman-Pines, A., Gibson-Davis, C. M., & Ananat, E. O. (2017). Local job losses and child maltreatment: The importance of community context. *The Social Service Review*, *91*(2), 233–263. https://doi.org/10.1086/692075

Seddighi, H., Salmani, I., Javadi, M. H., & Seddighi, S. (2021). Child abuse in natural disasters and conflicts: A systematic review. *Trauma, Violence & Abuse*, *22*(1), 176–185. https://doi.org/10.1177/1524838019835973

Sharma, S., Wong, D., Schomberg, J., Knudsen-Robbins, C., Gibbs, D., Berkowitz, C., & Heyming, T. (2021). COVID-19: Differences in sentinel injury and child abuse reporting during a pandemic. *Child Abuse & Neglect: The International Journal*, *116*, 104990. https://doi.org/10.1016/j.chiabu.2021.104990

Sidpra, J., Abomeli, D., Hameed, B., Baker, J., & Mankad, K. (2021). Rise in the incidence of abusive head trauma during the COVID-19 pandemic. *Archives of Disease in Childhood*, *106*(3), e14. https://doi.org/10.1136/archdischild-2020-319872

Steen, J. A., & Duran, L. (2014). Entryway into the child protection system: The impacts of child maltreatment reporting policies and reporting system structures. *Child Abuse & Neglect: The International Journal*, *38*(5), 868–874. https://doi.org/10.1016/j.chiabu.2013.11.009

Steinberg, L. D., Catalano, R., & Dooley, D. (1981). Economic antecedents of child abuse and neglect. *Child Development*, *52*(3), 975–985. https://doi.org/10.2307/1129102

Swedo, E., Idaikkadar, N., Leemis, R., Dias, T., Radhakrishnan, L., Stein, Z., Chen, M., Agathis, N., Holland, K. (2020). Trends in U.S. emergency department visits related to suspected or confirmed child abuse and neglect among children and adolescents aged <18 years before and during the COVID-19 pandemic—United States, January 2019–September 2020. *Morbidity and Mortality Weekly Report*, *69*, 1841–1847. https://doi.org/10.15585/mmwr.mm6949a1

Taylor, S., Paluszek, M. M., Rachor, G. S., McKay, D., & Asmundson, G. J. G. (2021). Substance use and abuse, COVID-19-related distress, and disregard for social distancing: A network analysis. *Addictive Behaviors*, *114*, 106754. https://doi.org/10.1016/j.addbeh.2020.106754

Thomas, E. Y., Anurudran, A., Robb, K., & Burke, T. F. (2020). Spotlight on child abuse and neglect response in the time of COVID-19. *The Lancet. Public Health*, *5*(7), e371. https://doi.org/10.1016/S2468-2667(20)30143-2

Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P., & Gratz, K. L. (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Psychiatry Research*, *289*, 113098. https://doi.org/10.1016/j.psychres.2020.113098

U.S. Bureau of Labor Statistics. (2021). *Regional and state unemployment, 2020 annual average summary*. Retrieved March 5, 2021, from https://www.bls.gov/news.release/srgune.nr0.htm

U.S. Census Bureau. (2021, July). *Quick facts: Los Angeles County, California; Orange County, California*. Retrieved March 5, 2021, from https://www.census.gov/quickfacts/fact/table/losangelescountycalifornia,orangecountycalifornia/PST045219

U.S. Department of Health and Human Services. (2021, January 14). *Child maltreatment 2019*. https://www.acf.hhs.gov/cb/report/child-maltreatment-2019

van Dijk, J. (2020). *The digital divide*. Polity Press.

Whelan, J., Hartwell, M., Chesher, T., Coffey, S., Hendrix, A. D., Passmore, S. J., Baxter, M. A., den Harder, M., & Greiner, B. (2021). Deviations in criminal filings of child abuse and neglect during COVID-19 from forecasted models: An analysis of the state of Oklahoma, USA. *Child Abuse & Neglect: The International Journal*, *116*, 104863. https://doi.org/10.1016/j.chiabu.2020.104863

Wong, J. Y.-H., Wai, A. K.-C., Wang, M. P., Lee, J. J., Li, M., Kwok, J. Y.-Y., Wong, C. K.-H., & Choi, A. W.-M. (2021). Impact of COVID-19 on child maltreatment: Income instability and parenting issues. *International Journal of Environmental Research and Public Health*, *18*(4), 1501. https://doi.org/10.3390/ijerph18041501

Wood, J. N., French, B., Fromkin, J., Fakeye, O., Scribano, P. V., Letson, M. M., Makoroff, K. L., Feldman, K. W., Fabio, A., & Berger, R. (2016). Association of pediatric abusive head trauma rates with macroeconomic indicators. *Academic Pediatrics*, *16*(3), 224–232. https://doi.org/10.1016/j.acap.2015.05.008

Wood, J. N., Medina, S. P., Feudtner, C., Luan, X., Localio, R., Fieldston, E. S., & Rubin, D. M. (2012). Local macroeconomic trends and hospital admissions for child abuse, 2000-2009. *Pediatrics*, *130*(2), e358–e364. https://doi.org/10.1542/peds.2011-3755

World Health Organization. (2019, June). *Mental health in emergencies*. Retrieved April 5, 2021, from https://www.who.int/news-room/fact-sheets/detail/mental-health-in-emergencies