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Child Externalizing and Internalizing Behavior and Parental Well-Being During the COVID-19 Pandemic

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Abstract

In this study we surveyed families' experiences with parental depression, stress, relationship conflict, and child behavioral issues during six months of the COVID-19 pandemic through the COVID-19: Global Social Trust and Mental Health Study. The current analyses used data collected from online surveys completed by adults in 66 countries from 17 April 2020–13 July 2020 (Wave I), followed by surveys six months later at Wave II (17 October 2020–31 January 2021). Analyses were limited to 175 adult parents who reported living with at least one child under 18 years old at Wave I. Parents reported on children's level of externalizing and internalizing behavior at Wave I. At Wave II, parents completed self-reported measures of stress, depression, and inter-partner conflict. Child externalizing behavior at Wave I significantly predicted higher levels of parental stress at Wave II, controlling for covariates. Child internalizing behavior at Wave I did not predict parental stress or depression, controlling for covariates. Neither child externalizing nor internalizing behavior predicted parental relationship conflict. The overall findings demonstrate that child behavior likely influenced parental stress during the COVID-19 pandemic. Findings suggest that mental health interventions for children and parents may improve the family system during times of disaster.

Background

Introduction

COVID-19, also known as SARS-CoV-2, was declared a global pandemic in March of 2020 by the World Health Organization (World Health Organization [WHO], 2020). As of July 2021, there were more than 194 million reported COVID-19 cases, and more than 4 million deaths (WHO, 2021). Attempting to slow down the rapid growth of this highly contagious, novel coronavirus, many countries across the globe imposed movement restriction or lockdowns. Although these strategies were implemented to mitigate COVID-19 transmissions, these lockdowns may have had unintended negative consequences, particularly for families with children. During the pandemic many families throughout the world experienced the closure of schools and childcare agencies, were forced to adapt to distance learning, faced social isolation, were unable to receive educational and social services, and experienced financial strain (Chen et al., 2021). **The pandemic also fundamentally changed many families' daily environments, in many cases restricting access to normal places of work, education, and recreation.** Preliminary research has shown that parents were particularly negatively impacted by the pandemic, with one study finding that 46% of United States parents reported high stress levels related to the pandemic compared with 28% of adults without children (American Psychological Association [APA], 2020). Caregivers also reported heightened stress and increased caregiver demands related to COVID-19 (Park et al., 2020). Similarly, children experienced high rates of mental health problems including anxiety, depression, sleep issues, and post-traumatic stress disorder (PTSD) during the pandemic (Ford et al., 2021; Imran et al., 2020; Liu et al., 2020).

Relationships between family members may also have been affected by the pandemic. Researchers and practitioners have raised serious concerns about the potential impact of the

pandemic on intimate partner violence (IPV; Buttell & Ferreira, 2020; Evans et al., 2020), with some locations experiencing increases in domestic violence calls since the start of the pandemic (Agüero, 2021; Leslie & Wilson, 2020). Limited research has shown that parental mental health during the pandemic was linked to child-parent conflict (Russell et al., 2020). Given the hypothesized effects of the COVID-19 pandemic on family relationships, the goal of the current study is to examine relationships between child externalizing (observable aggressive, hyperactive, and sometimes delinquent behavior that is harmful to others; Liu, 2004) and internalizing behavior (self-directed emotions, such as worry, fear and sadness; Zahn-Waxler et al., 2000) and parental adjustment during the COVID-19 pandemic. Specifically, we examine whether child behavior predicted parental depression, stress, and inter-partner relationship conflict.

Transactional Models of Parent-Child Behavior

The current study is informed by transactional models of parent-child behavior (Belsky, 1984; Dodge & Pettit, 2003; Patterson, Reid, & Dishion, 1992). These models recognize that parent effects on children and child effects on parents are not independent; instead, parents and children affect each other's behavior bidirectionally (Belsky, 1984; Dodge & Pettit, 2003; Patterson et al.,1992). Difficult child behavior and temperament may elicit negative parental behavior, including poor parenting and child maltreatment, which adversely influences the child's future behavior (Belsky, 1980).

Although transactional models argue that parent-child effects are bidirectional, researchers have pointed out that many studies continue to assume and examine only parent-driven effects on child behavior rather than child-driven effects on parental mental health (Jackson & Beaver, 2015; Lansford et al., 2018; Mackler et al., 2015; Teti et al., 1996; Yan et al.,

2021). Despite this, there is a growing body of research showing that child behavior influences parental well-being outcomes, including family and marital conflict. Several studies have found that parents of children with adjustment issues, including infant colic and adolescent externalizing problems, were more likely to consider themselves ineffective parents and have negative perceptions of their marriages (Schulz et al., 2019; Serbin et al., 2015; Stifter et al., 2003; Yan et al., 2021). Other studies have shown that the disruptive behavior of infants, children, and adolescents predicted long-term familial and marital conflicts (Cherry et al., 2019; Cui et al., 2007). In addition, child behavior problems have been found to predict parental stress (Huth-Bocks & Hughes, 2008; Mackler et al., 2015; Stone et al., 2016). Child externalizing and internalizing behaviors are also positively associated with parental depressive and internalizing symptoms (Gross et al., 2008; Hughes & Gullone, 2010). Conversely, children's typical development has been linked to a decrease in parental stress and depression (Chung et al., 2020; Pesonen et al., 2008). Together, existing research suggests that child externalizing and internalizing behavior likely impacts the quality of marital relationships, as well as parental depression and stress. However, limited research has examined the effects of child behavior in the context of disasters, periods during which child and parent behavior and mental health problems may be exacerbated.

Effects of Disasters on Child Behavior, Family Functioning, and Parental Well-Being

Transactional effects of parent-child behavior (also called reciprocal effects) are particularly relevant in the context of the COVID-19 pandemic given the impact of the pandemic on both child and parent adjustment. Rates of severe depression among parents during the COVID-19 pandemic were found to be over two-times higher than before the pandemic (Feinberg et al., 2021). Children's internalizing and externalizing behaviors have also increased

compared with pre-pandemic levels (Feinberg et al., 2021). Researchers have suggested that the COVID-19 pandemic has also impacted family systems, including reciprocal parent-child relationships, though this has yet to be fully examined (Prime et al., 2020). Among the existing limited research during the COVID-19 pandemic, in a cross-sectional study of Singaporean families with children, higher parental stress was associated with harsh parenting and less parent-child closeness (Chung et al., 2020). A longitudinal study of families within the United States found that financial difficulties were linked to decreases in parenting quality during the pandemic in families with children (Feinberg et al., 2021). In a study of Japanese children, stay-at-home orders that required children to attend school remotely were associated with increases in parental stress, likely due to parents taking on more responsibilities or being unable to find childcare arrangements (Hiraoka & Tomoda, 2020). In a cross-sectional study of Italian families with children, higher levels of parental stress during the pandemic predicted less parental involvement with children, less concern for children's well-being, and less time spent with children (Spinelli et al., 2020). These studies suggest that family systems were impacted by the pandemic, though existing research has not yet fully examined the impact of child behavior on later parental adjustment during the COVID-19 pandemic.

Current Study

The current study examines relationships between child behavior, parental depression, parental COVID-related stress, and parental relationship conflict during the COVID-19 pandemic using survey data collected between 17 April 2020–13 July 2020 and 17 October 2020–31 January 2021. We aim to address the following research question: Does child externalizing and internalizing behavior predict subsequent parental depression, stress, and relationship conflict? We hypothesize that parents of children with higher levels of internalizing

and externalizing behavior problems at baseline will experience increases in depression, stress, and relationship conflict six months later.

Methods

Participants and Procedures

Data were collected as part of the COVID-19: Global Social Trust and Mental Health Study (Wong & Raine, 2020). This study examines the short-and longer-term effects of COVID-19 on people's mental health, physical health and social trust in others. This study involved three online surveys (baseline, six-month follow-up, and 12-month follow-up), which were 20–30 minutes long. The first set of surveys were completed from 17 April 2020–13 July 2020 (Wave I), followed by surveys six months later at Wave II (17 October 2020–31 January 2021) and Wave III (17 April 2021–31 July 2021). Participants aged 18 years and older were recruited through convenience sampling. The study link was available in seven languages and distributed through various social media channels and personal contacts. To account for order effects, all participants completed the same questions in a random order about their living situations, relationships, mental health, and for parents, additional questions about their children's mental health and behavior.

The current analyses use data from Waves I and Waves II (data repository DOI:10.5522/04/16583861). A total of 2,254 participants from 66 countries completed the Wave I survey and 1,164 participants completed the Wave II survey. Analyses for the current paper were limited to the 175 participants who reported living with one or more children under age 18 years at Wave I and who reported on children's internalizing and externalizing problems using Goodman's (1997) Strengths and Difficulties Questionnaire (see below) about at least one child ages 4–18 years. **93 of these 175 participants participated in Wave II. A participant flow**

diagram can be found in Figure 1. At Wave I, included participants had a mean age of 43.45 years (*SD* = 6.90) and were 80% female. 78.9% reported being married. 83.4% of the sample had a bachelor's degree or higher and 91.38% of the sample was either working or a student. **Among these participants, 42.9% lived in the United Kingdom, 22.3% lived in Greece, 8.6% lived in the United States, and the remaining 26.2% were distributed across 24 countries. A complete list of countries can be found in Supplemental Table 1.**

Measures

Strengths and Difficulties Questionnaire. At Wave I, parents of children ages 4–18 years completed the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ assesses positive and negative psychological attributes in children. The current study used the parent-reported questionnaire, which consists of 25 items divided into one positive attribute subscale (prosocial behavior) and four negative attribute subscales further defined as internalizing problems (emotional symptoms, peer problems) and externalizing problems (conduct problems, hyperactivity/inattention). Relevant items were summed to create SDQ subscales. Parents were asked to complete the SDQ separately for each of their children (up to a maximum of 5 children). For the current analyses, we used data from a focal child with the highest level of total behavior problems.

Patient Health Questionnaire. Parents completed the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) at Waves I and II. The PHQ-9 is a nine-item well-validated self-report measure of depressive symptoms over the last two weeks, which when summed created a total depression score.

Stress Level. At Waves I and II, participants were asked whether they had experienced a series of 26 stressors related to the COVID-19 pandemic. For each stressor endorsed, participants

were asked to report the level of stress caused by the stressor ranging from 0 ("relaxed") to 4 ("a lot of stress"). Stressors that were not endorsed were given a stress level of 0. Stress levels were summed across the 26 stressors to create a total stress level score. **We used the stress level score, rather than sum of the total number of stressors experienced, as individuals may vary in the extent to which they consider a particular stressor to be problematic.**

Relationship Conflict. Participants who reported being married, in a civil partnership, cohabitating, or in a relationship (but not cohabitating) at Wave II completed the Marital Coping Inventory-Conflict Scale (Bowman, 1990). Participants were asked to think about problems with their partner in the past six months and report how they dealt with those problems. Participants reported on 15 items reflecting marital conflict (e.g., "yelled or shouted at my partner;" "picked fights with my partner over small issues"). Participants rated each item on a 5-point Likert scale ranging from 1 ("Never") to 5 ("Usually"). This questionnaire was added to the study in Wave II and was not available in Wave I. Analyses involving relationship conflict were limited to the 163 participants who reported living with a child under age 18 years at Wave I and reported being in a relationship at Wave II.

Demographic Covariates. We controlled for parents' age, focal child sex (0 = male; 1 = female), and focal child age group (early childhood [4–8 years]; middle childhood [9–12 years]; and adolescence [13–18 years]; dummy coded with early childhood as the reference category) in all analyses.

Statistical Analyses

We first calculated descriptive statistics by sex and age group and performed bivariate correlations between continuous variables using IBM SPSS Statistics Version 26. We used independent samples *t*-tests to test for sex differences in study variables and one-way ANOVA to

test for differences by age group. **We also used independent samples *t*-tests and chi-squared tests to test for differences between participants who did not participate in Wave II and those that participated in both waves.** We then conducted a series of regression analyses predicting Wave II parental depression, stress levels, and relationship conflict using *Mplus Version 8*. Child scores on the SDQ subscales were entered as predictors along with demographic covariates. We controlled for Wave I parental depression and stress (relationship conflict data was not available at Wave I) in their respective regression models in order to determine whether child behavior predicted a change in parental mental health outcomes from Wave I to Wave II. Missing data in regression analyses were handled using full information maximum likelihood.

Results

Descriptive Statistics and Bivariate Correlations

Participants who dropped out at Wave II did not differ from those that participated in both waves in terms of Wave I parental depression ($t = 0.30$, $df = 173$, $p = 0.76$), Wave I parental stress level ($t = -1.78$, $df = 171$, $p = 0.077$), Wave I child externalizing behavior ($t = -0.71$, $df = 173$, $p = 0.48$), Wave I child internalizing behavior ($t = 0.11$, $df = 173$, $p = 0.91$), or Wave I child age group ($X^2 = 4.06$, $df = 2$, $p = 0.13$). Parents who participated in both waves were older at Wave I ($M = 44.41$ years, $SD = 6.91$) than those who only participated in Wave I ($M = 42.35$ years, $SD = 6.76$; $t = -1.98$, $df = 173$, $p = 0.049$). Descriptive statistics for the full sample and by child sex are shown in Table 1. Boys had higher levels of externalizing behavior than girls ($t = 2.84$, $\mathbf{p = 0.005}$). All other sex differences were non-significant **($p > 0.05$).** Descriptive statistics by child age group are shown in Table 2. Children in middle childhood (9–12 years) had the highest level of internalizing behavior problems ($F = 4.06$, $\mathbf{p =}$

0.019). Parents of young children had the highest levels of depression at both Wave I ($F = 3.51$, $\boldsymbol{p = 0.032}$) and Wave II ($F = 3.86$, $\boldsymbol{p = 0.025}$).

Bivariate correlations are shown in Table 3. Wave I child externalizing behavior was significantly associated with Wave I **($\boldsymbol{r = 0.32, p < 0.001}$)** and Wave II parental depression **($\boldsymbol{r = 0.35, p = 0.001}$)**. Child externalizing behavior was also significantly associated with Wave I **($\boldsymbol{r = 0.20, p = 0.008}$)** and Wave II parental stress **($\boldsymbol{r = 0.35, p = 0.002}$)**. Wave I child internalizing behavior was significantly associated with parental depression at Wave I **($\boldsymbol{r = 0.27, p < 0.001}$)** and Wave II **($\boldsymbol{r = 0.23, p = 0.041}$)**. Child internalizing behavior was not associated with parental stress at Wave I **($\boldsymbol{r = 0.11, p = 0.16}$) or Wave II ($\boldsymbol{r = 0.18, p = 0.12}$)**. Wave II relationship conflict was not significantly associated with child externalizing **($\boldsymbol{r = 0.01, p = 0.95}$)** or child internalizing behavior **($\boldsymbol{r = -0.05, p = 0.66}$)**. Wave II relationship conflict was significantly associated with Wave I parental depression **($\boldsymbol{r = 0.26, p = 0.029}$)** and Wave II parental depression **($\boldsymbol{r = 0.31, p = 0.009}$)**. Similarly, Wave II relationship conflict was associated with parental stress at Wave I **($\boldsymbol{r = 0.27, p = 0.029}$)** and parental stress at Wave II **($\boldsymbol{r = 0.38, p = 0.002}$)**.

[Insert Table 1, Table 2, Table 3]

Predictors of Wave II Relationship, Parental Depression, and Stress Level

Results of OLS regression analyses are shown in Table 4. Child externalizing behavior was **not significantly associated with** Wave II parental depression, controlling for covariates ($B = 0.28$, $SE = 0.16$, $p = 0.08$). Child internalizing behavior did not significantly predict Wave II parental depression ($B = 0.12$, $SE = 0.13$, $p = 0.38$). Child externalizing behavior ($B = 0.68$, $SE = 0.31$, $p = 0.025$), but not child internalizing behavior ($B = 0.25$, $SE = 0.009$, $p = 0.93$), significantly predicted Wave II parental stress. Neither child externalizing ($B = 0.13$, $SE = 0.39$,

$p = 0.74$) nor child internalizing behavior ($B = -0.17$, $SE = 0.31$, $p = 0.58$) predicted Wave II relationship conflict.

[Insert Table 4]

Discussion

The goal of the current two-timepoint study was to determine whether child behavior during the COVID-19 pandemic predicted subsequent parental depression, stress, and relationship conflict. We found that higher levels of child externalizing behavior predicted an increase in parental stress six months later. Contrary to expectations, child internalizing behavior did not significantly predict parental stress or depression. Neither child externalizing nor internalizing behavior were associated with parental relationship conflict. Findings for externalizing behavior and parental stress are consistent with transactional models of parent-child behavior, which argue that child behavior influences later parental behavior. Importantly, data from the current study were collected during the COVID-19 pandemic, a period during which parental stress and child behavior problems may have been heightened **given the major changes in the broader environment**, providing unique insights into the effects of child behavior on parental adjustment**.**

While the COVID-19 pandemic and subsequent lockdowns are novel, prior research has examined the effects of natural and manmade disasters on children and parents. Like COVID-19, economic recessions and natural disasters often create uncertainty and stress, especially for families. For example, research into families who experienced Hurricane Sandy showed that pre-hurricane child depression predicted elevated post-hurricane maternal depression (Hausman et al., 2020), suggesting that child psychopathology can influence parental mental health in times of disaster. Parental psychopathology has also been found to impact children during times of

disaster. Children whose mothers had symptoms of PTSD and depression due to the September 11 attacks had higher behavior problems when compared with their peers whose mothers did not experience 9/11-related psychopathology (Chemtob et al., 2010). After the Boston Marathon bombings, Boston adolescents' externalizing problems increased (Crum et al., 2017), suggesting that disasters can directly impact children's maladaptive behavior. Families who are exposed to traumatic disaster events, like Hurricane Katrina, have reported mental health issues at a rate twice as high as families who were not disaster-exposed (Scaramella et al., 2008). Financial strain can also impact disaster-exposed families by increasing parents' feelings of ineffective parenting and depression (Mash & Johnston, 1983; Scaramella et al., 2008). Unsurprisingly, children also feel the effects of disasters and can display PTSD at higher rates than their unexposed counterparts (Kelley et al., 2010). Together with the current findings, this research highlights the importance of considering the joint effects of disasters on parents and their children.

Although these prior disasters shared characteristics of the COVID-19 pandemic in that they involved uncertainty, often had long-lasting impacts, and many involved fatalities, they differed from the current pandemic in key ways. In particular, pandemic responses involve isolation and separation from others, rather than the coming together of victims which occurs in most other disaster situations (Sprang & Silman, 2013). Additionally, the period of uncertainty and isolation was prolonged in the current pandemic as compared to many other disasters. Limited prior research has shown that pandemic responses may have mental health effects on parents and children. One study found that children and parents in the United States who experienced isolation or quarantine during the H1N1 pandemic reported higher levels of PTSD and that children of

parents who had clinically significant levels of PTSD were more likely to have clinically significant levels of PTSD themselves (Sprang & Silman, 2013). Along with the current findings, these results suggest that parents and children may display similar levels of negative mental health outcomes during periods of pandemic-related isolation. This is potentially consistent with a transactional model, though causal effects of parent-child behavior are difficult to establish. Although research into prior pandemics is informative, the current COVID-19 pandemic differs from other pandemics in its global scale, widespread lockdowns and changes in daily environments, and death and illness toll. This makes research into the effects of the current pandemic on families novel and important for planning responses to future pandemics.

Results were partly consistently with transactional models of parent child behavior. Child externalizing behavior was associated with increases in parental stress, suggesting that child behavior may have affected parental well-being, a key argument of transactional models. This research contributes to the growing body of **transactional** research demonstrating child effects on parental behavior and mental health. A recent meta-analysis found that child externalizing behavior had a small, but significant relationship with later parental psychological distress, controlling for baseline parental functioning (Yan et al., 2021). The effect size for child-driven effects on parents did not significantly differ from parent-driven effects on child externalizing behavior, illustrating the importance of considering the effects of children on their parents (Yan et al., 2021).

Contrary to our expectations, child internalizing behavior was not associated with parental COVID-related stress or depression in this study. This is inconsistent with prior research which found that child internalizing behavior predicted higher levels of parental internalizing

behavior, including depression (Gross et al., 2008; Hughes & Gullone, 2010). **This finding is also inconsistent with transactional models which would predict that child internalizing behavior would lead to changes in parental stress and depression.** Although we cannot draw firm conclusions about the cause of this inconsistency, it is possible that in the context of the COVID-19 pandemic, child externalizing behavior problems were more stressful for parents than were internalizing problems, as externalizing problems may have been more observable to parents during periods of social isolation. Internalizing problems may also have been viewed by parents to be more normative given the stressful and distressing nature of the pandemic. **Alternatively, null findings may have been the result of the small sample size. We should note that although child internalizing behavior did not predict Wave II parental depression controlling for Wave I parental depression, child internalizing behavior was significantly associated with parental depression at Waves I and II in the bivariate analysis. It could be the case that the bivariate relationship between child internalizing behavior and parental depression in the current study was driven by shared familial, environmental, or genetic influences. As many studies do not control for prior levels of parental behavior, they may overestimate the relationship between child internalizing behavior and later parental depression.**

Also contrary to our initial hypotheses, neither child externalizing nor internalizing behavior were associated with parent's relationship conflict. This could be attributable to the relationship conflict measure used in the current study, which measured general relationship conflict, but not child-rearing conflict specifically. Prior research found that marital conflict over child rearing in particular is linked to adolescent behavior problems and marital dissatisfaction (Cui et al., 2007). There may also be important moderators of the relationship between child

behavior and relationship conflict that were not assessed in the current study. For example, children adopting a mediator role may be associated with reductions in relationship conflict (Schermerhorn et al., 2007). It has also been suggested that children may develop behavior problems to distract parents from their own conflicts (Emery, 1982), which could explain the lack of relationship between marital conflict and child behavior in the current study. **It is also possible that parenting style could moderate this relationship.** Alternatively, marital conflict could have decreased as parents adapted to children's behavior issues in the first months of the pandemic, though we could not test for this, as we did not measure relationship conflict during Wave I. Nonetheless, several studies have found that marital conflict is positively associated with child behavior problems (Cui et al., 2007; Cummings et al., 2008; Schermerhorn et al., 2007; Tu et al., 2016). More research is needed in the context of the COVID-19 pandemic to better understand the null findings in the current study.

Limitations and Contributions

There are several limitations to the current study that should be noted. First, we were not able to test the full transactional model of parent-child behavior as complete child externalizing and internalizing behavior data were not collected during Wave II. Second, we could not determine whether child behavior predicted change in relationship conflict, as relationship conflict data was added in Wave II of this study. Third, we did not examine moderators in the current analyses due to the small sample size and limited statistical power. Moderators, including child sex, age, disability, and financial situation, will be important to assess in future research. Fourth, like many existing studies of families during COVID-19 (Chung et al., 2020; Feinberg et al., 2021; Hiraoka & Tomoda, 2020; Romero et al., 2020), the current study relied exclusively on parent reports of both child and parent behavior, which may result in reporter bias. **Fifth, the use**

of a convenience sample and the small number of participants from the larger study who met the inclusion criteria for the current study limits the generalizability of findings. The statistical power for the analyses was also limited, which may have contributed to some non-significant findings. Finally, we should note that this was a relatively educated sample and consisted primarily of married parents. This may have contributed to the null findings for child internalizing behavior and relationship conflict, as families may have had access to resources to help them cope with COVID-19-related problems. Relatedly, sampling bias may occur in COVID-19 studies, with families who have internet access being far more likely to participate (Romero et al., 2020).

These limitations should be viewed in light of several strengths of the current study. This study is one of few to examine child behavior in relation to parental adjustment during the COVID-19 pandemic. The COVID-19 pandemic provides a unique context in which to study these relationships, as many participants in the current study were under lockdown restrictions during Wave I and parts of Wave II. In addition, we controlled for baseline levels of parental depression and stress, allowing us to determine whether child behavior predicted changes in these parental outcomes. This was also important given that parents and children share environmental and genetic influences, leading to similarities in their behaviors (Jackson & Beaver, 2015). As a result, it is difficult to isolate child-driven from parent-driven effects without controlling for baseline parental adjustment (Yan et al., 2021). The current study also included a global sample, allowing us to draw broad conclusions about the effects of the pandemic on children and their parents. Data were also collected when many countries were experiencing periods of lockdown, providing unique insights into family dynamics during periods when many families experienced social isolation. The current study included both males and females across

developmental ages. Importantly, this is one of the only studies to examine the way in which child behavior impacted parental well-being during the COVID-19 pandemic.

The current findings could have implications for improving child and parent adjustment during future disasters, as well as policy responses during the ongoing COVID-19 pandemic. **Given the relationship between child and parent outcomes, findings suggest that policymakers should seriously weigh the potential for adverse outcomes for both parents and children when considering school and childcare facility closures. Providing financial support to parents facing employment or financial difficulties should also be prioritized. It is also important to find ways for parents and child to maintain social connections during the pandemic, such as by allowing outdoor gatherings when safe. Keeping parks and natural spaces open when possible may also help to reduce stress resulting from restrictions to families' daily environments.** Results also suggest that providing mental health and behavioral support for both children and parents may be more effective in improving mental health outcomes for parents and reducing levels of stress than providing support for parents alone. In addition, providing parents with coping strategies for dealing with child adjustment issues may help to reduce parental stress and depressive symptoms.

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Table 1. Descriptive Statistics for the Full Sample and by Child Sex

	Full Sample			Males			Females				
	N	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*t*	***p***
Wave 1 Variables											
Child Externalizing	175	6.14	3.69	99	6.85	3.68	74	5.27	3.54	2.84**	**0.005**
Child Internalizing	175	4.89	3.97	99	5.23	4.19	74	4.32	3.60	1.50	**0.14**
Parental Depression	175	6.22	5.11	99	6.14	4.74	74	6.16	5.49	-.027	**0.98**
Parental Stress Level	173	14.42	11.51	98	15.47	12.65	73	13.18	9.76	1.29	**0.20**
Parent Age (years)	175	43.45	6.90	99	44.22	7.01	74	42.56	6.61	1.58	**0.12**
Wave 2 Variables											
Parental Depression	81	6.09	5.59	47	6.11	5.52	33	5.55	4.99	.47	**0.64**
Parental Stress Level	79	14.91	10.45	46	15.61	10.93	32	13.66	9.85	.81	**0.42**
Marital Conflict	70	28.96	9.11	41	28.59	9.01	28	29.21	9.43	-.28	**0.78**

Note. Child externalizing and internalizing behavior were measured using the Strengths and Difficulties Questionnaire. Parental depression was measured using the Patient Health Questionnaire. Marital conflict was measured using the Marital Conflict Inventory. Independent samples *t*-tests were used to test for sex differences.

** $p < 0.01$.

Table 2. Descriptive Statistics by Child Age Group

	Young Children (4–8 years)			Middle Childhood (9–12 years)			Adolescents (13–18 years)				
	N	Mean	*SD*	*N*	Mean	*SD*	*N*	Mean	*SD*	*F*	***p***
Wave 1 Variables											
Child Externalizing	84	6.13	3.50	40	6.88	4.15	44	5.64	3.72	1.18	**0.31**
Child Internalizing	84	4.17	2.96	40	6.30	5.02	44	5.05	4.37	4.06*	**0.019**
Parental Depression	84	7.12	5.61	40	6.30	5.07	44	4.66	3.38	3.51*.	**0.032**
Parental Stress Level	84	15.86	12.36	39	13.08	10.92	43	13.53	10.69	1.01	**0.37**
Parent Age (Years)	84	39.37	4.56	40	44.59	5.89	44	49.51	6.00	54.59***	**< 0.001**
Wave 2 Variables											
Parental Depression	34	7.79	6.35	18	4.50	3.99	26	4.58	3.84	3.86*	**0.025**
Parental Stress Level	33	16.52	10.56	18	12.61	8.82	25	14.08	11.36	0.90	**0.41**
Marital Conflict	31	29.16	10.12	16	29.75	9.40	21	27.62	7.78	0.28	**0.76**

Note. Child externalizing and internalizing behavior were measured using the Strengths and Difficulties Questionnaire. Parental depression was measured using the Patient Health Questionnaire. Marital conflict was measured using the Marital Conflict Inventory. One-way ANOVA was used to test for differences between age groups.
* $p < 0.05$. *** $p < 0.001$.

Table 3. Bivariate Correlations

	1	2	3	4	5	6	7	8
1. Child Externalizing	—							
2. Child Internalizing	.47***	—						
	n = 175							
3. Wave 1 Parental Depression	.32***	.27***	—					
	n = 175	*n* = 175						
4. Wave 1 Parental Stress Level	.20**	.11	.50***	—				
	n = 173	*n* = 173	*n* = 173					
5. Parent Age (Years)	-.06	.03	-.29***	-.18*	—			
	n = 175	*n* = 175	*n* = 175	*n* = 173				
6. Wave 2 Parental Depression	.35**	.23*	.59***	.38**	-.19	—		
	n = 81	*n* = 81	*n* = 81	*n* = 79	*n* = 81			
7. Wave 2 Parental Stress Level	.35**	.18	.54***	.60**	-.16	.61***	—	
	n = 79	*n* = 79	*n* = 79	*n* = 78	*n* = 79	*n* = 79		
8. Wave 2 Marital Conflict	.01	-.05	.26*	.27*	-.02	.31**	.38**	—
	n = 70	*n* = 70	*n* = 70	*n* = 68	*n* = 70	*n* = 70	*n* = 68	

Note. Child externalizing and internalizing behavior were measured using the Strengths and Difficulties Questionnaire. Parental depression was measured using the Patient Health Questionnaire. Marital conflict was measured using the Marital Conflict Inventory.
* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

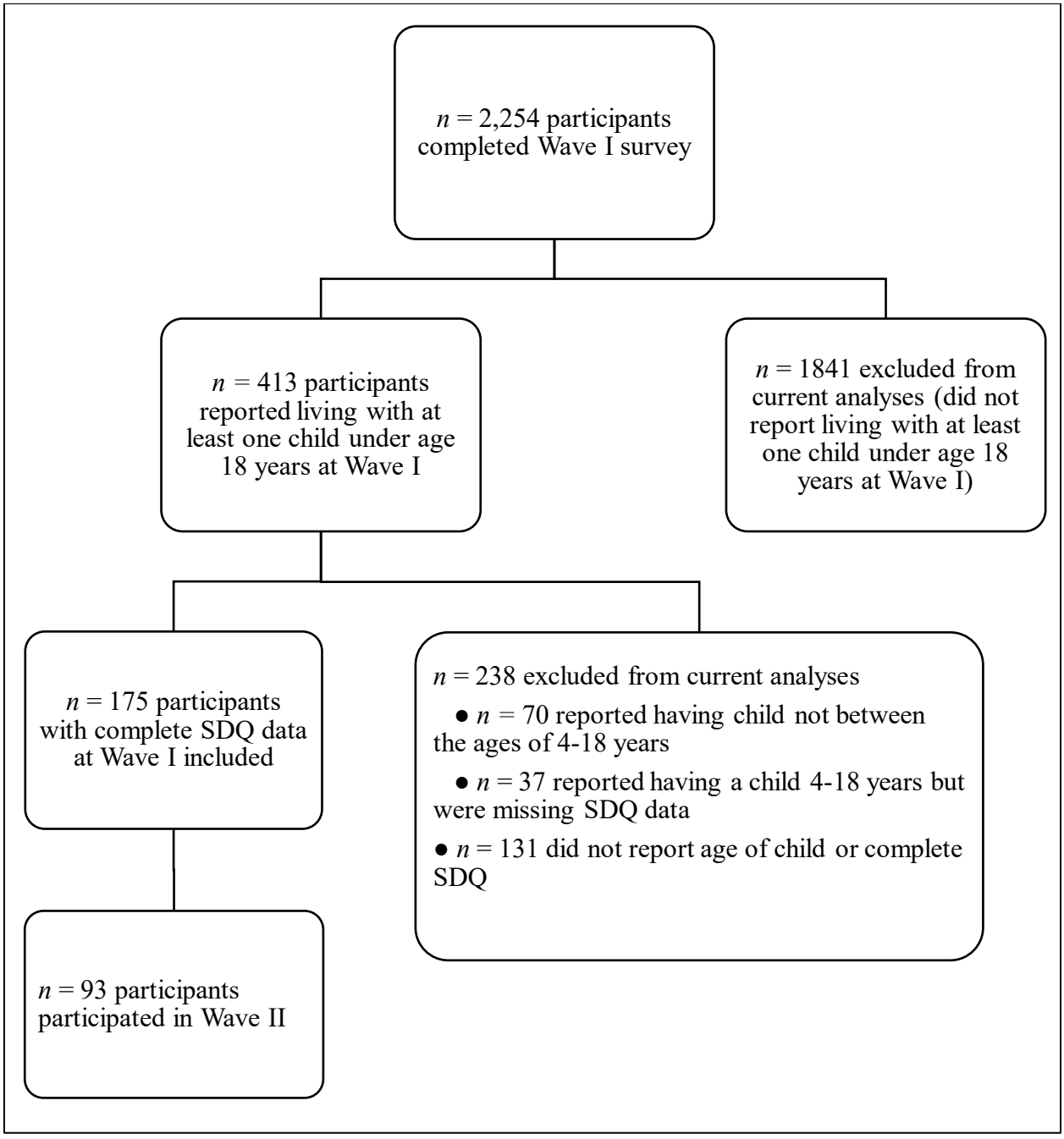
Table 4. OLS Regression Models

	Dep. Wave II Parental Depression				Dep. Wave II Parental Stress				Dep. Wave II Marital Conflict			
	B	*SE*	β	*p*	*B*	*SE*	β	*p*	*B*	*SE*	β	*p*
Child Externalizing	0.28	0.16	0.19	0.080	**0.68**	**0.31**	**0.24**	**0.025**	0.13	0.39	0.051	0.74
Child Internalizing	0.12	0.13	0.082	0.38	0.022	0.25	0.009	0.93	-0.17	0.31	-.074	0.58
Female Child	-0.62	1.12	-0.056	0.58	0.55	1.97	0.027	0.79	0.58	2.36	0.032	0.81
Middle Childhood	-2.43	1.47	-0.19	0.10	-0.22	2.59	-0.009	0.93	0.88	2.97	0.041	0.77
Adolescence	-2.20	1.45	-0.18	0.13	-0.11	2.70	-0.005	0.97	-1.40	3.05	-0.069	0.65
Parent Age	0.066	0.087	0.08	0.45	0.02	0.17	0.013	0.91	0.026	0.20	0.020	0.90
Wave I Parental Depression	**0.54**	**0.099**	**0.50**	**< 0.001**	—	—	—	—	—	—	—	—
Wave I Parental Stress	—	—	—	—	**0.49**	**0.08**	**0.55**	**< 0.001**	—	—	—	—

Note. Child externalizing and internalizing behavior were measured using the Strengths and Difficulties Questionnaire. Parental depression was measured using the Patient Health Questionnaire. Marital conflict was measured using the Marital Conflict Inventory. Significant coefficients are highlighted in bold. Dep = Dependent variable. Missing data were handled using full-information maximum likelihood.

Figure 1

Participant Flow Chart



Supplementary Table 1. Participants' Country of Residence in Wave I

Country	Frequency	Percent
Australia	2	1.1
Austria	2	1.1
Belgium	1	0.6
Cyprus	1	0.6
France	2	1.1
Germany	3	1.7
Ghana	3	1.7
Greece	39	22.3
Hong Kong	3	1.7
India	1	0.6
Indonesia	1	0.6
Italy	7	4.0
Jamaica	1	0.6
Japan	3	1.7
Malaysia	1	0.6
Malta	1	0.6
Netherlands	2	1.1
New Zealand	2	1.1
Norway	1	0.6
Philippines	2	1.1
Portugal	1	0.6
Qatar	1	0.6
Sweden	3	1.7
Switzerland	1	0.6
Trinidad and Tobago	1	0.6
United Kingdom	75	42.9
United States of America	15	8.6
Total	175	100.0