



HHS Public Access

Author manuscript

Child Maltreat. Author manuscript; available in PMC 2022 May 01.

Published in final edited form as:

Child Maltreat. 2021 May ; 26(2): 139–151. doi:10.1177/1077559520982066.

The Perfect Storm: Hidden Risk of Child Maltreatment During the Covid-19 Pandemic

Christina M. Rodriguez¹, Shawna J. Lee², Kaitlin P. Ward², Doris F. Pu¹

¹University of Alabama at Birmingham, AL, USA

²University of Michigan, Ann Arbor, MI, USA

Abstract

The Covid-19 pandemic upended the country, with enormous economic and social shifts. Given the increased contact from families living in virtual confinement coupled with massive economic disarray, the Covid-19 pandemic may have created the ideal conditions to witness a rise in children's experience of abuse and neglect. Yet such a rise will be difficult to calculate given the drop in official mechanisms to track its incidence. The current investigation utilized two studies conducted early in the pandemic to evaluate maltreatment risk. In the first cross-sectional study, parents ($n = 405$) reported increased physical and verbal conflict and neglect which were associated with their perceived stress and loneliness. In the second study, parents ($n = 106$) enrolled in a longitudinal study reported increased parent-child conflict, which was associated with concurrent child abuse risk, with several links to employment loss, food insecurity, and loneliness; findings also demonstrated increases in abuse risk and psychological aggression relative to pre-pandemic levels. Findings are discussed in the context of a reactive welfare system rather than a proactive public-health oriented approach to child maltreatment, connecting with families through multiple avenues. Innovative approaches will be needed to reach children faced with maltreatment to gauge its scope and impact in the pandemic's aftermath.

Keywords

child abuse and neglect; socioeconomic risk; prevention; public health; pandemic

As the world confronts the unprecedented events of the Covid-19 crisis, the risk for the welfare of children demands urgent attention. Prior to this pandemic, child maltreatment represented a serious, pervasive public health concern. Research now estimates that one of eight U.S. children will be confirmed a victim of maltreatment before their 18th birthday—a

Corresponding Author: Christina M. Rodriguez, Department of Psychology, University of Alabama at Birmingham, 1720 2nd Ave South, Birmingham, AL 35294, USA. cmrpsych@uab.edu.

Authors' Note

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Child Health and Human Development or the National Institutes of Health.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplemental Material

Supplemental material for this article is available online.

cumulative estimate far exceeding what is implied by national annual rates of official reports to child protective services (Wildeman et al., 2014). However, the scope of child maltreatment appears to be multiple times such officially reported rates (cf. Meinck et al., 2016; Sedlak et al., 2010). Because official records significantly underestimate maltreatment, researchers often obtain parent or child reports to gauge maltreatment incidence, despite evidence that parents also underreport maltreatment of their children (e.g., Meinck et al., 2016). Given the obstacles in establishing maltreatment incidence, researchers often turn to parental self-report to estimate *maltreatment risk*—the parenting beliefs and behaviors that characterize abusive parenting (e.g., Bavolek & Keene, 2001; Milner, 1994; Stith et al., 2009). For example, physical abuse is considered an extreme form of parent-child aggression in which physical discipline intensifies and escalates to become abuse (Afifi et al., 2017; Durrant et al., 2009; Zolotor et al., 2008). Robust links between greater physical discipline use and physical abuse (e.g., Gershoff & Grogan-Kaylor, 2016; Lee et al., 2014) are supported by findings that more frequent hitting of children is a strong risk factor for physical child abuse (Durrant et al., 2009; Zolotor et al., 2008).

The Covid-19 pandemic may deepen the child maltreatment public health problem nationally. After natural disasters, hospital admission records reveal an increase in inflicted traumatic brain injury (Keenan et al., 2004), underscoring that the incidence of child abuse may rise following natural disasters (Seddighi et al., 2019). Children also experience elevated risk for maltreatment during times of economic upheaval, such as the Great Recession (Brooks-Gunn et al., 2013). In reflecting on the response to prior pandemics, such as the H1N1 flu, attention to the wellbeing of children was regarded as inadequate (Douglas et al., 2009; Murray, 2010). Yet natural disasters, economic turmoil, or prior flu pandemics do not merge all the child maltreatment risks posed by the Covid-19 pandemic simultaneously. News reports of increased rates of hospital visits and hospitalizations for abuse attributed to the Covid-19 pandemic have already surfaced (e.g., Da Silva, 2020; Woodall, 2020). Empirical research is needed to examine the escalated child maltreatment risk potentially unfolding during this pandemic.

Potential Covid-19 Contributors to Risk for Maltreatment

Contributors to child maltreatment have typically been viewed as complex, nested levels of influence aligned with ecological theory (Belsky, 1980, 1993). In this conceptualization, maltreatment arises from individual-level (ontogenic), family-level (microsystem), community-level (exosystem), and societal-level (macrosystem) factors. Among the myriad ways the pandemic is impacting families, the current investigation focused on the potential influence on parents at the personal level in terms of mental health and at the exosystem level in terms of social isolation and economic turmoil—ecological factors with established links to maltreatment.

The Covid-19 pandemic has wrought substantial economic hardship on many families. Historic rates of unemployment surpassed the Great Recession, at levels not witnessed since the Great Depression (Kochnar, 2020), with over 40 million Americans filing for unemployment within months of the announcement of the pandemic (Lambert, 2020). For example, prior to this pandemic, parental unemployment was implicated as a risk factor for

child maltreatment. Unemployment rates during the Great Recession corresponded with increased hospitalizations for abusive head trauma (Berger et al., 2011), and unemployment rates parallel the official rates of investigated and substantiated maltreatment (Frioux et al., 2014). Hospital records reveal that the incidence of non-accidental fractures is greater in families with unemployed parents (Leaman et al., 2017). Such findings on unemployment are replicated in multiple large longitudinal studies using parent-report or official reports of maltreatment (Slack et al., 2011). Population-based surveillance of maltreatment in the U.S. estimated that unemployed parents were four times more likely to neglect their children and twice as likely to physically abuse them (Sedlak et al., 2010).

The ripple effects of this pandemic economic impact radiate in multiple ways that can indirectly elevate risk of maltreatment, creating economic strains experienced as perceived financial hardship, poverty, and food insecurity, all of which are related to child maltreatment. Drawing on statistics pre-pandemic, parents with the lowest socioeconomic status are seven times more likely to neglect and three times more likely to physically abuse children (Sedlak et al., 2010). Large longitudinal studies reinforce the finding that persistent economic insecurity is linked to parents' reports of harsher parenting (Conrad et al., 2019). Longitudinal studies further demonstrate that perceived poverty and financial strain relate to self-reported maltreatment and officially reported neglect (Slack et al., 2011). The link between poverty and child maltreatment is thus robust given that poverty complicates parents' abilities to meet their children's needs. For example, prior work has identified food insecurity is also associated with abuse and neglect (Slack et al., 2011; Yang, 2015), wherein food insecurity predicts parents' greater use of psychological and physical aggression (Helton et al., 2019). These findings are particularly relevant during the Covid-19 pandemic because, when in-person education was suspended, many families who relied on school meals were struggling to feed their children (Lee et al., 2020).

Such financial hardships can compromise parental mental health at the ontogenic level that in turn relates to hostile parenting (Parke et al., 2004), with higher levels of perceived economic strain leading to greater involvement in protective services by compromising parents' mental health (Yang, 2015). Material hardship predicts parents' subsequent depression, which in turn contributes to harsh parenting (Shelleby, 2018). Maternal and paternal stress and distress increases parents' risk for both physical child abuse (Miragoli et al., 2018; Smith Slep & O'Leary, 2007; Tucker et al., 2017) and neglect (Slack et al., 2011; Stith et al., 2009). Such findings are concerning given that, during the current Covid-19 pandemic, nearly a third of adults reported clinically meaningful symptoms of anxiety and depression (Lee & Ward, 2020).

Exacerbating potential financial stress and psychological distress during the early phase of the pandemic were the requirements for social isolation unique to the Covid-19 crisis. With "stay-at-home" and social distancing guidelines that reflect macrosystem level forces affecting families at the exosystem level, many parents coped with parenting, economic, and mental health strains in isolation from extra-familial support. The extant literature demonstrates that parents with less social support are at increased risk for physical abuse (Begle et al., 2010; Rodriguez & Tucker, 2015; Smith Slep & O'Leary, 2007) and neglect (Freisthler et al., 2014; Stith et al., 2009), with lower social satisfaction predicting increases

in abuse risk across time (Rodriguez et al., 2018). Supports parents often access to offset their maltreatment risk were expressly curtailed in the Covid-19 crisis unlike prior pandemics, natural disasters, or economic downturns.

Given the Covid-19 “stay-at-home” orders and social distancing guidelines, families are also spending considerably more time interacting with each other—a microsystem factor that can translate into more opportunities for family conflict. Indications that child maltreatment escalates with greater contact appear in reports that non-accidental fractures seen at hospitals rise during the summer break from school (Leaman et al., 2017) during which time official reports to child protective services dip 16% (Jonson-Reid et al., 2020). Such trends suggest that when children are out of school, official reports may decline while the incidence of child maltreatment rises.

Finally, child protective services workers are also unable to conduct their customary family visits given that many of them cannot conduct full investigations with some families directly. This situation reflects another critical feature of the Covid-19 pandemic: because children were not leaving home, many traditional reporters of child maltreatment—teachers, school nurses, mental health providers (U.S. Department of Health and Human Services, 2020)—no longer had physical access to children (a gap previously observed to affect official maltreatment reports due to natural disasters; Seddighi et al., 2019). As a consequence, mandated reporters no longer provide a venue for referrals to child protective services, with an estimated 51% drop in official reports in New York alone (Stewart, 2020) and declines as much as 70% in several states (Jonson-Reid et al., 2020). Consequently, the unique confluence of economic collapse, seclusion, and school closure may have created an unprecedented situation where future research will be unable to use official statistics to approximate the scope of maltreatment during this period. Namely, many official reports of maltreatment did not appear to be happening.

Current Study

The Covid-19 pandemic combined multiple challenges—economic (e.g., employment loss or reduction, financial stress, food insecurity), social restrictions, and school closures that increased parent contact with children—which could coalesce to increase maltreatment risk coinciding with decreased access to mandated reporters who typically monitor children’s welfare. The current investigation was guided by ecological theory, concentrating on ontogenic and exosystem level factors, drawing on two studies to contribute insight into the impact of the pandemic on the risk for physical abuse, verbal abuse, and neglect with several research goals (RGs). In the first study, mothers and fathers reported on their pandemic-related parenting stressors (financial concerns, worry, loneliness) and a series of questions regarding perceived changes in pandemic-related parenting, including their increased use of physical and verbal aggression and neglect. The goal of this first study (RG1) was to determine whether parents’ economic concerns, worries, and loneliness were significantly associated with perceived increases in adverse parenting during the pandemic. In the second study, mothers participating in a longitudinal study reported on their child abuse risk and parenting during the pandemic. We examined whether mothers’ perceptions of their pandemic-related parenting (comparable to questions from the first study) were associated

with their current child abuse risk, which could confirm whether parents' *perceptions* of adverse changes in parenting were reflected in higher scores on established measures of child abuse risk (RG2). We then considered whether stressors that may be pertinent to the pandemic were significantly related to their current child abuse risk and their pandemic-related perceived increases in parent-child conflict and neglectful behavior; we focused on whether employment loss/reduction, receipt of free school meals, or experience of loneliness were associated with adverse changes in parent-child interaction and increased abuse risk (RG3). Further, capitalizing on the longitudinal nature of this study, we evaluated whether physical and psychological child abuse risk assessed during the pandemic had increased from their pre-pandemic levels, controlling for pre-pandemic income (RG4). Finally, we considered whether parents' *perceptions* of pandemic-related increases in parent-child conflict significantly related to abuse risk during the pandemic controlling for their pre-pandemic abuse risk or pre-pandemic income; RG5 thus considers whether parents' perceptions of changes in their parenting during the pandemic actually correspond with increases, which provides insight into the value of studies relying on respondent perceptions' of their pandemic beliefs assessed cross-sectionally.

Study 1

Method

Participants and Procedures—Data were collected via an online national survey created in Qualtrics by the research team and administered via Prolific, an online survey research and data collection company. The survey was launched on April 14, 2020, about 5 weeks after the World Health Organization (WHO) announced Covid-19 was a pandemic, and 4 weeks after the White House provided social distancing guidelines for the U.S. Participant eligibility criteria included having U.S. nationality and being age 18 years or older. Prolific sent an email with the Qualtrics survey link to participants who met study eligibility criteria, allowing participants' identifiable information to remain anonymous to the research team. After providing consent, participants completed the survey and were compensated \$6.00 through Prolific. The university institutional review board considered this de-identified data collection exempt from oversight.

The research team set a predetermined enrollment number, at which point the survey closed, on April 17, 2020. Data were cleaned and screened for any errors or duplicates. Three attention checks were provided to ensure data quality; no participant missed more than one attention check. A total of 654 U.S. adults completed the survey. The analytic sample was limited to participants who indicated they were parents of at least one child who was 12 years of age or younger. The final sample size was 405 parents (69% mothers, 31% fathers). Participants' mean age was 34 years old ($SD = 7.17$ years) and they reported an average annual household income between \$40,000–50,000, with the majority cohabitating with a partner (80%). The majority of participants were White (71%), with the remainder Black (11%), Hispanic (10%), and Other (8%). Many participants reported at least a bachelor's degree or higher (42%).

Measures—*Pandemic-related parenting stress and loneliness* was measured by asking parents how true three statements were over the prior 2 weeks: “Felt like financial concerns get in the way of parenting”; “felt like worries get in the way of parenting”; and “felt like loneliness gets in the way of parenting,” each on a 4-point scale (0 = *never true* to 3 = *almost always true*).

Pandemic-related perceived changes in parenting were measured by asking parents if they had engaged in the following behaviors since the pandemic began: (1) “I have increased the use of discipline with my child(ren)”; (2) “I have spanked or hit my child(ren) more often than usual”; (3) “I have yelled at/screamed at my child(ren) more than usual”; (4) “I have had more conflicts with my child(ren) than usual”; (5) “I have had to leave my child(ren) alone more often than usual”; and (6) “I have used harsh words toward my child(ren) more often than usual,” each on a dichotomous scale (0 = *no*, 1 = *yes*). Emotional neglect was measured using one item from the parental neglect subscale of the Parent-Child Conflict Tactics Scale (CTSPC; Straus et al., 1998); parents reported how often in the prior two weeks they were (7) “so caught up with your own problems that you were not able to show or tell your child that you loved him/her,” coded dichotomously (0 = *never*, 1 = *one or more times*). For data reduction, items 1 and 4 were added for a Combined Conflict score, items 3 and 6 were added for a Combined Verbal Aggression score, and items 5 and 7 were added for a Combined Neglect score.

To consider participants’ differing Covid-19 experience, *personal Covid-19 experience* was measured with two questions: “I know someone who has contracted Coronavirus/Covid-19” (0 = *no*, 1 = *yes*) and “Are you currently engaging in ‘social isolation’ (e.g., isolating yourself because you have or suspect you have Coronavirus-Covid-19)?” (0 = *no*, 1 = *yes*). *Sociodemographic variables* included age (continuous), sex (0 = *male*, 1 = *female*), and education (measured as a series of dummy variables: *high school education or less* [comparison], *some college*, and *college degree or higher*).

Data Analytic Plan—Data were cleaned and descriptively analyzed in Stata version 15.1. Logistic regression analyses were conducted in Mplus 8 using the maximum likelihood estimator and Monte Carlo integration (1,000 iterations), which provided odds ratio (OR) coefficients for perceived pandemic-related changes in spanking/hitting, Combined Conflict, Combined Verbal Aggression, and Combined Neglect scores. Missing data in regression analyses were handled using full-information maximum likelihood (FIML) estimation, which uses all available data.

Results

Descriptive Findings for Covid-19 Perceived Parenting Changes—In this sample, 20.3% of parents indicated increased use of discipline; 5.3% reported they spanked or hit more than usual; 24.9% indicated yelling/screaming more; 30.7% indicated they had more conflicts with their children; 4.9% indicated they had to leave their children alone more; 12.6% indicated they used harsh words toward their children more often; and 26.7% indicated they had engaged in emotional neglect. See Supplemental Table 1 for Study 1 means, standard deviations, and correlations. Further, 28.5% reported that they knew

someone who had contracted the virus and 9.4% indicated they had quarantined because of suspected exposure to Covid-19.

Stress, Loneliness and Pandemic Perceived Parenting Changes—Logistic regression results appear in Table 1. Overall, financial concerns, loneliness, and worries were related to increased odds of parents reporting perceived changes in parenting. For example, financial concerns doubled the odds of verbal aggression; loneliness was associated with a 176% increase in the odds of neglecting their children; worries were associated with a 178% increase in the odds of more conflict and a 148% increase in the odds of hitting their children more often.

Study 2

Method

Participants and Procedures—This sample included mothers enrolled in a prospective longitudinal study in the Southeast U.S., the “Following First Families (Triple-F)” Study, monitoring the evolution of parent-child aggression risk and oversampling for families with one or more sociodemographic risks (i.e., 150% of the federal poverty line, receipt of federal assistance, high school education, single parenthood, age 18). Mothers and their partners were recruited during the last trimester of mothers’ first pregnancy for the three-wave Triple-F Study. The Triple-F Study assessed parents timed to specific periods aligned to their child’s age: prenatal, 6 months, and 18 months. After the study closed, the Triple-F Study was extended (Time 4) to re-assess parents in an in-person session, with measures delivered electronically on laptop computers; 119 mothers were located, timed to when their focal child was between 4 and 4½ years old. For the current study, mothers were contacted to participate in an online (via Qualtrics) time-limited fifth wave (Time 5) during the early phase of the pandemic (April 20–May 31, 2020), with 106 responding to the Covid-19 wave during the prescribed 6-week window (89.6% of those who had participated in Time 4). At Time 5, children would have been between 5 and 6½ years old.

With regard to mothers’ race at Time 5, 60.4% of mothers identified as White, 36.8% as African-American, 1.9% as Asian, and .9% as Native American; of these, 4.7% also identified as Hispanic/Latina and 5.7% as biracial. In terms of mothers’ educational level: 15.7% high school; 22.5% some college; 28.4% college degree; 33.3% > college degree. During Time 5, 40.6% of the sample were mothers who had been recruited because they were considered at-risk; 83% indicated they were currently living with a partner or spouse. Mothers’ responses during this pandemic wave were compared to pre-pandemic responses from Time 4, during which 25% reported an annual household income below \$30,000 and over 50% reported an annual combined household income below \$60,000. All study procedures for both time points were approved by the university’s Institutional Review Board.

Measures—The *CTSPC* (Straus et al., 1998) was administered at Time 4 and Time 5. One of the most widely used measures to assess parental discipline use and maltreatment, parents report the frequency with which they employ 22 discipline strategies on three subscales, with physical and psychological aggression of principal interest for this investigation. The

Physical Assault subscale comprises 13 items whereas the Psychological Aggression subscale consists of five items. Each CTSPC item is weighted to contribute to their total subscale scores. Parents reporting use of a tactic 0, 1, or 2 times in the past year receive those corresponding weights; 3–5 times is weighted 4; 6–10 times is weighted 8; 11–20 times is weighted 15; and more than 20 times is weighted 25. The test authors provide evidence of construct and discriminant validity.

The *Adult-Adolescent Parenting Inventory-2* (AAPI-2; Bavolek & Keene, 2001), administered at Time 4 and Time 5, is a measure of child abuse risk, including 40 items selected to differentiate maltreating from non-maltreating parents. Respondents indicate their level of agreement to each item on a 5-point Likert scale, from 1 (*strongly agree*) to 5 (*strongly disagree*), with items summed to create a total score wherein higher scores indicate greater abuse risk. The AAPI-2 demonstrates reliability and validity (Conners et al., 2006), and attained good internal consistency for mothers in the current study at Time 4 ($\alpha = .90$) and Time 5 ($\alpha = .93$).

The *Brief Child Abuse Potential Inventory* (BCAPI; Ondersma et al., 2005) was administered at Time 5 only for research goals 2 and 3. An abbreviated version of the full 160-item CAPI (Milner, 1986), a well-known measure of child abuse risk, the BCAPE consists of 34 *Agree/Disagree* items, 25 of which contribute to an Abuse Scale score. The test authors report good reliability and concurrent validity, and the Abuse Scale score demonstrated good reliability in the current sample ($\alpha = .89$). In addition to the Abuse Scale score, we extracted four items (e.g., “I am often lonely inside”) to create a Loneliness Index relevant for this study ($\alpha = .91$).

Questions consistent with those from Study 1 pertaining to *Covid-19 pandemic-related perceived changes in parenting* were posed at Time 5. Mothers indicated how much they agreed, on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with each of the following “since the corona-virus/Covid-19 global health crisis began”: (1) “I have spanked or hit my child more often than usual”; (2) “I have yelled at/screamed at my child more often than usual”; (3) “I have had more conflicts with my child more often than usual”; (4) “I have had to leave my child alone more often than usual”; (5) “I have used harsh words toward my child more often than usual”; (6) “I have not been able to make sure my child got the food they needed;” and (7) “I have been so caught up with my problems, I have not been able to show or tell my child that I loved them.” A Combined Neglect score was computed by adding responses to items 4, 6, and 7 and a summary Combined Verbal Aggression score was created by adding items 2 and 5.

To estimate the financial impact of the pandemic, mothers reported whether they or their partner had experienced a change in employment due to the pandemic (previously unemployed, laid-off/furloughed, reduced hours, working from home, or no change). *Employment loss* was dichotomized as no financial change (either unemployed pre-pandemic, no change, or working from home) versus employment loss indicative of financial impact (laid off or reduced hours). To evaluate *food insecurity* concerns, mothers also indicated whether their children had received meals at childcare or school paid for by the government (Yes/No) before the pandemic.

Data Analytic Plan—Preliminary analyses were conducted with SPSS 25. To evaluate missing data patterns between time points, t-tests or χ^2 analyses were conducted. These analyses indicated that those who participated in Time 4 but not in Time 5, compared to those who participated in both, were more likely to be members of minority groups (53.8% in Time 4 v. 43.4% in Time 5, $\chi^2 = 10.36, p = .001$), lower income, $t(117) = 4.04, p = .001$, and have lower educational attainment, $t(117) = 3.85, p = .001$. Although participants in Time 4 but not Time 5 averaged higher scores on their Time 4 CTSPC subscale scores, these differences were not significantly different ($p > .05$); but mothers not participating in Time 5 had higher Time 4 AAPI-2 Total scores, $t(117) = 2.63, p = .001$. These differences are not unexpected as the online format required internet access and computers, a format which several mothers indicated they could not accommodate given the pandemic (e.g., libraries and Wi-Fi sites closed). Together, this pattern suggests that the current Time 5 sample represents lower risk than the Triple-F Study as a whole; thus findings may reflect conservative estimates of the impact of the pandemic on abuse risk.

For RG2, bivariate correlations ascertained concurrent relations between parents' perceived pandemic-related changes in parenting and abuse risk, as well as with the Loneliness Index for RG3. Also for RG3, t-tests were performed to evaluate whether employment loss and food insecurity were associated with pandemic-related changes in parenting or abuse risk.

For RGs 4 and 5 (Supplemental Figure 1), regressions were conducted in Mplus 8.1, with missing data accommodated with full-information maximum likelihood methods; all models were justified and thus demonstrate perfect fit. For RG4, three separate regressions predicted Time 5 AAPI-2, CTSPC Physical Assault, and Psychological Aggression from their respective Time 4 scores controlling for pre-pandemic income, with estimated marginal means calculated at each time point. For RG5, these three regression models were repeated but included the corresponding perceived pandemic-related changes in parenting: AAPI-2 and CTSPC Physical Assault models each with pandemic-related perceived increase in spanking/hitting and CTSPC Psychological Aggression with the pandemic-related Combined Verbal Aggression score.

Results

Descriptive Findings for Covid-19 Perceived Parenting Changes—In this sample, only 3% of mothers indicated they were hitting more often (either “agree” or “strongly agree”), but 33.3% reported more yelling, 34.9% reported more conflict, and 11.9% reported speaking more harshly. In terms of supervision, 7.5% reported leaving their children alone more often, 1.8% reported more difficulty feeding their children, and 1.8% reported showing less love toward their child since the pandemic began. Means and standard deviations for each of these items along with the Combined Verbal Aggression and Combined Neglect scores appear in Table 2.

Concurrent Findings—For RG2, several significant associations were identified between Time 5 abuse risk and perceived pandemic-related changes in parenting (see Table 2). The BCAPI Abuse Scale, AAPI-2, and CTSPC Physical Assault Scale scores were significantly related to mothers' perceptions of increased spanking or hitting their children. Mothers who

reported more yelling toward their children (and more overall verbal aggression) during the pandemic also had significantly higher CTSPC Psychological Aggression and BCAPi Abuse Scale scores. Mothers' higher BCAPi Abuse Scale scores were significantly related to higher scores across all Covid-19 perceived changes in parenting scores with the exception of speaking more harshly. Higher Covid-19 Combined Neglect scores were significantly related to the AAPI-2, CTSPC Psychological Aggression, as well the BCAPi Abuse Scale. Collectively, these findings with the AAPI-2, BCAPi, and CTSPC indicate abuse risk is significantly related to mothers' perceptions on the Covid-19 parenting questions in expected patterns.

Turning to risk factors relevant to the Covid-19 pandemic for RG3, 38.6% reported pandemic-related employment financial loss (either laid off/furloughed or reduced work hours) for themselves or their partner. Mothers reporting household employment loss attained significantly higher AAPI-2 Total scores and significantly higher BCAPi Abuse Scale scores than those with no employment loss in their household, $t(104) = 3.10, p = .002$ and $t(104) = 2.01, p = .04$, respectively. Mothers with more household employment loss also reported marginally higher CTSPC Physical Assault scores, $t(104) = 1.88, p = .06$, than mothers with no loss in household employment. Otherwise, Time 5 CTSPC Psychological Aggression scores and reports of perceived more spanking, conflict, verbal aggression or neglect since the pandemic were comparable between employment groups.

Mothers who indicated their children had received meals at school pre-pandemic (24.5%) perceived more difficulty in feeding their children, $t(104) = 3.19, p = .002$, more conflict with their children, $t(104) = 2.10, p = .038$, and marginally more spanking, $t(104) = 1.90, p = .06$, as well as higher child abuse risk on the AAPI-2, $t(104) = 3.48, p = .001$, since the pandemic began. Mothers in families who received free school meals pre-pandemic, relative to those who did not, did not significantly differ on CTSPC scores nor did they perceive themselves as yelling more often, using more verbal aggression, or engaging in more emotional or supervisory neglect.

With regard to mothers' loneliness, mothers with higher BCAPi Loneliness Index scores did not attain significantly higher Time 5 AAPI-2 Total or CTSPC subscale scores (see Table 2). However, their BCAPi Loneliness Index scores were significantly positively correlated with their *perceptions* of spanking and yelling at their children more, experiencing more conflict, as well as engaging in more neglect during the pandemic—underscoring the link between parents' feelings of loneliness and their *perceptions* of changes in their parenting behavior.

Time 4–Time 5 Findings—For RG4, controlling for pre-pandemic income, mothers' AAPI-2 scores increased from Time 4 (pre-pandemic) to Time 5 ($\beta = .70, p = .001$), with an estimated marginal mean of 97.20 ($SD = 21.32$) at Time 5 compared to 91.78 ($SD = 21.41$) at Time 4. In addition, mothers' CTSPC Psychological Aggression significantly increased ($\beta = .74, p = .001$), controlling for pre-pandemic income, with an estimated marginal mean of 20.41 ($SD = 17.04$) at Time 5 relative to a Time 4 marginal mean of 15.38 ($SD = 16.94$). However, although Time 5 CTSPC Physical Assault scores were significantly related to Time 4 scores ($\beta = .52, p = .001$), controlling for income, Time 5 marginal means were

lower at 7.09 ($SD = 9.52$) than their pre-pandemic Time 4 marginal mean of 10.26 ($SD = 14.46$).

For RG5, controlling for Time 4 AAPI-2 scores and pre-pandemic income, mothers' AAPI-2 scores at Time 5 were significantly related to their perceptions of pandemic-related increases in hitting/spanking ($\beta = .22, p < .001$). Similarly, controlling for Time 4 scores and income, Time 5 CTSPC Physical Assault were significantly related to their perceptions of pandemic-related increases in hitting/spanking ($\beta = .19, p = .027$). Finally, controlling for Time 4 scores and income, Time 5 Psychological Aggression scores were also significantly related to their pandemic-related perception of increased Combined Verbal Aggression ($\beta = .19, p = .008$).

Discussion

The present investigation utilized data from two studies assessing parents' perceptions of changes in parenting during the pandemic, including physical and verbal aggression and neglect. Both studies indicated parents perceived increases in their conflict with their children during the pandemic, including more yelling. In the second study, mothers' perceptions of engaging in physical and verbal aggression, as well as neglectful behavior, were concurrently associated with child abuse risk. Mothers in the second study who experienced household employment financial loss were more likely to attain higher child abuse risk scores, findings that parallel the observed association between greater financial concern with perceived increased adverse pandemic-related parenting in the first study. Mothers in the second study whose children had previously received meals at school were more likely to perceive greater difficulty feeding their children during the pandemic and report more conflict with their children. Both studies demonstrated that parents who experienced more loneliness also perceived more adverse change in their parenting, even though loneliness was not otherwise concurrently associated with child abuse risk in the second study. Finally, relative to pre-pandemic levels, mothers in the second study reported significant increases in child abuse risk and psychological aggression, but not physical aggression. Mothers' increased abuse risk and physical aggression over time was related to their perceptions of pandemic-related increased hitting during the pandemic, and their increased psychological aggression was related to their perceptions of pandemic-related increased verbal aggression.

Consistent with ecological theory on the exosystem effects of economic strain on child maltreatment (Frioux et al., 2014; Slack et al., 2011), current findings indicate that parents who perceived they were engaging in more parent-child physical and verbal conflict and neglect reported more financial concerns (Study 1). This finding was corroborated by the observation that mothers in Study 2 who experienced financial loss from household employment disruption reported higher abuse risk, but only marginal effects on their increased physical aggression, and no effects on their neglect, were observed. This pattern of results suggests the objective marker of employment disruption may not exert as strong an effect on perceived adverse parenting as the subjective perception of financial duress. In Study 2, mothers who reported children had received school meals before the pandemic reported more difficulty feeding their children, in addition to perceiving more general

parent-child conflict and increased abuse risk (on the AAPI-2). Such findings support prior evidence linking food insecurity with child maltreatment (Helton et al., 2019), and suggest that access to school meals can serve as a needed exosystem level resource to minimize maltreatment. With an uncertain trajectory ahead for the resolution of the pandemic, parents' ability to meet their children's needs may be compromised if economic pressures mount.

Both studies echo prior research implicating the role of social support versus isolation as an exosystem level risk factor in child maltreatment risk (Freisthler et al., 2014; Rodriguez et al., 2018). Parents in the first study reported increases in adverse parenting attributable to their loneliness, and this effect was mirrored in the second study wherein greater loneliness was associated with their perceived pandemic-related adverse parenting—yet not with their child abuse risk (as measured by either the AAPI-2 or CTSPC). These findings suggest that parents' perceived loneliness related to their pandemic-related parenting independent from an overall elevated child abuse risk, highlighting the importance of *perceptions* of loneliness in adverse parenting behavior. Disentangling the sources behind such loneliness would be useful to identify if such experiences derive from insufficient partner support or reduced access to relatives or extrafamilial supports during the pandemic. Furthermore, given that parents' personal worries in the first study were associated with pandemic-related changes in parenting, the potential for loneliness to exacerbate underlying mental health challenges is particularly concerning. Because of the increased seclusion accompanying the Covid-19 pandemic, these findings underscore the need to innovate mechanisms to mitigate the loneliness some parents may be experiencing.

Finally, in Study 2, parents' perceptions of adverse changes in their parenting, including both physical and verbal aggression and neglect, were significantly related to their concurrent child abuse risk. These findings may reflect the increased time parents are spending with children during the pandemic, wherein abuse risk tends to rise with more frequent physical discipline encounters (Afifi et al., 2017; Zolotor et al., 2008). Study 2 also demonstrated that mothers' child abuse risk and psychological aggression indeed increased relative to their pre-pandemic levels; mothers' who *perceived* that they were engaging in more hitting or verbal aggression were in fact more likely to evidence actual increases in abuse risk, physical, or psychological aggression. However, mothers as a whole reported decreased physical aggression relative to their pre-pandemic levels. This latter finding on physical aggression aligns with the low percentage (5%) endorsing the explicit question about increased hitting during the pandemic in both studies. Parents appeared more willing to report increased psychological aggression during the pandemic, potentially due to social desirability concerns that lead to underreporting for physical aggression (e.g., Meinck et al., 2016). Given the practical limitations posed by the pandemic (e.g., reduced internet access; housing instability complicating our ability to locate mothers who were dislocated because of the pandemic), parents in the second study represented a lower risk group relative to those previously participating in person in the Triple-F Study. Based on the risks identified from the current two studies, parents with higher child abuse risk seem considerably more likely to have reported dramatic changes in their parenting and abuse risk during the pandemic. Collectively, the findings from the second study may in fact reflect conservative estimates of increased maltreatment risk during the pandemic.

Limitations and Future Directions—Despite the benefit of utilizing two separate studies, some limitations are notable in the current investigation. Both studies used parent-report of their parent-child conflict, which would be subject to underreporting due to social desirability biases (Meinck et al., 2016); nonetheless, the pandemic conditions complicate the ability to obtain potentially objective indicators or official reports (Jonson-Reid et al., 2020). The second longitudinal study also did not assess the full range of neglect captured on the CTSPC, reducing the ability to judge change in neglect over time; these items were omitted given the low frequency with which parents endorse them (e.g., neglect due to substance use or medical neglect). The current findings did not examine sexual abuse, which may also increase during the pandemic. Thus, additional research on the impact of the pandemic on child neglect and sexual abuse is needed. Further research is also warranted on the role of other ecological factors in increasing abuse risk during the pandemic, including ontogenic factors such as pre-existing mental health problems, microsystem level factors such as couple conflict, other exosystem factors such as housing structure, and macrosystem factors, such as cultural acceptance of government guidelines pertaining to the pandemic. Apart from risk factors, researchers should also identify potential resources parents may access to mitigate their child abuse risk during periods of turmoil. Future research should also consider how positive parenting may have also increased during the pandemic (Lee et al., 2020) relative to parents' pre-pandemic levels given that lower child abuse risk is linked to more positive child outcomes (Rodriguez & Eden, 2008), with positive parenting leading to fewer child behavioral problems (Pinquart, 2017).

Children who are at home for such extended times—with less structure and fewer social interactions than attending school provides—may experience difficulties that further challenge parents during the pandemic. When parents perceive their children as engaging in more problem behavior, their likelihood of physical child abuse risk increases (Miragoli et al., 2018; Rodriguez, 2018). Thus, children's rising problem behaviors while confined at home in the pandemic may coincide with parents' rising stress levels to create an atmosphere that cultivates the conditions for maltreatment. Future research should incorporate assessments of changes in children's behavior, ideally with cross-lagged models that include children's pre-pandemic functioning.

Although the cross-sectional nature of the first study is balanced by the longitudinal nature of the second study, only the first study included fathers; continued work studying the impact of Covid-19 for families as a whole is needed. Whereas the second study demonstrates considerable racial diversity, those participating in the pandemic wave were less diverse relative to the original study, and the first study demonstrated less diversity. Our findings suggest that even with these potentially lower risk samples, the Covid-19 pandemic is undermining parenting. Thus, creative strategies are needed to circumvent the challenges of relying on computers and the internet for research during such times of crisis. Larger samples would also provide an opportunity to replicate the current findings and ideally tackle more nuanced research questions like interaction effects. For example, future research should expressly consider how pre-existing racial and ethnic disparities intersected with the challenges introduced by the pandemic to differentially impact families of color given that Covid-19 has wielded a disproportionate adverse impact for families from marginalized

groups (e.g., Artiga et al., 2020). Finally, given that both studies were conducted shortly after the pandemic began, continued longitudinal work is needed to consider how at-risk parenting and abuse risk are unfolding as the pandemic persists to identify potential differential trajectories for parents who may adapt and accommodate over time versus those families that may deteriorate.

Implications and Recommendations—The Covid-19 crisis has exposed multiple ways in which the American social safety net is ill-prepared to meet the needs of children, especially during a pandemic. The Centers for Disease Control and Prevention has underscored how economic insecurity and poverty are substantive contributors to maltreatment, providing concrete, macrosystem level policy recommendations on reducing child abuse and neglect (Fortson et al., 2016). Beyond economic policy, even before the Covid-19 pandemic, there was a recognized need to reform the child welfare system to better respond to the needs of families and re-orient to preventing child maltreatment before it occurs. The current system’s reactive approach principally responds to the most serious cases of maltreatment, with limited prevention efforts within the child welfare system (Klika et al., 2018). In an era when state and local budgets are constrained, policy-makers should weigh that intervention is costly whereas prevention can provide an exponential return on investment (WHO, 2014).

A public health-oriented proactive stance could be more responsive to families’ needs in the face of emerging crises (Higgins, Lonne, et al., 2019), wherein maltreatment prevention and intervention occurs at multiple levels and oriented toward multiple targets. Such an approach is more suited to the complex etiology underlying child maltreatment—namely that maltreatment transpires through an intricate web of factors. A well-integrated system of parenting support would entail services implemented through the child welfare system in partnership with existing exosystem level systems (e.g., primary health care/integrated care settings; mental health clinics; home visitation programs; public schools, preschools, child care centers; churches; community organizations), providing multiple points of contact and potential intervention opportunities to reach parents and children. Each of these settings could adopt routine, inexpensive standardized screening procedures to more efficiently identify risk status to better align families with the intensity of services needed, even during emergencies (Higgins, Sanders et al., 2019).

Primary prevention oriented toward the general public could involve a campaign to educate the public and achieve macrosystem level shifts in public perceptions by altering norms about the acceptability of behaviors. Public education campaigns could be designed to advance community recognition of child maltreatment (Fortson et al., 2016; Herrenkohl & Klika, 2019). Although uncommon in the U.S., such strategies can be useful for building a public policy agenda about child maltreatment as well as destigmatizing the receipt of services for parenting issues. A range of cost-effective communication strategies (e.g., through mass media, social media, and marketing campaigns) can “reframe the way people think and talk about child abuse and neglect and who is responsible for preventing it” (Fortson et al., 2016, p. 18) in order to move the discussion toward collective ownership of proactive solutions.

At a more proximal ecological level, systems of care have adapted to the pandemic through greater use of telehealth to provide families access to care despite social distancing guidelines. Telehealth was already being implemented in many health care settings, and Covid-19 accelerated its adoption (Moreno et al., 2020). A variety of technological options are available to deliver mental health services to children, such as videoconferencing (Boydell et al., 2014), albeit constrained by the Digital Divide which could exacerbate existing disparities. Although telehealth tools are now critical, how technology can best be adapted to protect children residing in homes where they are exposed to maltreatment during the pandemic is a complex challenge. The pandemic requires adopting creative, potentially individually tailored solutions to ensure the confidentiality and safety of their young and vulnerable clients. One key lesson from the pandemic is the need for innovation in reaching children and families, both in terms of providing services and intervention to families as well as assessing and measuring exposure to violence. Adapting telehealth strategies and smartphone apps for children (e.g., adapting the myPlan app—designed for safety planning for partner violence) is one economical outreach strategy. Further, other tools could be used to reach parents at risk. For example, researchers have used a unique Twitter identifier/hashtag to distribute evidence-based information about sexual abuse, which was found to be effective in engaging in sensitive conversations (Wekerle et al., 2018). Other studies have examined anonymous Reddit groups related to parenting, observing that parents disclose both positive and negative parenting behaviors in anonymous formats (Ammari et al., 2018). Although we are unaware of any psychoeducation using Twitter, Reddit or Facebook specifically related to child maltreatment, these formats could be modified to reach parents and to disseminate evidence-based information about child maltreatment prevention.

At a proximal ecological level, implementing trauma-informed programs and services in school settings (Herrenkohl et al., 2019) is another avenue wherein psychologists can assist children after the Covid-19 pandemic. These programs fit well within a public health-oriented framework because they can be delivered at the individual, group, or school level. A review of the existing literature on trauma-informed school-based services identified a number of models can have positive effects on child wellbeing, such as reducing mental health problems and improving child behavior problems in the school setting (Herrenkohl et al., 2019).

With the Covid-19 pandemic contributing to social conditions that created a perfect storm for risk of child maltreatment, and fewer adults available to surveil children's safety, children are poised to be hidden victims of Covid-19. Children are more isolated, and their abuse thus hidden from sight, in ways that will be difficult for researchers to discover. Researchers must expand beyond traditional research methods (cf. Wall et al., 2018), such as gathering data on child maltreatment through crowdsourcing, media reports, Twitter, and Facebook (Schwab-Reese et al., 2018; Wall et al., 2018). Epidemiological data may provide insight into how the pandemic influenced children, for example, by analyzing hospital and emergency room visits preceding, during, and after the Covid-19 period (cf. Rumball-Smith et al., 2018). But notable complications limit such data. Hospital and emergency room visit data capture only serious maltreatment incidents. Further, hospitals experienced declines in non-Covid-19 related visits while prioritizing Covid-19 cases; thus parents may seek medical care from other sources or not at all. Child homicide and mortality data may signal a

rise in maltreatment during Covid-19. Given that other adults such as teachers and mental health providers are unavailable to adequately monitor children, parents may remain the best source of data. Although subject to self-report biases, parent did self-report greater use of discipline, more conflict, and greater use of yelling/screaming in the current investigation. Researchers may need to inquire with children directly, using confidential technological innovations to ask children about their exposure to violence using tablet-based applications in clinical settings (e.g., hospitals, primary/integrated care settings) as well as software designed for children (Wall et al., 2018). Such approaches may be crucial to provide a glimpse into the Covid-19 experience of children in the post-Covid-19 era.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported in part by award number R15HD071431 from the National Institute of Child Health and Human Development to the first author.

References

- Afifi TO, Mota N, Sareen J, & MacMillan HL (2017). The relationships between harsh physical punishment and child maltreatment in childhood and intimate partner violence in adulthood. *BMC Public Health*, 17, 493–593. [PubMed: 28535755]
- Ammari T, Schoenebeck SY, & Romero D (2018). Pseudonymous parenting: Comparing parenting roles and identities on the Mommit and Daddit subreddits. In Proceedings of the ACM conference on human factors in computing systems. <https://dl.acm.org/doi/10.1145/3173574.3174063>
- Artiga S, Garfield R, & Orgera K (2020, 4 7). Communities of color at higher risk for health and economic challenges due to Covid-19. Kaiser Family Foundation. <https://www.kff.org/disparities-policy/issue-brief/communities-of-color-at-higher-risk-for-health-and-economic-challenges-due-to-covid-19/>
- Bavolek SJ, & Keene RG (2001). Adult-Adolescent Parenting Inventory (AAPI-2): Administration and development handbook. Family Development Resources, Inc.
- Begle AM, Dumas JE, & Hanson RF (2010). Predicting child abuse potential: An empirical investigation of two theoretical frameworks. *Journal of Clinical Child & Adolescent Psychology*, 39, 208–219. [PubMed: 20390812]
- Belsky J (1980). Child maltreatment: An ecological integration. *American Psychologist*, 35, 320–335.
- Belsky J (1993). Etiology of child maltreatment: A developmental-ecological analysis. *Psychological Bulletin*, 114, 413–434. [PubMed: 8272464]
- Berger RP, Fromkin JB, Stutz H, Makoroff K, Scribano PV, Feldman K, Tu LC, & Fabio A (2011). Abusive head trauma during a time of increased unemployment: A multicenter analysis. *Pediatrics*, 128, 637–643. [PubMed: 21930535]
- Boydell KM, Hodgins M, Pignatiello A, Teshima J, Edwards H, & Willis D (2014). Using technology to deliver mental health services to children and youth: A scoping review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 23, 87–99. [PubMed: 24872824]
- Brooks-Gunn J, Schneider W, & Waldfogel J (2013). The great recession and the risk for child maltreatment. *Child Abuse & Neglect*, 37, 721–729. [PubMed: 24045057]

- Conners NA, Whiteside-Mansell L, Deere D, Ledet T, & Edwards MC (2006). Measuring the potential for child maltreatment: The reliability and validity of the Adult Adolescent Parenting Inventory-2. *Child Abuse & Neglect*, 30, 39–53. [PubMed: 16406026]
- Conrad A, Paschall KW, & Johnson V (2019). Persistent economic insecurity and harsh parenting: A latent transition analysis. *Children and Youth Services Review*, 101, 12–22.
- Da Silva C (2020, 3 22). Texas hospital child abuse cases rise in Covid-19 outbreak: “It’s hard to think that it’s just coincidental”. *Newsweek*. <https://www.newsweek.com/texas-hospital-child-abuse-cases-rise-covid-19-outbreak-1493642>
- Douglas PK, Douglas DB, Harrigan DC, & Douglas KM (2009). Preparing for pandemic influenza and its aftermath: Mental health issues considered. *International Journal of Emergency Mental Health*, 11, 137–144. [PubMed: 20437844]
- Durrant JE, Trocmé N, Fallon B, Milne C, & Black T (2009). Protection of children from physical maltreatment in Canada: An evaluation of the Supreme Court’s definition. *Journal of Aggression, Maltreatment & Trauma*, 18, 64–87.
- Fortson BL, Klevens J, Merrick MT, Gilbert LK, & Alexander SP (2016). Preventing child abuse and neglect: A technical package for policy, norm, and programmatic activities. Centers for Disease Control and Prevention. <https://www.cdc.gov/violenceprevention/pdf/CAN-Prevention-Technical-Package.pdf>
- Freisthler B, Johnson-Motoyama M, & Kepple NJ (2014). Inadequate child supervision: The role of alcohol outlet density, parent drinking behaviors, and social support. *Children and Youth Services Review*, 43, 75–84. [PubMed: 25061256]
- Frioux S, Wood JN, Fakeye O, Luan X, Localio R, & Rubin DM (2014). Longitudinal association of county-level economic indicators and child maltreatment incidents. *Maternal Child Health*, 18, 2202–2208.
- Gershoff ET, & Grogan-Kaylor A (2016). Spanking and child outcomes: Old controversies and new meta-analyses. *Journal of Family Psychology*, 30, 453–469. [PubMed: 27055181]
- Helton JJ, Jackson DB, Boutwell BB, & Vaughn MG (2019). Household food insecurity and parent-to-child aggression. *Child Maltreatment*, 24, 213–221. [PubMed: 31094579]
- Herrenkohl TI, Hong S, & Verbrugge B (2019). Trauma-informed programs based in schools: Linking concepts to practices and assessing the evidence. *American Journal of Community Psychology*, 64, 373–388. [PubMed: 31355976]
- Herrenkohl TI, & Kilka JB (2019). Intersecting forms of child victimization and public health prevention. In Lonne B, Scott D, Higgins D, & Herrenkohl TI (Eds.), *Re-visioning public health approaches for protecting children* (pp. 97–112). Springer Nature.
- Higgins DJ, Lonne B, Herrenkohl TI, & Scott D (2019). The success and limitations of contemporary approaches in child protection. In Lonne B, Scott D, Higgins D, & Herrenkohl TI (Eds.), *Re-visioning public health approaches for protecting children* (pp. 3–17). Springer Nature.
- Higgins DJ, Sanders M, Lonne B, & Richardson D (2019). Families-private and sacred: How to raise the curtain and implement family support from a public health perspective. In Lonne B, Scott D, Higgins D, & Herrenkohl TI (Eds.), *Re-visioning public health approaches for protecting children* (pp. 127–143). Springer Nature.
- Jonson-Reid M, Drake B, Cobetto C, & Ocampo MG (2020, 4 14). Child abuse prevention month in the context of Covid-19. Washington University Center for Innovation in Child Maltreatment Policy, Research and Training. <https://cicm.wustl.edu/child-abuse-prevention-month-in-the-context-of-covid-19/>
- Keenan HT, Marshall SW, Nocera MA, & Runyan DH (2004). Increased incidence of inflicted traumatic brain injury after a natural disaster. *American Journal of Preventative Medicine*, 26, 189–193.
- Klika JB, Lee S, & Lee JY (2018). Prevention of child maltreatment. In Klika JB & Conte JR (Eds.), *The APSAC Handbook on Child Maltreatment*. Fourth *Edition* (pp. 235–251). Sage Publications.
- Kochnar R (2020, 6 11). Unemployment rose higher in three months of Covid-19 than it did in two years of the Great Recession. <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/>

- Lambert L (2020, 5 28). Over 40 million Americans have filed for unemployment during the pandemic —Real jobless rate over 23. 9%. *Fortune*. <https://fortune.com/2020/05/28/us-unemployment-rate-numbers-claims-this-week-total-job-losses-may-28-2020-benefits-claims-job-losses/>
- Leaman L, Hennrikus W, & Nasreddine AY (2017). An evaluation of seasonal variation of nonaccidental fractures in children less than 1 year of age. *Clinical Pediatrics*, 56, 1345–1349. [PubMed: 28135879]
- Lee SJ, Grogan-Kaylor A, & Berger LM (2014). Parental spanking of 1-year-old children and subsequent child protective services involvement. *Child Abuse & Neglect*, 38, 875–883. [PubMed: 24602690]
- Lee SJ, & Ward KP (2020). Mental health, relationships, and coping during the coronavirus pandemic [Research brief]. <https://bit.ly/2O84btj>
- Lee SJ, Ward KP, Chang OD, & Downing KD (2020). Parenting activities and the transition to home-based education during the COVID-19 pandemic. *Children and Youth Services Review*. 105585. 10.1016/j.childyouth.2020.105585 [PubMed: 33071407]
- Meinck F, Steinert JI, Sethi D, Gilbert R, Bellis MA, Mikton C, Alink L, & Baban A (2016). Measuring and monitoring national prevalence of child maltreatment: A practical handbook. World Health Organization.
- Milner JS (1986). *The Child Abuse Potential Inventory: Manual* (2nd ed.). Psyctec.
- Milner JS (1994). Assessing physical child abuse risk: The Child Abuse Potential Inventory. *Clinical Psychology Review*, 14, 547–583.
- Miragoli S, Balzarotti S, Camisasca E, & Di Blasio P (2018). Parents' perception of child behavior, parenting stress, and child abuse potential: Individual and partner influences. *Child Abuse & Neglect*, 84, 146–156. [PubMed: 30099228]
- Moreno C, Wykes T, Galderisi S, Nordentoft M, Crossly N, Jones N, Cannon M, Correll CU, Byrne L, Carr S, Chen EH, Gorwood P, Johnson S, Kärkkäinen H, Krystal JH, Lee J, Lieberman J, López-Jaramillo C, Männikkö M, ... Arango C (2020). How mental health care should change as a consequence of the Covid-19 pandemic. *Lancet*. 10.1016/S2215-0366(20)30307-2
- Murray JS (2010). A collaborative approach to meeting the psychosocial needs of children during an influenza pandemic. *Journal for Specialists in Pediatric Nursing*, 15, 135–143. [PubMed: 20367783]
- Ondersma SJ, Chaffin MJ, Mullins SM, & LeBreton JM (2005). A brief form of the child abuse potential inventory: Development and validation. *Journal of Clinical Child and Adolescent Psychology*, 34, 301–311. [PubMed: 15901230]
- Parke RD, Coltrane S, Duffy S, Buriel R, Dennis J, Powers J, French S, & Widaman KF (2004). Economic stress, parenting, and child adjustment in Mexican American and European American families. *Child Development*, 75, 1632–1656. [PubMed: 15566370]
- Pinquart M (2017). Association of parenting dimensions and styles with externalizing problems of children and adolescents. An updated meta-analysis. *Developmental Psychology*, 53, 873–932. [PubMed: 28459276]
- Rodriguez CM (2018). Predicting parent-child aggression risk: Cognitive factors and their interaction with anger. *Journal of Interpersonal Violence*, 33, 359–378. [PubMed: 26872504]
- Rodriguez CM, & Eden A (2008). Disciplinary style and child abuse: Association with indicators of positive functioning in children with behavior problems. *Child Psychiatry & Human Development*, 39, 123–136. [PubMed: 17701341]
- Rodriguez CM, Silvia PJ, & Pu DF (2018). Predictors of change in mothers' and fathers' parent-child aggression risk. *Child Abuse & Neglect*, 86, 247–256. [PubMed: 30388708]
- Rodriguez CM, & Tucker MC (2015). Predicting physical child abuse risk beyond mental distress and social support: Additive role of cognitive processes. *Journal of Child & Family Studies*, 24, 1780–1790.
- Rumball-Smith J, Fromkin J, Rosenthal B, Shane D, Skrbin J, Bimber T, & Berger RP (2018). Implementation of routine electronic health record-based child abuse screening in General Emergency Departments. *Child Abuse & Neglect*, 85, 58–67. [PubMed: 30170921]
- Schwab-Reese LM, Hovdestad W, Tonmyr L, & Fluke J (2018). The potential use of social media and other internet-related data and communications for child maltreatment surveillance and

- epidemiological research: Scoping review and recommendations. *Child Abuse & Neglect*, 85, 187–201. [PubMed: 29366596]
- Seddighi H, Salmani I, Javadi MH, & Seddighi S (2019). Child abuse in natural disasters and conflicts: A systematic review. *Trauma, Violence, & Abuse*. Advance online publication. 10.1177/1524838019835973
- Sedlak AJ, Mettenburg J, Basena M, Petta I, McPherson K, Green A, & Li S (2010). Fourth National Incidence Study of Child Abuse and Neglect (NIS-4): Report to Congress, Executive Summary. http://www.acf.hhs.gov/sites/default/files/opre/nis4_report_congress_full_pdf_jan2010.pdf
- Shelley EC (2018). Economic stress in fragile families: Pathways to parent and child maladjustment. *Journal of Child and Family Studies*, 27, 3877–3886.
- Slack KS, Berger LM, DuMont K, Yang M, Kim B, Ehrhard-Dietzel S, & Holl JL (2011). Risk and protective factors for child neglect during early childhood: A cross-study comparison. *Children and Youth Services Review*, 33, 1354–1363.
- Smith Slep AM, & O’Leary SG (2007). Multivariate models of mothers’ and fathers’ aggression toward their children. *Journal of Consulting and Clinical Psychology*, 75, 739–751. [PubMed: 17907856]
- Stewart N (2020, 6 9). Child abuse cases drop 51 percent. The authorities are very worried. *New York Times*. <https://www.nytimes.com/2020/06/09/nyregion/coronavirus-nyc-child-abuse.html>
- Stith SM, Liu T, Davies LC, Boykin EL, Alder MC, Harris JM, Som A, McPherson M, & Dees JEMEG (2009). Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggression and Violent Behavior*, 14, 13–29.
- Straus MA, Hamby SL, Finkelhor D, Moore DW, & Runyan D (1998). Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse & Neglect*, 22, 249–270. [PubMed: 9589178]
- Tucker MC, Rodriguez CM, & Baker LR (2017). Personal and couple level risk factors: Maternal and paternal parent-child aggression risk. *Child Abuse & Neglect*, 69, 213–222. [PubMed: 28482253]
- U.S. Department of Health and Human Services. (2020). Child maltreatment, 2018. <https://www.acf.hhs.gov/cb/resource/child-maltreatment-2018>
- Wall MA, Jenney A, & Walsh M (2018). Conducting evaluation research with children exposed to violence: How technological innovations in methodologies and data collection may enhance the process. *Child Abuse & Neglect*, 85, 202–208. [PubMed: 29366597]
- Wekerle C, Vakili N, Stewart SH, & Black T (2018). The utility of Twitter as a tool for increasing reach of research on sexual violence. *Child Abuse & Neglect*, 85, 220–228. [PubMed: 29778296]
- Wildeman C, Emanuel N, Leventhal JM, Putnam-Hornstein E, Waldfogel J, & Lee H (2014). The prevalence of confirmed maltreatment among US children, 2004-2011. *JAMA Pediatrics*, 168, 706–713. [PubMed: 24887073]
- Woodall C (2020, 5 13). As hospitals see more severe child abuse injuries during coronavirus, ‘the worst is yet to come’. *USA Today*. <https://www.usatoday.com/story/news/nation/2020/05/13/hospitals-seeing-more-severe-child-abuse-injuries-during-coronavirus/3116395001/>
- World Health Organization. (2014). Global Status report on violence prevention, 2014. http://www.who.int/violence_injury_prevention/violence/status_report/2014/en/
- Yang M (2015). The effect of material hardship on child protective service involvement. *Child Abuse & Neglect*, 41, 113–125. [PubMed: 24908518]
- Zolotor AJ, Theodore AD, Chang JJ, Berkoff MC, & Runyan DK (2008). Speak softly—and forget the stick: Corporal punishment and child physical abuse. *American Journal of Preventative Medicine*, 35, 364–369.

Table 1. Study 1 Logistic Regression Results of Pandemic-Related Parenting Stress and Loneliness With Perceived Changes in Parenting.

	Combined Conflict	Spank/Ht More	Combined Verbal Aggression	Combined Neglect
<i>Financial Concerns</i>	1.97 (.23)***	1.60 (.36) [†]	2.00 (.25)***	2.17 (.27)***
Age	1.02 (.02)	0.93 (.04) [†]	1.02 (.02)	0.98 (.02)
Sex	1.35 (.35)	0.68 (.38)	1.65 (.50)	0.93 (.27)
Some college	1.28 (.45)	1.02 (.87)	2.31 (1.01)	0.80 (.30)
College plus	1.15 (.45)	0.95 (.14)	2.50 (1.20)	1.67 (.69)
Income	1.10 (.07)	0.95 (.14)	1.01 (.07)	0.93 (.07)
Know someone with Covid-19	1.20 (.30)	2.61 (1.34)	1.36 (.37)	0.83 (.23)
Isolating due to Covid-19	1.39 (.53)	0.86 (.70)	1.27 (.54)	1.67 (.67)
<i>Loneliness</i>	2.69 (.42)***	1.93 (.49) [†]	2.15 (.32)***	2.76 (.43)***
Age	1.04 (.02)*	0.94 (.04)	1.03 (.02) [†]	1.00 (.02)
Sex	1.34 (.36)	0.65 (.37)	1.59 (.48)	0.79 (.30)
Some college	1.22 (.44)	1.12 (.96)	2.37 (1.04)	0.79 (.30)
College plus	1.00 (.41)	1.86 (1.69)	2.40 (1.16)	1.53 (.65)
Income	1.04 (.07)	0.92 (.14)	0.93 (.07)	0.86 (.06)*
Know Someone with Covid-19	1.29 (.32)	2.72 (1.40)	1.46 (.39)	0.87 (.24)
Isolating due to Covid-19	1.18 (.47)	0.90 (.72)	1.14 (.48)	1.56 (.62)
<i>Worries</i>	2.78 (.40)***	2.48 (.67)*	2.67 (.40)***	3.21 (.51)***
Age	1.04 (.02)*	0.95 (.04)	1.03 (.02) [†]	0.99 (.02)
Sex	1.37 (.37)	0.61 (.35)	1.62 (.49)	0.92 (.28)
Some college	1.13 (.42)	0.86 (.74)	2.27 (1.03)	0.72 (.29)
College plus	1.06 (.44)	1.73 (1.58)	2.65 (1.31)	1.81 (.81)
Income	1.06 (.07)	0.93 (.14)	0.95 (.07)	0.87 (.07)*
Know Someone with Covid-19	1.32 (.33)	3.20 (1.74)	1.52 (.42)	0.91 (.26)
Isolating due to Covid-19	1.00 (.41)	0.69 (.56)	0.92 (.41)	1.20 (.51)

Note. Logistic regression for pandemic-related stressors interfering with parenting (financial concerns, worries, and loneliness) with age, sex, educational level, household income, knowing someone with Covid-19, and personal isolation/quarantine due to Covid-19. Combined conflict = Covid-19 perceived increased discipline + conflict; Combined Verbal aggression = Covid-19 perceived increased yelling/screaming + using harsh words; Combined Neglect = Covid-19 perceived increased supervisory + emotional neglect. Odds-ratio coefficients are shown with standard errors in parentheses. Income

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

categories: 1 = \$10–20k, 2 = \$20–30k, 3 = \$30–40k, 4 = \$40–50k, 5 = \$50–70k, 6 = \$70–90k, 7 = \$90k or more. Comparison category for education was “high school degree or less”; sex was coded 0 = male, 1 = female.

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 2. Study 2 Means, Standard Deviations, and Correlations for Time 4 and Time 5 Measures.

	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Time4</i>																	
1. AAPI-2	87.95 (21.51)		.27*	.31***													
2. CTSPC-Psych	15.22 (15.33)	.06		.68***	.35***	.16											
3. CTSPC-Physical	9.29 (13.60)	.23*	.52***		.42***	.31**	.48***										
<i>Time5</i>																	
4. AAPI-2	94.77 (21.67)	.79*	.27*	.31***													
5. CTSPC-Psych	20.35 (16.02)	.19	.68***	.35***	.16												
6. CTSPC-Physical	6.75 (9.23)	.29**	.50***	.42***	.31**	.48***											
7. BCAP1Abuse	3.92 (4.55)	.38***	.08	.07	.38***	.11	.25**										
8. BCAP1Lonely	0.64 (1.30)	.13	-.05	-.02	.08	.03	.13	.82***									
9. Covid-Spank	1.65 (.85)	.36***	.31**	.06	.44***	.28**	.22*	.44***	.25**								
10. Covid-Yell	2.56 (1.23)	-.00	.29**	-.03	.14	.31**	.16	.39***	.34***	.44***							
11. Covid-Conflict	2.66 (1.22)	.14	.18	-.02	-.02	.29**	.11	.26**	.23*	.36***	.65***						
12. Covid-Superv	1.60 (.95)	.28*	.15	-.04	.27**	.20*	.15	.29**	.19*	.56***	.30**	.32***					
13. Covid-Harsh	1.81 (1.05)	-.09	.10	-.07	-.03	.26**	-.01	.16	.09	.47***	.46***	.53***	.49***				
14. Covid-Food	1.22 (.62)	.22*	.09	-.00	.27**	.24*	.15	.42***	.31**	.54***	.22*	.19*	.47***	.32***			
15. Covid-EmoNeg	1.25 (.63)	.25*	.15	-.05	.17	.16	-.04	.39***	.28**	.57***	.18	.30**	.56***	.42***	.50***		
16. Covid-VerbAggr	4.38 (1.95)	-.06	.24*	-.06	.07	.33***	.10	.34***	.26**	.53***	.88***	.69***	.45***	.83***	.30**	.34***	
17. Covid-CombNeg	4.07 (1.82)	.30**	.15	-.04	.29**	.24*	.12	.43***	.30**	.67***	.29**	.33***	.88***	.51***	.76***	.81***	.46***

Note. 1, 4 = Adult-Adolescent Parenting Inventory-2; 2, 5 = Parent-Child Conflict Tactics Scale (CTSPC), Psychological Aggression; 3, 6 = CTSPC Physical Assault Scale; 7 = Brief Child Abuse Potential (BCAP1) Abuse Scale; 8 = BCAP1 Loneliness Index; 9 = Covid-19 perceived increase spanking/hitting; 10 = Covid-19 perceived increase yelling; 11 = Covid-19 perceived increase conflict; 12 = Covid-19 perceived increase in less supervision; 13 = Covid-19 perceived increase harsh interactions; 14 = Covid-19 perceived increase difficulty feeding children; 15 = Covid-19 perceived increase emotional neglect; 16 = Covid-19 Verbal Aggression combined score; 17 = Covid-19 Combined Neglect score.

* *p* .05

** *p* .01

.100' *d*

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript