Family Resilience and Psychological Distress in the COVID-19 Pandemic: A Mixed Methods Study

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Eales, L., Ferguson, G. M., Gillespie, S., Smoyer, S., & Carlson, S. M. (in press). Family resilience and psychological distress in the COVID-19 pandemic: A mixed methods study. *Developmental Psychology.* doi: 10.1037/dev0001221

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The first author was supported by a pre-doctoral fellowship from the National Institute of Mental Health of the National Institutes of Health under Award Number T32 MH015755. Data collection was supported by funds awarded to the second author by the Institute of Child Development, University of Minnesota. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

We thank the participating parents for their time and salute their resilience in finding ways to survive and thrive during the COVID-19 pandemic. We also gratefully acknowledge the assistance of Reece Alstat in the organization of data for this paper.

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Abstract

Many changes were thrust upon families by the COVID-19 pandemic, including mandated quarantines, social distancing, transitions to distance learning for children, and remote work. The current study used mixed methods to examine the challenges and resilience of families in the United States during the pandemic (May – July, 2020), as well as predictors and moderators of parent/child psychological distress. Our sample included 469 parents (459 mothers) of children aged ~2 - 13 years (239 girls, 228 boys, 1 nonbinary child, 1 "prefer not to answer" selection), who completed an online survey with closed-ended and open-ended portions. The sample had middle-to-high socioeconomic status and 86% of families were White/non-Hispanic. Qualitative (content and thematic analyses) and quantitative (descriptive statistics and regressions) findings revealed that, even in this relatively privileged sample, parents and families were experiencing struggles in many life domains (e.g., family, school) and shifts in family dynamics and routines, which were related to emotional and mental health. Families experienced many changes in their lives, some positive and some negative, and often exhibited resilience through managing these changes. Our moderation analyses indicated that COVID-19's daily impact was significantly associated with psychological distress for children and parents, and this association was stronger for older versus younger children. Less active/instructive parental media mediation was also related to less child psychological distress. Moving forward, practitioners can focus on preventive efforts including psychoeducation regarding healthy outlets for negative emotions during COVID-19, and practical help troubleshooting childcare and healthcare challenges impacting many families.

Keywords: COVID-19, psychological distress, family dynamics, parenting, family routines, mixed methods

Introduction

The World Health Organization (WHO) declared COVID-19 a pandemic in March, 2020, and the pandemic has since led to rapid and wide-reaching changes to daily life, including persistent uncertainty about the future, particularly for families and children (Carey, 2020). Many changes were suddenly thrust upon families seemingly overnight, including mandated quarantines, social distancing, school closures and abrupt transitions to distance learning for children, and remote work. The psychological toll on parents and children of COVID-19-related hardships is being documented in emerging research (see Gassman-Pines et al., 2020; Daks et al, 2020) and news articles (Heid, 2020), yet some report silver linings such as family bonding (Edwards, 2020). It is important to better understand how families are perceiving and responding to the range of impacts COVID-19 is having on their daily lives – both challenges and triumphs – and use their voices to guide future family intervention and research. Therefore, grounded in a risk and resilience perspective, the present study uses mixed methods research to explore the many ways in which the COVID-19 pandemic has impacted a sample of families in the United States as experienced and reported by the families themselves, and what moderates the relation between the lived experience of COVID-19 impact and parent and child psychological distress.

Family Systems and Resilience

Multisystem resilience can be conceptualized as the ability of a system to respond to a threat at various levels of the biological and social ecology (Masten, 2016). This framework emerged from the study of resilience following manmade and natural disasters, and researchers have begun to apply it to understanding the current COVID-19 pandemic (see Masten & Motti-Stefanidi, 2020). At the biological level, the immune system responds directly to viral exposure, and factors like age and pre-existing health conditions may confer additional risk. At the

individual psychological level, risk and protective factors such as developmental status, coping strategies, or new or worsening mental illness may affect children's and parents' ability to respond adaptively to the changes and stressors that result from the pandemic. Indeed, several COVID-19 studies have already documented elevated depressive and anxiety symptomatology and stress (e.g., Daly et al., 2020) including among parents (Brown et al., 2020). Similarly, the ability of the family system to respond to the pandemic may be affected by various pre-existing and pandemic-specific risk and resilience factors such as economic resources, parenting practices, and cohesive relationships (Prime et al., 2020), as well as access to external resources such as the medical system, government aid, and childcare (United Nations, 2020). At broader levels of the social ecology, local economies and governments can have vulnerabilities or assets that determine how adaptively each responds to the pandemic and the public perception of their handling of the crisis (Han et al., 2020). Finally, media environments may confer protection (e.g., by promulgating public health guidelines), and/or risk (e.g., by spreading misinformation; Dhanani & Franz, 2020). Parents play a critical role in moderating the effect of these proximal (e.g., individual and family stressors) and distal contexts (e.g., economy, government, and media) on themselves and their children.

The outcomes for children and families during a pandemic are influenced by the ability of each system to respond adaptively to the ongoing challenges (Masten & Motti-Stefanidi, 2020). Family resilience elucidates how family processes and factors enable a family to adapt to a new stressor, and it is facilitated by family adaptive systems including emotion, control, meaning, and maintenance systems (Harrist et al., 2019; Walsh, 2015). Family routines are a major part of the family adaptive system; after a stressor, establishing a new routine is an important component of restoring equilibrium (Black & Lobo, 2008; Spagnola & Fiese, 2007). The family system is also

dynamic, whereby a change in one part of the system can create change throughout the entire family system (Harrist et al., 2019; Minuchin, 1974). Family dynamics include the recognition that there are often different relationships between various subsystems within a family, including differences across parent-child dyads. Parenting can be a major protective factor in family adaptive systems by facilitating emotional growth in a child and instituting routines within the household (Fiese et al., 2002).

Prime et al. (2020) describe a process through which the COVID-19 pandemic can affect the child, caregiver, and family system. The social disruption (e.g., confinement, job loss) caused by COVID-19 can detrimentally affect child and caregiver well-being, which could then negatively influence the family process. These effects may also be bidirectional or transactional, such that caregiver well-being fosters family processes, and harmonious family processes support caregiver well-being. In this framework, a change in one family member's functioning can affect the functioning of the entire family system. To promote family resilience, family scientists are suggesting families establish routines and work on parenting during this pandemic (NYU Langone Health, 2020a). For both parents and children, an improvement in family dynamic might help mitigate psychological distress related to COVID-19 (e.g., if family bonds strengthen while everyone is at home together: Edwards, 2020). Therefore, examining risk and resilience in the parent, child, and family during COVID-19 through a systems lens is important.

Parental Media Mediation

Due to the perpetual news coverage on COVID-19, parents might be considering how much media exposure they want for their children, if any at all, thereby engaging in parental mediation. Many guides for parents have been published in recent months, aiming to help parents navigate tricky COVID-19 discussions with their children (e.g., NYU Langone Health, 2020b).

Both screen media use and problematic media use have also increased during the pandemic for many children (Eales et al., in press). Parental mediation is the extent to which parents engage with children's media consumption and three types of parental mediation have been studied: restrictive mediation (*prohibiting* children from viewing specific media content and *setting* rules and restrictions on child media consumption), active/instructive mediation (*discussing* certain media content with children from an educational perspective), and coviewing (*watching* media together without discussion; Barkin et al., 2006; Valkenburg et al., 1999).

Active/instructive mediation has been linked to many positive child outcomes (e.g., better social behavior, Nathanson, 2002; more likely to talk with their parents about their media; RobbGrieco & Hobbs, 2009). Buijzen et al. (2007) found that active mediation reduced the strength of the relation between disturbing news exposure and negative child emotions (restrictive mediation had a negative or null effect). When considering these results during the COVID-19 pandemic, active mediation strategies could reduce child psychological distress experienced around the COVID-19 news cycle. In contrast, the evidence on restrictive mediation and coviewing is less clear (see Mendoza, 2009, for review). For example, children of parents who use restrictive mediation are more likely to think less critically about some media (Buijzen & Valkenburg, 2005). During the COVID-19 pandemic, parents could use mediation strategies to shield their child from seeing any news about the pandemic and its death toll, or use it as an educational opportunity to teach their children more about how the pandemic is working.

Governmental Trust

Although global institutions such as WHO have provided suggestions for limiting the spread of COVID-19 around the world, the rate of the coronavirus' spread and success at mitigation have been dependent on country-specific policies (Roser et al., 2020; WHO, 2020).

Trust in a country's institutions and policies during this time could have implications for well-being and psychological distress (Hommerich, 2012; Hudson, 2006). Previously, institutional trust has been defined as the perceived probability that an institution will carry out their remit to an acceptable level (Hudson, 2006). Preliminary evidence from 23 countries experiencing this pandemic suggests that institutional trust is associated with higher compliance with recommended health behaviors and prosocial behavior. U.S. adults have been particularly distrustful of information from the Trump administration about the pandemic, making the United States a unique case study for the role of trust in government during the pandemic (Mitchell, et al., 2020). Although this research focuses on U.S. adults, it is possible that children's attitudes towards their country (e.g., liking) may also play a role in their well-being during this pandemic.

The Current Study

The current study explores how parents, children, and families are faring amidst the COVID-19 pandemic to better understand the pandemic as a new context for child development and family dynamics, including what long-term consequences researchers and practitioners can anticipate moving forward. Taking a risk and resilience approach to this pandemic, we focus both on protective factors and risks to psychological well-being of both parent and child using mixed methods, focusing on parents' own reports of how the pandemic has impacted them. It is important to place our work in the context of the United States' restrictions at the time of data collection (i.e., late May, 2020). When data collection began, the United States had the 94th most restrictive government response in the world (scores based on factors including workplace closures and travel bans in over 180 countries; Hale et al., 2021) and on a scale from 0 (least restrictive) to 100 (most restrictive), it had a score of 72.69 (relative to China's score of 81.94 and Canada's score of 70.83; Hale et al., 2021). Our first aim was to describe how the COVID-

19 pandemic has affected U.S. families during this time, using qualitative and quantitative data. Although physical health challenges were not expected to be prominent in this middle-to-high socioeconomic status sample, we hypothesized that challenges would be reported broadly across multiple other life domains (e.g., family, school, work, emotional health).

Our second aim was to examine moderators of the relation between COVID-19 impact and psychological distress of U.S. children and parents. Given the relevance of age and family dynamics for family resilience (Masten & Motti-Stefanidi, 2020) we predicted that being younger and having an improvement in family dynamic would be protective, but child disliking the U.S. would confer more risk for child distress. We predicted that having a parent who engages in more active/instructive mediation would serve as a buffer. The evidence on restrictive mediation by parents is more mixed, so we predicted that restrictive mediation would either confer more risk or have a null effect for the COVID-19 impact and child distress relation.

When examining moderators of the relation between COVID-19 impact and parental psychological distress, we hypothesized that distrust in the U.S. government would amplify this association. At the time of data collection, May – July of 2020, most U.S. adults reported low confidence in information from the Trump administration (Mitchell et al., 2020) and it was approximately 4 months after the first identified case of COVID-19 in the United States (New York Times, 2020). We also hypothesized that COVID-19 daily impact for the child would compound the daily impact for the parent, conferring more risk onto the parent's distress. Finally, we hypothesized that an improvement in the family dynamic would be protective.

Method

We utilized a mixed methods approach to harness the strengths of both qualitative (e.g., depth of description, nuanced and subjective interpretation) and quantitative research (e.g., large

sample, objective methods, generalizability) in addressing our research questions with completeness and corroboration (Creswell & Plano Clark, 2018). Qualitative data allowed us to capture perceptions of family dynamics and hear from participants in their own words about how and why COVID-19 was impacting their families, whereas quantitative data allowed us to statistically examine the percentages of participants impacted by common COVID-19-related challenges, as well as the relative contribution and potential moderating effect of various factors on psychological distress. This study used a convergent design – questionnaire variant – wherein qualitative and quantitative data were collected simultaneously using closed-ended and open-ended questions in an online questionnaire, quantitative and qualitative analyses were performed separately, and then the results were triangulated in the Discussion (i.e., compared, contrasted, synthesized) during the interpretation process (Creswell & Plano Clark, 2018). A unique strength of our design was that we requested qualitative responses from the entire sample rather than a subsample (see Supp. 1 for minor differences between those who provided only quantitative responses and those who provided quantitative and qualitative responses).

Participants

Participants were recruited via a metro-region participant pool of families of a large Midwestern U.S. university. Most participants were recruited via random selection from this pool specifying parents with children between the ages of 2 and 11 years old. Additional participants were invited from a list of prior study participants who indicated interest in future surveys. We asked parents to fill out the survey for their youngest child between 2-11 years (or, if they filled out a survey the year prior, then to choose the same target child); however, a few participants referenced their 13-year-old children. Although informant report of child characteristics is often only moderately correlated with child report, the validity of an informant

report is higher for younger children (< 11 years old) than for older children and for our study was a necessity due to the nature of the questions (e.g., COVID-19 impact on the family, etc.; De Los Reyes & Kazdin, 2005). A total of 1,125 families were sent links to the survey via e-mail and there were no exclusion criteria. Only one parent in each household was allowed to complete the survey, and a total of 474 participants did so. Three participants took the survey twice (report for older child dropped) and five participants were dropped (one was an age outlier [15.5 years], three indicated their family had recently moved to a different country, and one had >80% missing data). Altogether, 469 participants were retained in the final analytic sample.

Parents ($M_{ParentAge}$ = 38.21, $SD_{ParentAge}$ = 4.45, $Range_{ParentAge}$ = 25 – 52 years) included 459 mothers and 10 fathers of children described as 239 girls, 228 boys, 1 nonbinary child, and 1 "prefer not to answer" selection ($M_{ChildAge}$ = 5.45 years, $SD_{ChildAge}$ = 2.41, $Range_{ChildAge}$ = 1.58 – 13 years). The average participant family income last year was $125,000 - $149,999 (*Min* = < $25,000, *Max* = $200,000+). For 86.1% of the families, both parent and child were mono-ethnically White and non-Hispanic/Latino. Of the parents, 92.9% were White; 2.1% were Hispanic/Latino; 0.9% were Black/African-American; 3% were Asian; and 3% were multiethnic (which included combinations of White, Black/African-American, Asian, and Native American/Alaska Native ethnicities). The majority of our sample had received a graduate or professional degree (52%) and were married to their child's other parent (93%). Exact details of education level and marital status are provided in Table 2.

Procedure

Following Institutional Review Board (IRB) approval, parents completed the consent and online survey, taking approximately 30-40 minutes, then elected to receive a $10 e-gift card, a list of resources on COVID-19 and child development compiled by the researchers, both, or

neither (study title: “Screen Media Use and Globalization in and around COVID-19”; granting institution: University of Minnesota IRB; study protocol STUDY00009943). Data collection lasted approximately 5 weeks (end of May– early July, 2020), right after the state Governor began “opening up” the state and dialing back stay-at-home orders.

Measures

Changes due to the COVID-19 Pandemic - Qualitative

Parents responded to two open-ended questions (prompts) written for this study using text responses (unlimited character-count): “Please describe anything else you would like to share about the impact of Coronavirus/COVID-19 on your child, whether positive impacts or concerns” and “If you have any final thoughts regarding your child’s media use or how the COVID-19 pandemic has impacted you, your child, or your family, please write them out here.”

Changes due to the COVID-19 Pandemic - Quantitative

Changes to Work. Adapted from the Environmental Influences on Child Health Outcomes (ECHO) scale developed by the National Institute of Health (NIH, 2020), parents reported the impacts of the pandemic on their work via a single item with 10 response options describing common scenarios (see Table 1 for all measures in this section).

Daily COVID-19 Impact. Drawn from the Pandemic Stress Index scale (Harkness, 2020), parents answered for themselves then their child, “How much has the COVID-19 pandemic impacted your/your child’s day-to-day life?” from “1 = Not at all” to “5 = Extremely”.

Child-Specific Impacts. Using items drawn from the CoRonavIruS Health Impact Survey (CRISIS; Bromet et al., 2020), parents reported their child’s awareness of the pandemic and the impact of pandemic-related lifestyle changes. First, parents reported how often their child was asking questions, reading, or talking about the pandemic on a scale of “1 = Never” to

"5 = Most of the time." Second, parents indicated their perception of whether the pandemic had led to positive changes in their child's life on a scale of "1 = None," "2 = Only a few," and "3 = Some". Parents also reported how stressful the restrictions on leaving home (e.g., stay-at-home orders, quarantine) had been for the child on a scale of "1 = Not at all" to "5 = Extremely."

Family-Specific Impacts. Using an item from the CRISIS scale (Bromet et al., 2020), parents reported changes to the quality of the relationship between the child and other family members. Responses included that the relationships were "1 = a lot worse"; "2 = a little worse"; "3 = about the same"; "4 = a little better"; or "5 = a lot better." Separately, parents also reported events that had happened to the child's family members because of COVID-19 (see Table 1).

Family Coping Strategies. Parents reported how they and their child were coping with the COVID-19 pandemic (loosely based on items from VanTieghem et al., 2020). They could check all coping strategies they were using from a nine-item list (see Table 1 for full list).

Potential Moderators of COVID-19 Impact

Parental Mediation. Parental mediation of news and media was assessed with an adapted version of Valkenburg et al.'s (1999) television mediation scale. The measure was adapted to capture mediation strategies specifically related to COVID-19 media. Separate five-item subscales assess *instructive/active mediation* behaviors (e.g., help the child understand what they are seeing about COVID-19 in the media or explaining the motives of people) and *restrictive mediation* (e.g., telling the child to turn off COVID-related media or forbidding them to watch COVID-19 related news). Parents reported how often they engaged in each type of mediation on a Likert scale from "1 = Often" to "4 = Never / the child has not been exposed to COVID-19-related content in the past month." These items were then reverse coded, such that a higher score indicated more frequent use of that strategy. A mean score was computed for each

subscale (possible range = 1 – 4). The subscales showed high internal consistency (instructive/active Cronbach's $\alpha = 0.96$, restrictive $\alpha = 0.80$).

Parent Trust in the Federal Government. Parents rated the statement, "I trust the information I receive about the Coronavirus (COVID-19) from my Federal government" from "1 = Not true of me at all" to "7 = Very true of me." Responses were then reverse scored: a higher response indicated less trust in the federal government (adapted from Conway et al., 2020).

Child's Liking of the United States. Parents reported how much they think their child "likes the United States in terms of admiring what this culture/country stands for, enjoying its media (e.g., movies/shows, books, games), using its common language/slang, or pursuing friendships with others from this background." This item was created for the present study, based on child behavioral acculturation scales, designed to measure cultural affinity (see Children's Hispanic Background Scale: Martinez et al., 1984, and the Acculturation Scale for Mexican Americans: Franco, 1983). Responses were rated from "1 = Dislike" to "5 = Like very much." Items were then reverse scored; a higher score indicated more U.S. dislike.

Parent and Child Well-being

Parent Mental Health. Parents self-reported their psychological distress using the Patient Health Questionnaire – 4 (PHQ-4; Kroenke et al., 2009). This brief scale asks parents to rate how often they have been bothered by symptoms of anxiety or depression over the past two weeks on a scale from "0 = Not at all" to "3 = Nearly every day." Items about anxiety include "feeling nervous, anxious, or on edge" and about depression include "feeling down, depressed, or hopeless." The four items are summed, resulting in a possible score of 0 to 12. The PHQ-4 has been validated as a brief screener for psychological distress among U.S. adults (Kroenke et al., 2009). There was high internal consistency ($\alpha = 0.83$; see Table 2 note for clinical cutoffs).

Child Psychological Distress. An adapted version of the Child Life Challenges Scale (Merrick et al., 2020) was used to assess how worried the child had been during the past two weeks. Parents rated their perception of their child's worry on a sliding scale from "0 = Not worried at all" to "100 = Extremely worried" and descriptions of common behavioral and emotional responses to both extreme and mild worry were provided to anchor responses.

Covariates

Demographic Information. Parents reported the age, gender, and racial/ethnic background of the target child. Parents self-reported their education, racial/ethnic background, occupation, family income, and family structure. Income, education level, and White/non-White identification were used as covariates in the quantitative analyses.

Social Desirability. For brevity, social desirability bias in the parents' reporting was assessed with the three highest-loading items of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). After scoring such that a higher score indicated a more socially desirable response, the scores were summed and used as a covariate in regression analyses (possible range = 0 – 3; α= 0.48). The low internal consistency coefficient is likely due to the small number of indicators we chose for this scale from the usual larger battery (e.g., Clark & Watson, 1995)[1].

Mention of Major Current Event. This survey was launched to parents in Minnesota in the recent aftermath of the murder of Mr. George Floyd by Minneapolis police on May 25, 2020. To account for this context, open-ended questions were added to allow respondents to report on whether other events besides the COVID-19 pandemic might be affecting them and/or their child. Following the parent mediation scale, described above, parents were asked "in the last month, how often have you used any of the previously-mentioned strategies when talking to your

[1] The low internal consistency could also be due to the fact that this was more of an index rather than a true "scale." In other words, participants could have in some socially desirable thoughts without having others.

child about any other current events in the news, whether on TV or online? Please explain." At the end of the survey, parents were also asked: "Is there anything we didn't ask that you think is important such as other current events that are impacting you and/or your family right now?" For details on how these were coded to yield quantitative codes, please refer to Supp. 2.

Plan of Analysis

Only 13 participants were missing data (one data point; see Supp. 3 for imputation).

Qualitative Analysis

Both content analysis (Saldaña, 2015) and thematic analysis (Braun & Clarke, 2006) were performed. Two authors served as primary coders – both identified as White American women to facilitate cultural understanding of parents' responses. A third author of immigrant background assisted for a critical eye. There were 425 substantive responses (i.e., responses other than "No" or "N/A" or talking about another child) from 300 participants: 42% of parents responded to both prompts, 48% responded just to the first prompt and 10% just to the second (prompts are described above, "*Changes due to the COVID-19 Pandemic – Qualitative"*).

First, content analysis focused on emotion coding (Saldaña, 2015) to examine emotional distress during the pandemic. An emotion label was assigned each time an emotion was stated, whether explicitly (e.g., "guilt") or implicitly (e.g., "I feel bad about...") and a frequency count was done. Second, in accordance with Braun and Clarke's method of thematic analysis (2006), the coders read all of the participant responses in their entirety to become familiar with the data then independently generated initial codes for each response, using a hybrid of theoretical (analyst-driven) and inductive (data-driven) approaches. Analyst-driven coding focused on family dynamics, routines, and parenting, whereas data-driven coding elicited all other themes present (Braun & Clarke, 2006). Coders then collated codes into potential overarching themes,

reviewed those themes, and created a thematic diagram of the analysis. Coders met on multiple occasions throughout to discuss their codes and themes, resolve any discrepancies, establish consensus on defining and naming themes, and note negative cases in which a minority of participants disagreed with the majority view (Braun & Clarke, 2006; Hill et al., 2005). Finally, participant quotes were selected to illustrate each code (Braun & Clarke, 2006).

Quantitative Analyses

Aim 1. To address our first question, "How has COVID-19 affected U.S. families?" we conducted descriptive statistics of all COVID-19-related items on our survey, including means and standard deviations for Likert-type items and percentage for checklists. The focus was on describing what was happening in the sample.

Aim 2. We conducted a series of power analyses to test our hypothesized prediction models with varying combinations of effect sizes. For both parent and child analysis, our sample size of 469 afforded excellent power (≥.80) for an effect size (f^2) of 0.04 or greater.

Separate hierarchical regression analyses were conducted predicting parent and child psychological distress. For the child model, covariates (income, socially desirable responding, White/non-White, parent education level, and mention of major current event – described below) and main effects (child daily COVID-19 impact, parent daily COVID-19 impact, active/instructive mediation, improvement in family dynamic, child age, child disliking the U.S., and restrictive mediation) were entered into the first step of the analyses to examine direct associations between daily COVID-19 impacts and child distress. Two-way interactions between child daily COVID-19 impact and active/instructive mediation, improvement in family dynamic, child age, child disliking the U.S., and restrictive mediation were entered into the second step.

For the parent model, covariates (income, socially desirable responding, White/non-

White, educational level, parent age, whether or not the parent reduced work hours or lost their job, mention of major current event) and main effects (child daily COVID-19 impact, parent COVID-19 impact, improvement in family dynamic, federal government distrust) were entered into the first step of to examine direct associations between daily COVID-19 impacts and parent distress. Two-way interactions between parent daily COVID-19 impact improvement in family dynamic, federal government distrust, and child daily COVID-19 impact were entered next.

In both models, all variables included in the interaction analyses (i.e., all variables other than covariates) were mean-centered to reduce collinearity as recommended by Aiken and West (1991). Main effects and moderations were considered significant if the *p*-value was less than 0.05; effect sizes were determined by the regression coefficients and ΔR^2.

Results

Aim 1: Qualitative and Quantitative Analyses

Qualitative Analyses

Emotions were quite prominent in parents' written responses describing their families' experiences during the pandemic. Figures 1a and 1b display these emotions on an affective circumplex for parental emotions and parents' perceptions of their children's emotions, respectively (see Russell, 1980; Yik et al., 2011). The circumplexes differentiate emotions according to their valence (pleasant/unpleasant) and level of arousal (high/low), and font sizes indicate relative frequency based on a frequency count in content analysis. Findings revealed that unpleasant emotions were by far the most prominent in our sample, especially high-arousal unpleasant emotions like worry/concern, whereas few pleasant emotions were present. Specifically, nearly half of the parental emotions detected were worry/concern (30/71 total mentions) and a quarter involved stress. However, sadness was perceived to be most common for

children (one-fifth of all emotions: 11/51 total) followed by worry/concern, anxiety, stress, and happiness (each approximately one-tenth of all emotions).

Thematic analyses of the corpus of parent responses revealed the array of COVID-19 impacts on families related to their emotions described above. Themes and codes are displayed in Figure 2 organized within six broad categories pertaining to the person whose experience is being described: child, parent, and extended family categories partially overlapped with each other to drive family dynamics, the four of which were bidirectionally associated with parenting experiences, and all five family categories were influenced by external factors. In this section we will focus on describing the family dynamics category as this core element of Figure 2 represents families' shared experiences and collective adaptations to COVID-19. Non-overlapping individual experiences of the child and parent, as well as external factors, can be seen in Figure 2, and illustrative participant quotes for all themes and codes can be found in Table 3. Six themes were identified regarding family dynamics: *whole-family dynamics, sibling dynamics, parent-child dynamics, changes in family routines*, *social distancing,* and *coping*.

Whole-Family Dynamics. Within whole-family dynamics, quality time was a prominent code in parents' responses. Families were spending more unstructured and enjoyable time together both indoors and outdoors, many experiencing this as a blessing for which they were grateful, although in one case, family time was reported to crowd in on personal time/space. Relatedly, some family relationships improved (e.g., more connection, affection) whereas others worsened (e.g., less interaction). Some families had a mix of experiences whereby some members got closer whereas others drifted further apart, and one parent reported no change in family relationships. Working and schooling all in the same home space as well as dealing with family separations due to work or COVID-19 restrictions were major COVID-19 stressors and

they compounded normative family transitions such as recent family moves or births. Concerns for the health of family members, especially those at high risk for COVID-19, added further worry and stress to the family dynamic. In the face of these pandemic stressors, parents believed that their families had improved teamwork and conflict-resolution. Overall, there was a sense that meaningful family memories were being made despite, and perhaps because of, these real struggles presented by COVID-19 fallout, as is demonstrated by this parent of a 3-year-old: "While [my child's] daycare was closed and parents were both working from home, it was stressful and not productive in a work sense but also had a lot of positive moments as a family."

Sibling and Parent-Child Dynamics. Parents perceived that sibling dynamics and parent-child dynamics also shifted in both directions during the pandemic. Many parents reported more sibling arguments and fights and some children's need for more personal space from siblings, whereas others reported better sibling connection and interactions and more quality sibling time, especially through joint play. As was true for whole-family dynamics, there was also a mixed experience in some households where some sibling relationships (or some aspects of them) improved whereas others worsened. Parents also perceived that siblings influenced each other's media use – sometimes with older children exerting more influence (e.g., younger sibling using tablet to model older sibling's distance learning) and other times with mutual influence, as this parent expressed regarding her 7-year-old child and older sibling: "…[They] TALK about the games they play for hours and hours each day. They talk about what they will build in Minecraft, how to hatch dragons in Dragon City, and more" (original capitalization). In parents' view, the parent-child relationships also shifted based on dynamism in their own parental attention. Some children enjoyed more parental attention as parents worked at home, whereas others struggled with less attention, and it was hard for siblings to share attention.

Family Routines. Major changes in family routines represented another theme in parents' view of post-pandemic family dynamics. Out-of-home activities were severely curtailed due to community cancellations and voluntary family decisions ranging from canceling family summer adventures to foregoing typical family spring/summer activities (e.g., children's baseball teams) to stopping mundane family activities such as eating out together. In place of these out-of-home activities, parents reported that family media/technology use and purchases (e.g. devices, streaming services) increased dramatically as evocatively expressed in these parents' responses: the "iPad has taken over" and "I feel like we are all glued to our devices". Media served many functions for families including social connection, particularly with high-risk family members, work, and distance learning. Some families actually incorporated media into their family time by watching together. Finally, many parents described efforts to establish new daily routines, some of which pertained to scheduling such as instituting a new daily schedule to accommodate distance learning or increase consistency (e.g., mimic preschool schedule), and others were direct pandemic responses (e.g., safety routine, family discussions of global events).

Social Distancing. Families were grappling with quarantine restrictions and the resulting physical (and perhaps psychological) isolation, and they were missing pre-pandemic socialization experiences outside the family. Several families reported with some gratitude that they were socializing with one other family or that they were beginning to restore socialization with a few family friends.

Coping. Despite all the stressors and resulting changes to family dynamics, on the whole, parents viewed their families as adapting to the situation, and also adapting better over time as expressed by this parent of a 5-year-old: "At the beginning of quarantine life was more difficult than it has been the past month".

Quantitative Analyses

Our first aim was to describe how our sample was affected by COVID-19 and related events across life domains (Table 1). As expected, although our sample was predominantly middle-class, they were not unaffected by the pandemic. In fact, 100% of the parents reported that they themselves were impacted in some way by COVID-19 and 0.9% (only four) reported that their child was not at all impacted. The average degree of impact on both parents' and children's day-to-day lives was moderate (M_{parent} = 3.78; M_{child} = 3.45; 1 – 5 scale). On average, the quality of family relationships stayed the same or improved a little (M = 3.43 on a 1 – 5 scale). That is, 10.4% reported worsened family relationships, 45% reported unchanged relationships, and 44.5% reported improved relationships.

Children were perceived to experience some stress from the COVID-19 restrictions (M = 2.43 on a 1 – 5 scale), 4.7% were reported to be "extremely" stressed whereas 17% reportedly experienced no stress. Many children were asking about COVID-19 (M = 2.41 on 1 – 5 scale), 19.8% were reported to "never" ask/talk about it whereas only one child (0.2%) was reported to be talking/reading about it "most of the time." However, most of our sample reported that the COVID-19 pandemic had led to some positive changes in their child's life (M = 2.16 on a 1 – 3 scale, 3 meaning "some" positive changes). In support of this, 79.3% reported there had been some or few positive changes in their child's life, and only 20.7% of parents reported no positive changes. Most variables had skewed distributions as would be expected from this middle-class sample not dealing with a full range of severity of COVID-19 impacts (see Table 1).

The majority of our sample reported no major COVID-19 impacts on family health and security (60.55%). That is, less than 2% reported hospitalizations or deaths and less than 20% reported employment disruptions. Most of our sample reported they had moved to working from

home (56.5%), and 23% of participants reported they had reduced their work hours, been laid off temporarily, or lost their job completely. Parents and their children were coping with the COVID-19 pandemic in a variety of ways, with the vast majority being physically active (90.41%) and many chose to talk to family/friends not in the home (73.92%) and/or cooked and baked together as a family (72.49%).

Aim 2: Quantitative Analyses

Table 2 shows the means, standard deviations, and/or percentages for all variables included in the quantitative analyses.

Predicting Child Psychological Distress. Lower child daily COVID-19 impact (β = 6.69, B = 0.33, $p < .001$) and lower active/instructive parental mediation (β = 3.18, B = 0.15, $p < .01$) were associated with lower child psychological distress. Contrary to our hypotheses, most of the interactions were non-significant. The interaction of child daily COVID-19 impacts with child age was significant, such that the association between COVID-19 daily impact and child psychological distress was stronger for older children (β = 1.05, B = 0.12, $p < .05$). Model 2 did not improve the variance explained by Model 1 ($R^2 = 0.17$). See Table 4.

Predicting Parent Psychological Distress. Parent daily COVID-19 impact was associated with higher parent psychological distress (β = 0.38, B = 0.15, $p < .05$). Of the covariates, a lower income (β = -0.13, B = -0.11, $p < .05$), lower social desirability (β = -0.30, B = -0.12, $p < .05$), and mentioning a major current event (β = 0.66, B = 0.12, $p < .01$) were associated with higher psychological distress. Contrary to our hypotheses, none of the interactions in the model were significant. Model 2 did not improve the variance explained by Model 1 ($R^2 = 0.12$). See Table 5.

Discussion

The COVID-19 pandemic presents not only a global medical health crisis but also a crisis of family well-being and mental health (Prime et al., 2020). To examine family psychological distress during this pandemic, and bearing in mind that the United States was ranked 94th, in the world in government restrictions at the time of data collection (Hale et al., 2021), our mixed methods study assessed U.S. parents' perceptions of the range of COVID-19 impacts on daily family life including emotions and family relationships, and investigated potential moderators of the relation between COVID-19 impact and psychological functioning for both children and parents. We focused on how parents perceived COVID-19 impact on their families rather than conducting pre-/post-pandemic assessments in order to privilege their lived experiences. By understanding how children and families were faring at a specific point in the pandemic's course in the United States (first wave), we can better expect and understand what developmental complications may arise as this cohort of U.S. children ages. Our hypotheses regarding the broad impact of COVID-19 were supported by both quantitative and qualitative findings: parents, children, and families were affected by the pandemic across many domains of daily life including family, work, school, and individual emotions with six major themes related to family dynamics (see Figure 2/Table 3). However, quantitative moderation analyses showed largely main effects (e.g., COVID-19 daily impact, parental mediation) rather than moderation effects (apart from age). Overall, our findings provide empirical support for Masten and Motti-Stefanidi's (2020) and Prime et al.'s (2020) conceptual frameworks outlining how the multisystem, cascading sequelae of social disruption contribute to risk and resilience for children and families during COVID-19. What follows is an integrative discussion of the qualitative and quantitative findings (themes italicized).

The Broad and Deep Impact of COVID-19

Our quantitative and qualitative results demonstrate that even though many families in this middle-upper class sample did not experience direct health effects of COVID-19, its impacts were *widespread* across multiple domains of their daily lives. The domains impacted included family life, education, work, recreation, healthcare, and perceptions of government functioning, which lends strong support to Masten and Motti-Stefanidi's (2020) conceptual proposition of multi-system shocks from COVID-19. Parents reported changes in their jobs and work environments, challenges with distance learning for their children, and concern for their high-risk family members (see quantitative Table 1 and qualitative Table 3/Figure 2 theme *Family COVID health concerns* within category "Whole-family dynamics). The changes in work environment are consistent with research indicating that 42% of the U.S. workforce was working from home in June, 2020 (Bloom, 2020). Challenges with parenting and school in our sample are also corroborated in other studies (e.g., RAPID-EC Project, 2020) and popular media sources (e.g., Grose, 2020). In the quantitative data, nearly all parents endorsed some degree of daily impact on both themselves and their children, which was associated with greater psychological distress.

Emotional and Psychological Toll

Both the quantitative and qualitative analyses support the hypothesis that the COVID-19 pandemic would have a *deep* impact on the emotional lives of children and parents, and family dynamics. Parents reported primarily negative high-arousal emotions for themselves and their children, including worry/concern, sadness, and stress (qualitative Figures 1a and 1b). This provides empirical data to confirm the news reports regarding parenting stress during COVID-19 (e.g., Mandell, 2020), and also resonates with prior research showing that other disease outbreaks have been linked to psychological distress, worry, and anxiety (see Restubog et al., 2020 for review). Our qualitative analyses further explained how these emotions are related to many

pandemic realities including increased stress with everyone living, working, and schooling at home, parents' worries over their children's development, and children's sadness at not seeing extended family (see Table 3/Figure 2 categories and themes "*Whole-family dynamics*: Work + school @ home = stress," "*Extended family dynamics*," "*Parenting:* Concerns about child development"). Prior research indicates that when children are not in school, they tend to be less physically active, have worse sleeping habits, and use more screen media (Brazendale et al., 2017), all of which concerned parents in our sample. It is important to remember that most of the parents in our sample were mothers (all but 10) and are likely to experience the disproportionate burden of childcare during this pandemic (Power, 2020). Therefore, mothers are likely even more stressed if they are expected to manage the duties of childcare at home while working, or if they are forced to reduce their work hours to take care of their children (Collins et al., 2020).

Despite the absolute mean levels of psychological distress being low (3.01 on a 0-12 scale for parents), our quantitative analyses show that daily COVID-19 impact was significantly associated with psychological distress for children and parents. Even after adding in potential moderations and other potential main effects to predict psychological distress, including job loss for parents, the effect size for COVID-19 daily impact was the largest for both children and parents. This underscores the fact that physical illness and death is only one component of COVID-19 fallout for families – many other changes the pandemic has brought are evident in emotional and mental health (Pfefferbaum & North, 2020), which are a continuing concern as the pandemic progresses (Brown et al., 2020; Eldridge, 2020; Daly et al., 2020).

Shifting Family Routines

Daily routines changed in many ways for these families both inside and outside of the home. Routines are a major component of family organizational processes linked with academic,

social, and language development in children (Spagnola & Fiese, 2007), and they represent a major element of whole-family processes that Prime et al. (2020) conceptualized would be impacted by parenting stress resulting from COVID-19. Our qualitative findings supported this- parents reported changes in family schedules, canceled family events, children and parents were using more media, and families spent less time outside of the home (see Table 3/Figure 2 theme "*Changes in routines"*). Theory and research hold that establishing a new routine after a stressor can help restore equilibrium in the family (Black & Lobo, 2008), and many of the parents in our sample reported trying to do as best they could; however, some were simply too exhausted to worry about order/routine while trying to survive day to day. Establishing and maintaining new routines in the face of the pandemic are likely protective, particularly because routines are a major feature of family resilience (Harrist et al., 2019; Prime et al., 2020).

Fluid Family Dynamics

Family dynamics can contribute to or undermine family resilience (Harrist et al., 2019; Masten, 2016). Although the quantitative mean for improvement in family relationships was just above the scale midpoint of the survey item ("about the same"), this is deceptive because 10.4% reported worsened relationships and 44.5% reported improved relationships (the full range). Our qualitative data showed a fuller picture of the dynamic changes in the whole-family system as well as in the sibling and parent-child subsystems (see Table 3/Figure 2 themes "*Sibling dynamics," "Parent-child dynamics," "Whole-family dynamics"*), with changes in one part of the family system responding to change in other areas (Harrist et al., 2019; Minuchin, 1974). For example, parental accounts linked sibling rivalries and problem behaviors to divided parental attention. This supports prior research showing that the differential treatment of children in the home can have negative impacts on child behavior (e.g., attentional and social problems;

Meunier et al., 2013) and quality of the sibling relationship (Jenkins et al., 2012). Additionally, separations from family during times of stress and upheaval can affect the family system by disrupting connections, even temporarily (e.g., McAdams, 2020), and this was well illustrated in our sample where children experienced sadness and longing due to separations from grandparents, cousins, and even newborn siblings (see Table 3/Figure 2 "*Extended family dynamics*"). These findings were consistent with Prime et al.'s (2020) conceptual framework, including the expectation that family dynamics would prompt child adjustment challenges. Notably, our qualitative work did not reveal any themes regarding inter-parental dynamics. It is possible the nature of our questions (i.e., focused primarily on the child) did not encourage parents to discuss these dynamics.

Coping and Resilience in the Midst of Challenges

Despite the challenges families were facing, our quantitative and qualitative data corroborated each other in demonstrating that there were many ways in which family resilience showed up during COVID-19 – as reported by these families, the family system was generally an adaptive system (Masten & Motti-Stefanidi, 2020; Prime et al., 2020). According to Masten and Motti-Stefanidi (2020), family routines, close relationships, family problem-solving and planning, and having hope are all resilience factors for families. Quantitative findings showed that most parents reported there were at least some positive changes in their child's life since the pandemic began. Parents reported that they and their children were coping in a variety of ways including getting outside more, talking to friends or family not in the home, and finding new hobbies. Qualitative findings showed that many parents perceived their children to have adapted well to this new situation, some becoming more aware and curious about their surroundings, and other even improving their behavior and skills (e.g., more helpful, improved language; Table

3/Figure 2: “Family dynamics: *Coping*,” “Child: *Coping*”). Parents also reported that despite their child losing social connections at school and daycare, many were able to find ways to entertain themselves or play with their siblings and neighbors. The parental attitudes of grit/determination and their creative problem-solving (e.g., hiring a nanny, moving in with grandparents for childcare help, new family activities) also showed resilience (see Table 3/Figure 2: “Parents: *Attitudes*”). Taken together, these findings suggest that while there were many changes in the lives of parents, children, and families, some of these changes were positive, and families were working hard (and often successfully) to find ways to manage the negative changes. Trying to establish new family routines, improving different relationships between family members (e.g., parent/child, whole-family, siblings), and conscious parenting are all part of the family adaptive system, and these factors were working together to promote resilience in these families (Harrist et al., 2019; Masten & Motti-Stefanidi, 2020; Prime et al., 2020).

The Sledgehammer of COVID-19

Although it was unexpected that we found only one moderator of the association between daily COVID-19 impact and psychological distress in our regression analyses (child age), it is understandable considering the scope of challenges facing parents as detailed in our qualitative results. Rather, the story was largely in the main effects for this sample – the impact of COVID-19 was more of a sledgehammer. COVID-19 daily impact had the largest effect size for psychological distress for children and it was consistently associated with distress in all models of child distress, even after accounting for other background variables and potential moderators. Child age was the sole moderator of this sledgehammer effect, such that the association between daily COVID-19 impact and psychological distress was stronger for older children. This is in line with our hypotheses: given that older children (up to age 13 in our sample) are potentially

more likely to have significant disruptions in their lives related to COVID-19 (e.g., fewer needed social interactions, different schooling), the relation between COVID-19 daily impact and distress should be stronger for older children. As Masten & Motti-Stefanidi (2020) conceptualize, developmental timing in this pandemic has complex implications: older children are potentially more aware of the global impact of the pandemic, better understanding its death toll and implications for the future than their younger counterparts.

For parents, COVID-19 was not their only source of distress. Mentioning a major current event, in this case, the killing of George Floyd in their local community, had the second largest effect size after COVID-19 daily impact. This reminds us that other community and societal stressors in parent's lives continued to play a large role in their distress even during a pandemic (as also evidenced by the modest R^2 of 0.12), and efforts to support families through practice, policy, and research must also take these into account to be most relevant and effective. This is corroborated in our qualitative data as well. Parents described a variety of other events going on in their lives that were challenging them in different ways, including family transitions like the birth of a new child or moving to a new city. Previous research has shown that major life events like childbirth and unemployment are related to changes in affective and cognitive well-being and life satisfaction (Luhmann et al., 2012). Therefore, other significant life events or national events could have an increased impact on parent psychological distress on top of COVID-19.

Active/Instructive Mediation: More Harm than Good?

Contrary to our hypotheses, more active/instructive mediation was associated with *greater* child distress. The items we adopted for this subscale asked, for example, how often parents were helping their child understand COVID-19-related media content. While this is active/instructive mediation, it also implies that the parent was drawing their child's attention to

COVID-19 related news. However, it is possible that this exposure to the news was related to increased psychological distress (though we cannot know the directionality with our cross-sectional data). Disasters with human intent are associated with higher risks of psychopathology than natural or accidental disasters (DiMaggio & Galea, 2006). By discussing different actors in the news and their intentions around COVID-19, it is possible that this moved the pandemic from natural/accidental to one with human intent for the child. However, our null restrictive mediation finding implies that this does not necessarily mean that restricting all COVID-related media would help reduce child distress. Previous work has found that active/instructive mediation is protective for child emotional responses after a single horrific event (Buijzen et al., 2007); however, COVID-19 had been present in these children's lives for months before data collection, implying they would have been exposed to a large and more chronic barrage of pandemic media content. This chronicity of COVID-related news could turn the active/instructive mediation parents might use into something that is no longer helpful for the child. Our mixed methods approach in this study was a strength by allowing breadth and depth in these initial findings regarding parents' active/instructive mediation; however, observational qualitative methods can be utilized in the future to better understand *how* exactly parents mediate children's media consumption.

Limitations

Our study has many strengths including its mixed methods approach, which elicited rich findings; however, there were also limitations. First, all data collected were parent-reported. This was the only feasible method to collect our data during a pandemic and under state lock-down, but it is possible that parents over/understated their child's reactions, and we could not capture other family members' impressions of family dynamics. The psychological distress measures

were also parent- or self-reported and brief, meaning that nuance and specificity captured by a diagnostic interview could not be captured here. Second, our sample came from a participant pool into which parents self-selected, reflecting that they likely had more time and fewer constraints than those who chose not to participate. Third, our sample was predominantly White and middle-class, so our data represent the largest segment of U.S. society but parallel research is needed to capture COVID-19 impacts on other U.S. ethnic-racial groups, especially because COVID-19's impact is stratified across these characteristics (Selden & Berdahl, 2020). Higher income was associated with lower psychological distress for parents notwithstanding our sample being primarily middle class. This indicates that family income will be important to include in future research and intervention, and it may be an even stronger predictor of well-being in families with lower incomes. Additionally, federal trust and child liking of country were unrelated to distress in this fairly homogeneous non-immigrant sample, but could be important factors for immigrant-background U.S. families. Of note, the latter two constructs were measured with crude 1-item probes, so fuller measurement is recommended for the future. Another potential limitation is that there were significant differences between our qualitative responders and non-responders (see Supp. 1), including responders being more educated, older, and reporting higher COVID-19 impacts for parent and child. Therefore, the themes found in the qualitative analyses are not fully generalizable to the full study sample. Finally, these findings are based on a specific sample of parents from the United States during a specific time in the course of the COVID-19 pandemic, meaning that they may not be generalizable to families in other countries or during different times of the pandemic due to the different ways in which countries were impacted by COVID-19; therefore, replication of these findings in other countries is warranted.

Implications for Future Research, Practice, and Policy

The present study confirms other emerging research (e.g., Daks et al., 2020; Gassman-Pines et al., 2020) and reports (e.g., Heid, 2020) that U.S. families have been affected across many domains of their daily lives by the COVID-19 pandemic and related policy changes and restrictions. School closures and work-from-home orders meant many parents and children were together at home all day, creating unique pressures and increased stress. Future research investigating how varying school and work modalities (e.g., in-person, hybrid, fully remote) may relate to family dynamics and psychological distress may be an immediate next step to inform educational and occupational decisions at the family level and broader policy level.

The predominance of high arousal negative emotions families are experiencing related to COVID-19, primarily worry and stress for parents and sadness for children, was striking in our data and underscore widespread concerns for the state of emotional well-being (Pfefferbaum & North, 2020). Yet, our data also show that many families have been harnessing strengths of the family system to cope (e.g., more quality time, watching media together), and working hard with both grit and gratitude to establish a new family homeostasis, some parents accepting that the new normal will be less-than-perfect for survival in these uncertain times (e.g., see Figure 2 code: media as a necessary evil). Given the widespread but subclinical levels of psychological distress in this population, practitioners and policymakers can work to support family life to foster resilience during this stressful time (Prime et al., 2020), and understand its long-term effects. Working to develop home-based activities for families to foster quality family time, and passing along these activities via health providers, could boost family resilience as the pandemic continues (Cluver et al., 2020). Practitioners can focus on preventive efforts including psychoeducation regarding healthy outlets for negative emotions during COVID-19, and

practical help troubleshooting childcare and healthcare challenges impacting many families.

Future research with larger, highly-powered samples is also warranted. Most of our interactions were not significant; however, there may still be undetected two-way interactions that may have been detected with a higher power in a larger sample (e.g., parent COVID-19 impact X child COVID-19 impact). There are also developmental implications of our findings. Having data across a wide age range (1.58-13 years) allowed us to detect an age moderation of the COVID-19: distress association whereby the impact was amplified for older children. Future research can zoom in on variability within individual developmental stages.

Conclusion

The COVID-19 pandemic presents not only a global medical health crisis but also one of family well-being and mental health. The findings of our mixed methods study empirically elucidate how multisystem, cascading sequelae of social disruption contribute to risk and resilience for U.S. children and families during COVID-19. These findings also underscore the fact that the changes COVID-19 has brought are evident in emotional/mental health and family functioning, and that physical illness/death is only one component of COVID-19 fallout for families during the time of this U.S. data collection. Although relatively privileged families may be less impacted by physical health challenges, other impacts are *widespread* across multiple domains of their daily lives. Yet in the face of these significant challenges, our findings imply family resilience – the family system was generally an adaptive system as reported by these families.

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Table 1

Descriptive statistics of COVID-19-related items on impact, family members, work, and coping (N = 469)

Variable	*M* (*SD*) or %	Skewness	Kurtosis
COVID-19 impacts (scale of 1-5 except where noted)			
How much has the COVID-19 pandemic impacted your day-to-day life?	3.78 (1.04)	-0.42	2.02
How much has the COVID-19 pandemic impacted your child's day-to-day life?	3.45 (1.11)	-0.09	1.77
Has the quality of the relationships between your child and members of his/her family changed due to the COVID-19 pandemic?	3.43 (0.83)	0.01	2.86
How stressful have the restrictions on leaving home been for your child since the COVID-19 pandemic?	2.43 (1.03)	0.63	3.05
How much is your child asking questions, reading, or talking about COVID-19/Coronavirus?	2.41 (0.92)	-0.08	2.18
Has the COVID-19 pandemic in your area led to any positive changes in your child's life? *(Scale of 1-3)*	2.16 (0.74)	-0.27	1.85
Have any of the following happened to your child's family members because of Coronavirus/COVID-19? [a]			
None of the above	60.55%	--	--
Reduced ability to earn money	18.55%	--	--
Put into self-quarantine without symptoms (e.g., due to possible exposure)	15.57%	--	--
Lost job or been laid off from job	10.45%	--	--
Put into self-quarantine with symptoms	7.25%	--	--
Fallen ill physically	3.84%	--	--
Hospitalized	1.28%	--	--
Passed away	0.64%	--	--
In what ways has the COVID-19 pandemic affected your work? [a]			
I moved to working remotely or from home	56.50%	--	--
I increased my work hours	15.35%	--	--
I reduced my work hours	14.71%	--	--
My job put me at increased risk of getting COVID-19	14.71%	--	--
I did not have a paying job before the COVID-19 outbreak	14.50%	--	--
I lost my job temporarily, or was not told for how long	9.17%	--	--
None of these apply	9.17%	--	--
I laid off employees	2.99%	--	--
I got a new job	2.56%	--	--
I lost my job permanently	1.07%	--	--

Variable	*M* (*SD*) or %	Skewness	Kurtosis
How are you and/or your child coping with the COVID-19 pandemic? [a]			
Participating in physical activity inside or outside the home	90.41%	--	--
Talking to family or friends not in the home	73.92%	--	--
Baking and/or cooking together more	72.49%	--	--
Finding new hobbies	52.03%	--	--
More sleep	44.56%	--	--
Meditation/Mindfulness	23.45%	--	--
Working more	17.48%	--	--
Other [b]	13.22%	--	--
Less sleep	10.45%	--	--

Note. Measures of skewness outside the range of –1 to 1 indicate a skewed distribution. The kurtosis of all variables was >0, indicating leptokurtic distributions. Skewness and kurtosis calculated using Komsta and Novomestky (2015). [a] These items derive from checklists wherein participants were able to endorse multiple items, therefore, percentages do not add precisely to 100% . [b] Examples of "other" responses include crafts, watching new and classic movies, sending "happy mail", spending time in nature, reading, praying, playing outdoors, gardening, board games.

Table 2

Descriptive statistics of sample characteristics and variables included in quantitative analyses (N = 469)

Variable	*M* (*SD*) or %	Skewness	Kurtosis
Sample characteristics			
Marital status [a]	1.19 (0.76)	4.63	25.6
Covariates			
Family income [b]	5.80 (2.20)	0.06	1.84
Social desirability [c]	1.54 (1.03)	-0.07	1.88
Mention of major current event	46.50%	--	--
Parent and child White	86.1%	--	--
Education level [d]	2 (1.23)	0.52	1.86
Variables included in both models			
Parent: daily COVID-19 impact [e]	3.78 (1.04)	-0.42	2.02
Child: daily COVID-19 impact [e]	3.45 (1.11)	-0.09	1.76
Improvement in family dynamic [e]	3.43 (0.83)	0.01	2.86
Child model variables			
Child psychological distress	20.72 (22.26)	1.17	3.55
Active/instructive mediation [f]	2.28 (1.08)	0.05	1.53
Restrictive mediation [f]	1.27 (0.55)	2.44	8.88
Child disliking the U.S. [e]	2.21 (0.91)	-0.10	1.91
Child age in years	5.45 (2.41)	0.74	2.75
Parent model variables			
Parent psychological distress [g]	3.01 (2.66)	1.15	4.05
Federal government distrust [h]	2.77 (1.63)	0.82	2.87
Parent age	38.21 (4.46)	0.25	3.31
Lost job or reduced work hours during COVID-19	23%	--	--

Note. [a] Marital status: 1 = Married to child's other parent (52%); 2 = Married, but not to child's other parent (0.4%); 3 = Divorced (4%); 4 = Separated (1%); 5 = Widowed (0.2%); 6 = Single (never married) (1%). [b] Family income: 1 = Less than $25,000; 2 = $25,000-$49,999; 3 = $50,000-$74,999; 4 = $75,000-$99,000; 5 = $100,000-$124,999; 6 = $125,000-$149,999; 7 = $150,000-$174,999; 8 = $175,000-$199,999; 9 = $200,000 or more. [c] Possible range: 0 – 3. [d] Educational level: 1 = Graduate or professional degree (52%); 2 = Some graduate school (6%); 3 = Bachelor's degree (33%); 4 = Some college (8%); 5 = High school diploma (1%); 6 = GED (0%); 7 = Some high school (0%). [e] Possible range: 1 – 5. [f] Possible range: 1 – 4. [g] Possible range: 0 – 12. Scores 0 – 2 are normal (51%); 3 – 5 are mild (33%); 6 – 8 are moderate (10%); and scores 9 – 12 are severe (6%). [h] Possible range: 1 – 7.

Table 3

Themes from open-ended participant responses

	Theme	Code	Illustrative Quotes
Family dynamics	*Whole-family dynamics*	Quality time	"We have seen our family be very close, spend more time together and find ways to enjoy our time together." – *ID #226, mother of 6 yo daughter*
		Better/worse relationships	"…relationships with family members have gotten both better and worse. Bonds have deepened and family members are closer but also quicker to have arguments." – *ID #283, mother of 5 yo daughter*
		Work + school @ home = stress	"The pandemic has been very stressful being at home with kids and just in life generally. Trying to work while helping them with school, making every meal, not being able to hang out with others, all of it…" – *ID #129, mother of 9 yo daughter*
		Separations and transitions	"When [child's] baby brother was born and had to spend time in the NICU, she couldn't come to visit him/us until he was discharged." – *ID #3287, mother of 3 yo daughter*
		Teamwork & conflict resolution	"Regarding the above questions, in some ways things are "worse" because we come to a head a lot being in such close quarters, but they are 'better' because we talk about them and come to a better way of doing things as a family (e.g. cleaning up our own stuff rather than having the housekeeper do deep cleans)" – *ID #190, mother of 7 yo son*
		Family COVID health concerns	"…Everyone in our family is high risk [for contracting COVID-19], so getting this virus could be devastating to us. We wash our hands a lot more now and [child] knows that he needs to wear a mask and gloves on the rare occasion that we go out." – *ID #391, mother of 4 yo son*
	Sibling dynamics	Better/worse relationships	"The relationship with [child's] older brother has improved, but his relationship with his sister seems to be more stressful." – *ID #253, mother of 6 yo son*
		More quality time	"All of my children seem to enjoy being at home more with fewer activities and being able to play with each other more." – *ID #417, mother of 4 yo son*
		Influence on media use	"[Child] is influenced by her older brother and sister regarding what she watches." – *ID #537, mother of 2 yo daughter*
	Parent-child dynamics	Dynamics of parental attention	"…[child] struggled with getting very little of my attention while I attempted to help my 1st grader with his distance learning. That was a very stressful time for all of us. Life has been easier now that school is over." – *ID #537, mother of 2 yo daughter*
	Changes in routines	Few activities outside home	"She is a child that thrives on going on "adventures" and "exploring" and has had a very difficult time being home and not visiting her favorite daily spots (pre-Covid): the Zoo, local playgrounds, indoor playgrounds, Target, the grocery store, Farmer's Market" – *ID #531, mother of 2 yo daughter*
		Whole family glued to devices	"…we are well into screen overload!" – *ID #405, mother of 4 yo daughter*
		Many family functions of media	"We had no screen media use for [child] prior to COVID. Now we use it to stay connected to high-risk family members." – *ID #551, father of 2 yo daughter*
		Changes in structure & schedule	"C-19 has slowed our lives down." – *ID #563, mother of 2 yo son*
		Watch media together	"…with fewer evening activities, we've been spending more family time watching TV (mostly educational documentaries and mini-series, since we all like them)…" – *ID #110, mother of 10 yo son*

		Establishing new routines	"She was in a preschool program with structured curriculum that she misses. We've tried to recreate this…" – *ID #487, mother of 3 yo daughter*
	Social distancing	Quarantine and isolation	"We live in community, but due to a potential exposure, we had to quarantine entirely…" – *ID #471, mother of 3 yo daughter*
		Limited socialization	"When things first shut down, we were home all of the time. Now that things are opening up we are seeing a few friends." – *ID #426, mother of 3 yo son*
	Coping	Family is adapting	"…Since both parents were still working as many hours as possible [having a child with a learning disability doing distance learning] created a lot of stress and strain on relationships at home. Since school stopped and summer camp started things have greatly improved and more positive. My answer to many of these questions [would] have been significantly different if I did this survey a month ago." – *ID #187, mother of 7 yo daughter*
Child	*Social distancing*	Loss of socialization	"…[child] thrives off a schedule and being able to interact with others - her favorite things are to go to school/church and play with her friends. this has been so hard for her and she is so over people being scared of the 'coughing flu' because she wants to play and go to church again." – *ID #414, mother of 4 yo daughter*
		Socializing virtually is hard	"It's been very hard on [child's] social life as he had a lot of friendships at his school and doesn't engage with his friends virtually very well" – *ID #323, mother of 4 yo son*
		In-person socialization is good	"…Since some social restrictions lifted he can play with neighbor kids again, he's much happier…" – *ID #146, mother of 9 yo son*
	Changes in routines	Distance learning challenges	"Online schooling was incredibly difficult. We made it 3 days before contacting the school and requesting accommodations." – *ID #311, mother of 5 yo son*
		Dynamic childcare changes	"[Child] was out of childcare for several weeks but has now returned. This return has been positive overall for everyone's collective mental health…" – *ID #525, mother of 2 yo son*
		More regular media use	"Screentime has SKYROCKETED, never in a million years would I imagine we would be using screens this much (pre covid-19 we only used ipads on plane rides... now they are used daily)…" – *ID #348, mother of 4 yo daughter*
		Many functions of media	"We do let the kids spend more time on screens than before - kids can play Roblox or FaceTime with friends." – *ID #146, mother of 9 yo son*
		Canceled//reduced outings	"The loss of family trips, school field trips, two full sporting programs, church campouts… has been difficult on [child]." – *ID #125, mother of 10 yo son*
		Enhanced play	"…Way more play time in her life but fewer new experiences." – *ID #124, mother of 10 yo daughter*
		Less physical activity	"[Child] is very physical and it has been difficult when unable to get out of the house, go on playgrounds etc- he has had an increase in negative behaviors (hitting, yelling, etc)" – *ID #512, mother of 2 yo son*
		Worse eating habits	"…Eating habits are also suffering with [child] eating more out of boredom and making poor snacking choices when left to his own devices…" – *ID #149, mother of 9 yo son*
		Sleeping issues	"…[Child's] sleep has regressed and he comes to sleep with us in our bed every night whereas before he could be by himself the entire night…" – *ID #561, mother of 2 yo son*
	Changes in behavior	Poor self-regulation	"[Child] has become more anxious since the beginning of COVID-19. He gets angry alot more and does not know how to relay his feelings with[out] yelling or whining about things." – *ID #139, mother of 9 yo son*
		Improved behavior & skills	"While [child] has missed school and being with his friends physically, he has become more helpful around the house and more patient with his younger brother." – *ID #112, mother of 10 yo son*

		More aware & curious	"[Child] has a lot of questions about why things are closed or why he can't see friends…" – *ID #473, mother of 3 yo son*
	Coping	Adapting well, resilience	"[Child] misses his friends at preschool. But has adapted surprisingly well!" – *ID #390, mother of 4 yo son*
		Minimally impacted	"[Child] is three and stays home with mom. Little has changed for her. She doesn't get library story time anymore and can't go to stores. Other than that, life is great for her." – *ID #507, mother of 3 yo daughter*
		Trouble adapting	"[Child] says 'i hate coronavirus' often when we mention why we can't do something we normally would do" – *ID #314, mother of 5 yo son*
Parents	*Beliefs*	Global & societal impact	"This pandemic has showed us that no matter your background or your economic status no one is safe. We need to stay unified and find a treatment for this virus regardless what country finds it first. It is also ok if a African scientist who is Buddhist from Greece finds it. We need to learn that race and economic status should not defy who we are." – *ID #247, mother of 6 yo son*
	Attitudes	Trust/distrust in government	"I trust the federal government besides the POTUS" – *ID #415, mother of 4 yo son*
		Grit	"We have tried to adjust to the best of our ability and remind ourselves that this will not be forever." – *ID #151, mother of 9 yo daughter*
	Routines	Work changes	"With Dad working from home our family unit has grown tighter and we are working more as a team." – *ID #459, mother of 3 yo son*
Extended family	*Extended family dynamics*	More/less time together	"[Child has]… not been able to see or play with her grandparents in the same way that she was before all of this because of social distancing and quarantine." – *ID #316, mother of 5 yo daughter*
		Less physical interaction	"It is difficult with extended family (child's grandparents and aunts/uncles) because he doesn't get to see them often and, when he does, it is socially distant. At 3 years old, much of the relationship should be hugs, snuggles, and close contact." – *ID #421, mother of 3 yo son*
		Missing them	"Hardest part was separation from extended family. Grandparents and aunts/uncles/cousins was/is the hardest" – *ID #346, mother of 4 yo daughter*
		Grandparent childcare changes	"…lost [grandparents] as our x2/wk childcare" – *ID #460, mother of 3 yo daughter*
Parenting	*Parenting practices*	Parenting style changes	"We have let a lot of our normal 'can't's' slide during the stay at home order…" – *ID #259, mother of 6 yo daughter*
		Parent as the new teacher	"…working from home while trying to facilitate distance learning was a challenge." – *ID #543, mother of 2 yo son*
		Keeping kids entertained	"We are really struggling with providing sufficient stimulation and structure, [child] greatly misses preschool and her friends, she is not getting enough new experiences or physical challenges i.e. climbing at the playground, seeing new places, trying new things…" – *ID #456, mother of 3 yo daughter*
		Conservative about socializing	"The most difficult thing had been seeing the multitude of kids in the neighborhood who scrapped the idea of any distancing right from the start, and having to constantly say no." – *ID #130, mother of 9 yo son*
	Parent-child conversations	Parent-child conversations about pandemic	"Original concern [about COVID-19] was level 10, through conversation and education concern was reduced to 2. COVID gets a lot of blame on cancelled 'fun'." – *ID #166, mother of 8 yo son*
	Media use	Media as the new babysitter	"Child's media use is directly correlated to the need to keep occupied while parents are working from home." – *ID #191, mother of 7 yo daughter*
		Restrict/allow more media	"My child is spending more time in front of a screen due to the presence of the school iPad at home. We are considering restricting use of that device in order to decrease the amount of time spent in front of screens." – *ID #170, mother of 8 yo son*

			"Prior to the pandemic, I didn't allow my daughters to watch more than thirty minutes of TV a day. Now, it's like that's all we do, especially when the weather outside isn't good. There's only so many times we can read The Very Hungry Caterpillar, but with TV, there's always something different on, so it's our new default. I'm not sure how we're going to break this cycle now without a lot of crying and tantrums." – *ID #480, mother of 3 yo daughter*
		Media as good/necessary evil	"Media Use is not a bad thing, especially in how technology focused our lives are these days. It's just a new way of learning that can be very helpful when monitored by parents and limited in use. Don't make learning options only on media; just add it as a part of the daily schedule." – *ID #560, mother of 2 yo daughter* "We don't like the additional screen time but it's necessary for my husband to continue to work and take care of the kids while i'm working" – *ID #336, mother of 4 yo son*
		Concern about rising screen time	"I am concerned with how much screen time my child has and am worried that he will expect it to remain the same as we slowly get back to our normal lives." – *ID #428, mother of 3 yo son*
	Concerns about child development	Socioemotional, physical, and mental health	"As an only child [child] has no interaction with other kids. I worry about the longer term impact on development of the social skills like sharing, cooperating, not getting her way all the time." – *ID #396, mother of 4 yo daughter*
	Concern for future transitions	General/school uncertainty	"…Another significant impact is the inability to plan ahead and help the kids know what to expect. Will [child] go back to her preschool in the fall? Will my son's new school start in person or virtually? Will mom and dad return to work at the office or stay at home? The unpredictability of all this is extremely stressful for all of us, as well as the unknown medium to long term economic impact. We have been very lucky so far, but of course we are worried about the whole community as well as our own situation." – *ID #456, mother of 3 yo daughter*
External factors	*Weather*	Worse in cold weather	"More screen time in the colder months. More outside play now." – *ID #504, mother of 3 yo daughter*
		Warmer weather helps	"…with the warmer weather and longer sunlight, we are able to play outside more." – *ID #563, mother of 2 yo son*

Note. All quotes are presented exactly as the participant typed them into the survey with the exception of any words in brackets. Gender of parent and gender and age of child are listed after each quote.

Table 4

Hierarchical linear regression predicting child psychological distress with unstandardized coefficients and standard errors in parentheses (N = 469)

Variable	**Model 1**	**Model 2**
Income	-0.11 (0.46)	-0.10 (0.46)
Social desirability	-1.42 (0.94)	-1.46 (0.95)
Parent and child White	0.42 (2.81)	1.05 (2.82)
Education level	0.60 (0.90)	0.80 (0.90)
Mention of major current event	2.46 (2.01)	1.88 (2.02)
Child: daily COVID-19 impact [a]	6.38 (1.20)***	6.69 (1.21)***
Parent: daily COVID-19 impact	-2.48 (1.19)*	-2.17 (1.19)
Active/instructive mediation [a]	3.23 (1.04)**	3.18 (1.04)**
Restrictive mediation [a]	0.84 (1.85)	1.15 (1.98)
Improvement in family dynamic [a]	-2.15 (1.16)	-2.09 (1.17)
Child age [a]	0.45 (0.47)	0.22 (0.48)
Child disliking the U.S.	0.82 (1.07)	0.49 (1.08)
Child COVID-19 impact X Active/instructive mediation		0.19 (0.99)
Child COVID-19 impact X Restrictive mediation		-1.36 (1.94)
Child COVID-19 impact X Improvement in family dynamic		-0.18 (1.06)
Child COVID-19 impact X Child disliking the U.S.		-0.66 (0.95)
Child COVID-19 impact X Child age		1.05 (0.46)*
Constant	30.24 (6.51)***	27.33 (6.61)***
R^2	0.17	0.18
ΔR^2		0.01

Note: *$p < .05$; **$p < .01$; ***$p < 0.001$.

[a] Variables are mean-centered.

Table 5

Hierarchical linear regression predicting parent psychological distress with unstandardized coefficients and standard errors (N = 469)

Variable	**Model 1**	**Model 2**
Income	-0.14 (0.06)*	-0.13 (0.06)*
Social desirability	-0.30 (0.12)**	-0.30 (0.12)*
Parent and child White	-0.33 (0.35)	-0.33 (0.35)
Education level	0.06 (0.11)	0.06 (0.11)
Parent age	-0.02 (0.03)	-0.02 (0.03)
Lost job or reduced work hours during COVID-19	-0.24 (0.28)	-0.24 (0.29)
Mention of major current event	0.66 (0.24)**	0.66 (0.24)**
Child: daily COVID-19 impact [a]	0.25 (0.14)	0.25 (0.14)
Parent: daily COVID-19 impact [a]	0.39 (0.15)**	0.38 (0.15)*
Improvement in family dynamic [a]	0.05 (0.14)	0.07 (0.15)
Distrust in federal government [a]	0.11 (0.08)	0.11 (0.08)
Parent COVID-19 impact X Child COVID-19 impact		-0.002 (0.11)
Parent COVID-19 impact X Improvement in family dynamic		-0.04 (0.14)
Parent COVID-19 impact X Distrust in federal government		0.02 (0.07)
Constant	4.77 (1.23)***	4.76 (1.24)***
R^2	0.11	0.12
ΔR^2		0.005

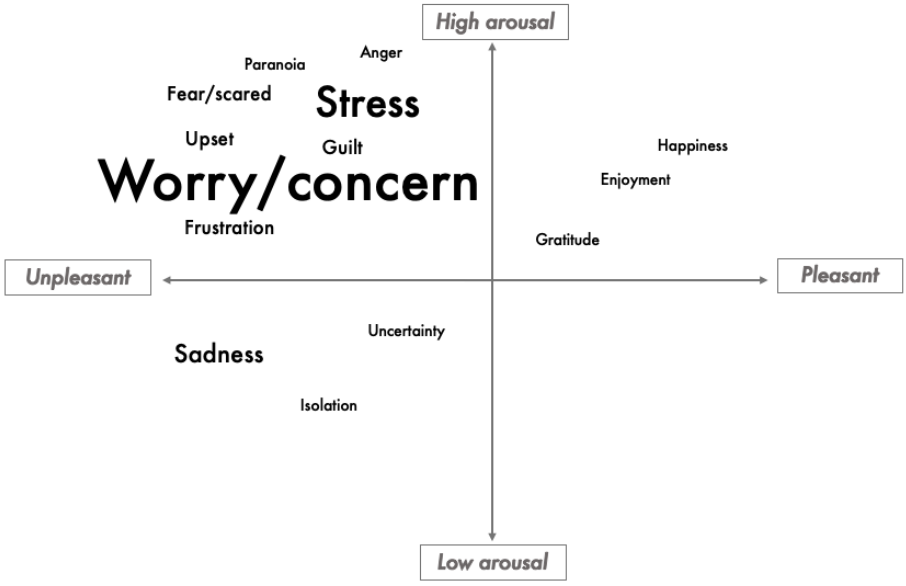
Note: *$p < .05$; **$p < .01$; ***$p < 0.001$.

[a] Variables are mean-centered.

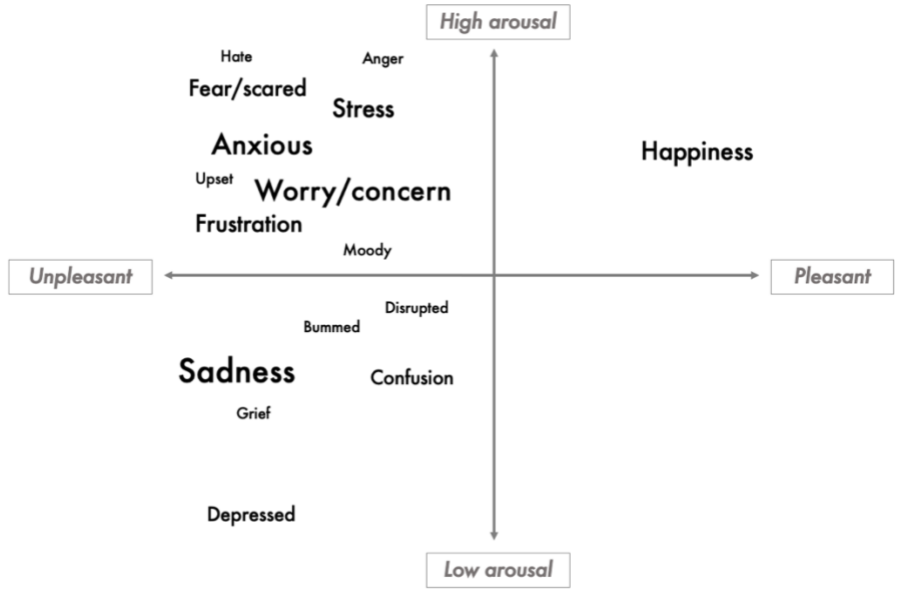
Figure 1

Parent Emotions (a) and Perceived Children's Emotions (b) During COVID-19 Displayed on Affective Circumplexes

(a)



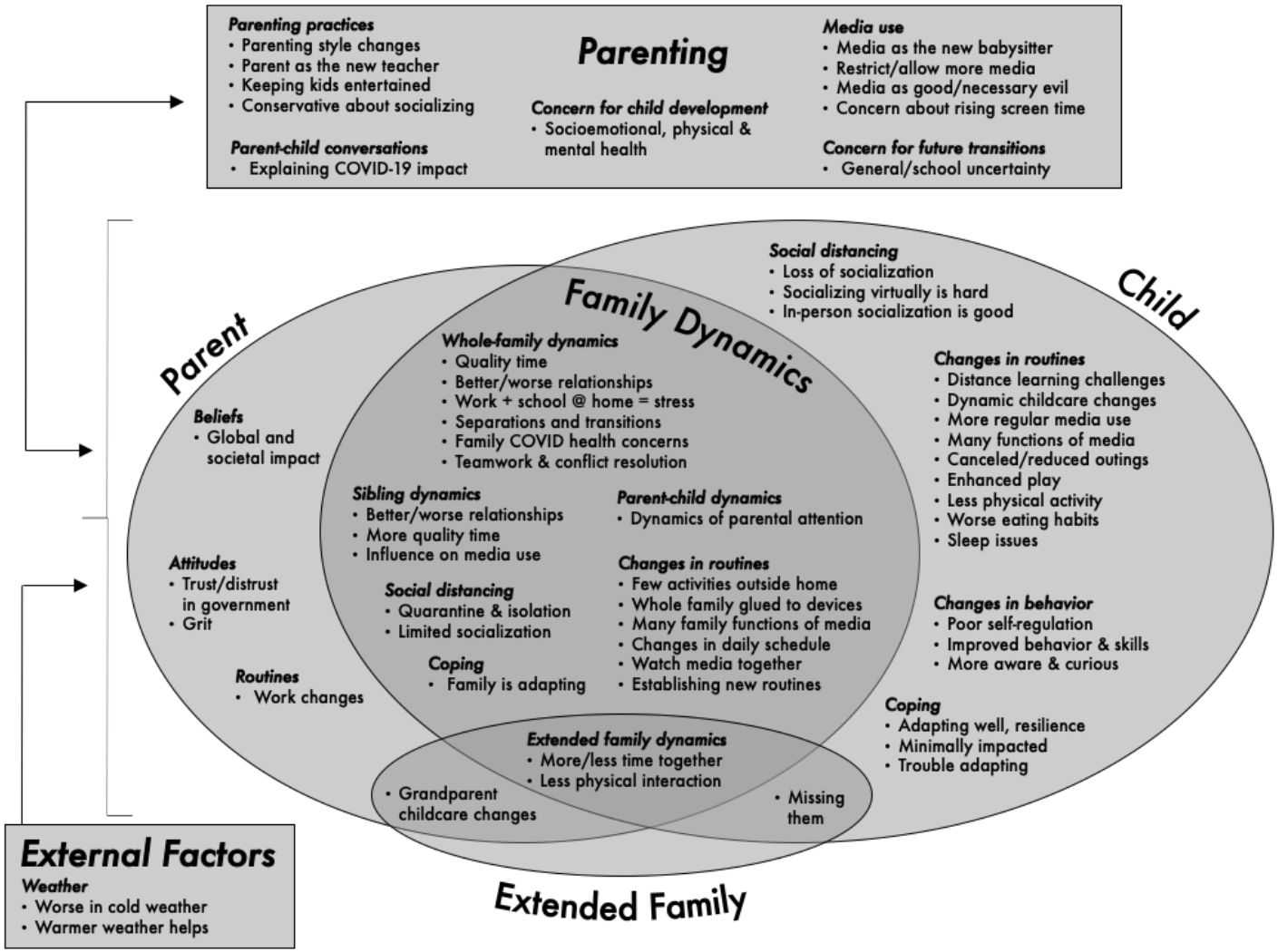
b)



Note. Emotions from participant responses were placed on these two-dimensional affective circumplexes (Russell, 1980; Yik et al., 2011) according to their valence (pleasant to unpleasant) and level of arousal (high to low). The locations of 'sadness', 'depressed', 'frustrated', 'stress', 'fear/scared', and 'happiness' were based on past research (Russell,1980) and all other emotions were placed according to our best judgment and serve solely for display purposes. The font sizes used for emotions represent the relative frequency of each emotion in participants' responses. For parents, 'worry/concern' was the most frequent (30/71 total emotion responses: 40 pt font) whereas anger, paranoia, happiness, enjoyment, gratitude, uncertainty, and isolation were least frequent (1 mention each: 11 pt. font). For children, sadness was the most frequent (11/51 total emotion responses: 24 pt. font) whereas hate, anger, upset, moody, bummed, disrupted, and grief were the least frequent (1 mention each: 11 pt. font).

Figure 2

Thematic Diagram of Parent-Reported Family Experiences During the COVID-19 Pandemic



Note. Themes (small bolded headings inside bounded ovals and rectangles) and codes (bulleted) are organized within six broad categories (large bolded headings around bounded ovals and rectangles) pertaining to the person whose experience is being described. Child, parent, and extended family categories partially overlapped with each other to drive family dynamics, the four of which were bidirectionally associated with parenting experiences, and all five family categories were influenced by external factors

Supplement 1. Differences between responders and non-responders to open-ended questions.

To assess whether there were any differences between participants who responded to at least one open-ended/qualitative question (64%, $n = 300$) and those who did not (36%, $n = 169$), we conducted *t*-tests using a variety of demographic and substantive variables as outcomes. There were no group differences for family income, child age, parent or child distress, child liking the United States, parental mediation, family dynamics, or participant race (i.e., White vs non-White). However, there were very small though statistically significant differences in education, parent age, reported COVID-19 impact and government trust. Responders had a higher education level than non-responders (1.92 vs. 2.14 on a scale of 1-7, where a lower number indicates a higher educational level, $p < .05$, Cohen's $d = .19$) and were older (38.6 vs 37.6 years, $p < .05$, Cohen's $d = .23$). Responders also reported higher COVID-19 impacts for both parent (3.88 vs. 3.59 on a scale of 1-5, $p < .05$, Cohen's $d = .28$) and child (3.58 vs 3.21 on scale of 1-5, $p < .001$, Cohen's $d = .34$), and lower trust in federal government (2.59 vs 3.10 on a scale of 1-7, $p < .05$, Cohen's $d = .31$).

Supplement 2. Content coding for mention of major current event.

Altogether, 348 participants responded to one or both of the questions asking how other events besides the COVID-19 pandemic might be affecting them and/or their child substantively (i.e., anything other than "no" or an explanation of their child being too young). A dichotomous variable was created for whether participants did (=1) or did not (=0) mention the killing of Mr. George Floyd or subsequent community/national events in their response to either of the open-ended questions. The first author first coded each response into one of nine categories: eight categories included codes for any responses related to the killing of George Floyd, racism or inequality generally, or recent protests, riots, police brutality, or unrest all coded as 1. The final code was for "other," which was coded as 0. To establish interrater reliability on the coding scheme, 20% of responses were randomly selected for a second researcher to code. The initial agreement across 864 possible codes (9 codes for 96 utterances) was 99%. After discussion of the discrepancies, the agreement was 100%.

Supplement 3. Missing Data.

The proportion of missing data was minimal across variables: 0.2% missingness across all PHQ-4 items; 0.2% missingness on White/non-White and federal government distrust; and 1.9% missingness for child disliking the U.S. Little's MCAR Test was conducted to determine whether the data were missing completely at random (MCAR). The non-significant chi-square statistic indicates that the data is MCAR (χ^2=112.93, p=0.54). Given the non-significant MCAR test and the very small amount of missing data in our sample, data were treated as MCAR and multivariate imputation by chained equations was used separately for the child and parent models. We conducted 100 imputations each for 10 participants missing one value across the variables in the child analysis and 3 participants missing one value across the variables in the parent analysis ('mice' package; Version 3.11.0; van Buuren & Groothuis-Oudshoorn, 2011). Analyses were also run using list-wise deletion and the pattern of results was similar. The descriptive statistics for Aim 1 are based on raw data, but multiple imputation was used for the Aim 2 analyses and statistics represent those using pooled datasets.

References

van Buuren, S., & Groothuis-Ousdhoorn, K. (2011). mice: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software, 45*(3), 1-67. https://www.jstatsoft.org/v45/i03/