Predictors of children’s emotion regulation outcomes during COVID-19: Role of conflict within the family

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Abstract
Objective: This work aimed to analyze the role of family conflict on children’s emotion regulation and stress outcomes during the COVID-19 pandemic.
Background: The COVID-19 pandemic brought novel stress to families. The stress experienced could impact family relationships—specifically, perceptions of closeness and patterns of conflict. Positive family environment and high-quality family relationships are associated with adaptive coping and lower levels of stress among children.
Method: Data were collected online from 110 participants at baseline and again 30 days later. Associations between parent–child relationship, sibling relationships, and child stress and emotion regulation outcomes 30 days later were tested through multiple stepwise regression.
Results: Both significant regression models suggest that parent–child conflict is the strongest predictor of child stress and negativity over the 30-day assessment period. Sibling conflict predicted child stress but not negativity.
Conclusion: Family conflict during the COVID-19 pandemic influenced children’s emotion regulation outcomes as seen through significant associations between child–parent conflict, sibling conflict, perceived child stress, and children’s negativity.
Implications: Family scientists and practitioners should consider interventions that help parents teach their children how to cope with their own stresses and emotions after conflict.

KEYWORDS
family conflict, parent–child relationships, sibling relationships, stress and coping
The novel COVID-19 pandemic disrupted families’ daily routines across the United States by employing stay-at-home orders, school closures, and other significant interruptions to individuals’ lives (e.g., loss of celebrations or family gatherings). COVID-19 is an extremely transmissible acute respiratory disease caused by a coronavirus (SARS-CoV-2; Gorbalenya et al., 2020). Thus, policies were put into place in the United States to protect individuals and to reduce the spread of COVID-19. For example, at the time the data was collected, adults may have experienced quarantines, face-mask mandates in their place of employment, or closure of their nonessential businesses. Early research on the policies put into place to stop the spread of COVID-19 suggests that implementing mandatory face masks in public spaces in March 2020 reduced the rate of cases and deaths by approximately 10% in April of 2020 (Chernozhukov et al., 2021). Similarly, children at the time of data collection experienced policies that centered around quarantines, school closures, virtual schooling, and mask mandates in public.

Quarantines, like those implemented during the COVID-19 pandemic, can be long periods of uncertainty that are very stressful for families (Kramer et al., 2019). Moreover, the COVID-19 pandemic is a community-wide stressor. Most studies on spillover are individualized in families, and it is far more unusual to be able to look at the effects of conflict when the entire community is experiencing increased stress. Early research on the COVID-19 pandemic has suggested that parents and children are under stress as a direct result of the pandemic (Russell et al., 2020). While families try to navigate the increased stress outside the family unit, it is likely that increases in the rate of conflict within the family will occur (Humphreys et al., 2020). Thus, children’s emotion regulation abilities are critical for their mental health and establishing positive relationships. In the present study, the researchers examine the longitudinal predictions of children’s emotion regulation outcomes (i.e., negativity and stress) during the COVID-19 pandemic that may be due to parent–child and sibling conflict.

FAMILY RELATIONSHIPS UNDER STRESS

Stress can be transmitted or “spilled” between family members through the bidirectional nature of close relationships (Nelson et al., 2009). Stress occurs when an individual feels as though the demands of the moment exceed their ability to adapt (Lazarus & Folkman, 1984). The study of the spillover of stress between family members demonstrates that when stressful circumstances occur outside the family, stressful experiences can be transferred across or within the family (e.g., discord with family members; Kim et al., 2006). Parents who are working from home due to the pandemic may find it difficult to re-create their daily routines. This can increase their stress levels and lead to spillover into their relationships (Rudolph et al., 2021). For example, research indicates that hostility and conflict in the parent–child relationship is associated with sibling conflict (Kim et al., 2006), indicating a spillover effect. Additionally, increases in mother–child conflict have been shown to spillover to the father–child dyad and lead to increases in father–child conflict (Xie et al., 2021). Further, an individual’s ability to adapt positively in stressful situations is influenced by—and, in turn, shapes—the family context (Bundick et al., 2010). Understanding how family relationships during a crisis like the COVID-19 pandemic affect stress responses is useful in describing and, when warranted, intervening to bolster individual and family outcomes.

During everyday routines, as well as extraordinary circumstances amid crises, children look to their parents to model appropriate coping techniques (Kliewer et al., 1996). Research has found that children’s stress-related symptoms may be buffered by positive and responsive parenting (Masten, 2001). Positive and responsive parenting includes active and supportive coping strategies (i.e., coaching children on how to handle stressful situations by encouraging verbalization of feelings, modeling appropriate emotions when tackling problems); positive family environment (i.e., communication, affection, mutual respect, spending quality time together);
and high-quality parent–child relationships, which are correlated with high levels of coping in children (Kliewer et al., 1996; Russell et al., 2021). In contrast, child outcomes after a crisis, including heightened levels of stress, are worsened for the children of highly distressed parents (Prime et al., 2020). Therefore, parents’ coping resources during COVID-19 need to be readily available to maintain high-quality parent–child relationships (Russell et al., 2020, 2022b). Taken together, these finding suggests that positive parent–child interactions predict positive emotion regulation outcomes in children.

COVID-19–related stressors, as well as pandemic-related increases in anxiety and depression, are associated with elevated perceptions of perceived stress in adults (Park et al., 2020). Existing literature on the parent–child relationship during COVID-19 suggests that when parents experience elevated levels of stress, their mental and emotional resources are drained, making coping and it difficult to scaffold their children’s emotion regulation (Aguir et al., 2021). Parents may also face difficulties when trying to gather enough psychosocial resources (e.g., active coping skills, optimism, social support, and self-esteem) to be resilient during the pandemic, which can decrease their ability to regulate stress and adaptively cope with any of the strains associated with caregiver burden (Park et al., 2020; Russell et al., 2020).

Children’s emotion regulation abilities are influenced by parent, child, and family characteristics (Morris et al., 2007). Therefore, the sibling relationship may be critical in protecting children from maladaptive outcomes during times of stress because this relationship offers unique opportunities to develop emotion regulation skills to manage stress and other difficult emotions (Lindsey, 2020; Morris et al., 2007). Siblings can be primary sources of support to one another (Kramer, 2019), and closeness between siblings has been associated with lower levels of internalizing and externalizing behaviors (Kramer et al., 2019). Threats to the quality of sibling relationships are likely to occur during the COVID-19 pandemic as the dynamics among family members’ relationships change because of stress (Feinberg et al., 2012), perhaps by dint of the spillover of negativity and conflict from the parent–child relationship (Kim et al., 2006).

**Family conflict**

Parent–child conflict is a common occurrence throughout the lifespan and can lead to maladaptive outcomes for the children involved (Driscoll & Pianta, 2011). Previous research shows that increases of conflict after crises are detrimental to children’s mental health outcomes (Zheng et al., 2020). Conflict among the parent–child dyad is exacerbated during periods of elevated stress due to the lack of parental and psychosocial resources caused by strains on parental mental health and coping behaviors (Prime et al., 2020). Research following times of stress shows that families who experience novel stressors after a challenging time report increased family conflict (Zheng et al., 2020). Conflict among the parent–child dyad may also lead to a loss of normal coping strategies and additional stress after a period of prolonged stress (Borbás et al., 2021).

The COVID-19 pandemic, a time of prolonged stress with an indeterminant end and associated quarantines, may lead to increases in parent–child conflict due to the resulting forced proximity of family members working and learning from home. Families reporting conflict during the COVID-19 pandemic have also reported higher levels of depression, anxiety, and stress compared with families reporting less conflict (Wu et al., 2020). Negative family impacts from the pandemic due to emotional instability and increased parental stress levels are being transmitted to children (Ye, 2020). In one study, evidence suggested that fathers’ and mothers’ coping and parenting experiences may vary and that fathers reported higher levels of parent–child conflict than mothers (Russell et al., 2020). Further, evidence shows that adult males’ and females’ coping, and parenting experiences may vary not only in general but also during COVID-19 (Russell et al., 2020); there is little evidence, however, to suggest that child gender is a meaningful variable in the literature.
Sibling conflict

Sibling relationships provide opportunities for individuals to engage in and resolve emotional conflict: Because of their family ties, individuals in conflict are less likely to break ties with relatives than they are with peers (Campione-Barr et al., 2018). Sibling conflict may lead to increases in skills related to conflict resolution, social competence, and the toleration of negative affect (Kramer et al., 2019). Sibling relationship quality may not be affected during short periods of stress, but periods of prolonged stress have been linked to increased conflict among siblings (Campione-Barr et al., 2018). When families are coping with many stressors, typical patterns of sibling interactions can be disrupted. The disruption to sibling socialization following adverse family circumstances (e.g., financial crisis, or other changes to daily routines) is linked to higher levels of sibling conflict and overall poorer sibling relationships (Kramer et al., 2019).

Risks to the sibling relationship during the COVID-19 pandemic may also stem from the spillover of negative emotions from the parent–child relationship. Siblings may show higher levels of conflict and negativity to one another when their parents show more hostility and increase their levels of conflict in the parent–child dyad (Kim et al., 2006). During COVID-19 quarantines, a positive sibling relationship may be crucial to cope with potential stressors, and the deterioration of the sibling relationship may put families at an increased risk for family stress and other mental health outcomes (Prime et al., 2020). Additionally, the cumulation of internal and external stressors is associated with increased levels of family conflict (Patterson, 2002). Moreover, sibling conflict tends to increase when the amount of contact between siblings is increased (Prime et al., 2020). Thus, increased times of contact and stress during the COVID-19-related shelter-in-place and quarantine-like conditions provide unique moments to evaluate family relationships—and specifically sibling conflict.

CURRENT STUDY

The current study examines parents’ perceptions of their relationships with their children as well as their children’s sibling relationships from a national sample in the first months of the U.S. COVID-19 pandemic in April 2020. Given the clear relationship between family conflict and stress (Patterson, 2002) and the rapidly evolving and geographically inconsistent policy response to the pandemic (Weible et al., 2020), the study centered on the potential linkages between family conflict and children’s emotion regulation outcomes and stress over a 30-day period. Specifically, the research hypotheses were as follows:

\[ H_1: \text{Both sibling and parent–child conflict will be predictive of children’s negativity} \]

\[ H_2: \text{Both sibling and parent–child conflict will be predictive of children’s stress.} \]

METHOD

Participants

Adults aged 18 years or older living in the United States who speak English and were a parent of a child between the age of 6 and 18 years old at the time that the survey was administered were eligible to participate through Mechanical Turk (MTurk), an online worker pool where participants who consented in the study and met the inclusion criteria were compensated for the completion of the survey. A final baseline sample consisted of 110 parents of children between the ages of 6 and 18 years living in their home and who had a sibling that also lived with them.
Parent participants completed data for all variables of interest (see Measures). Seventy (63.6%) of participants were female, with an average sample age of 38.4 years (range = 27–65 years); the average age of the focus child was 10 years. Of those who completed the 30-day follow-up survey (n = 74), 43 were female; see Table 1 for further sample characteristics. To be included in this analysis, the focal child had to have a sibling, yielding a final sample of 110 participants at Time 1 and 74 participants at Time 2, derived from the larger study’s total sample of 395 participants.

Measures

Parents were asked to report on demographic characteristics such as gender, sexual orientation, race/ethnicity, the parents’ age, the focal child’s age, partner status (from non-partnered: single, divorced or widowed, or partnered: married or living with a significant other), and financial security (“do you have enough money to meet your needs,” rated from 1 = not at all to 5 = completely).

Child–Parent Relationship Scale

The Child–Parent Relationship Scale (CPRS; Driscoll & Pianta, 2011) is a 15-item scale that uses a 5-point Likert scale ranging from 1 = definitely does not apply to 5 = definitely applies to evaluate parents’ perceptions of their relationship with their child. The CPRS encompasses two

| TABLE 1 | Demographic characteristics |
|--------------------------------|----------------------------|
| Time 1 (n = 110) | Time 2 (n = 74) |
| Age, μ (SD) | 38.4 (7.6) | 36.3 (6.0) |
| Gender, n (%) | | |
| Male | 40 (36.4%) | 31 (41.9%) |
| Female | 70 (63.6%) | 43 (58.1%) |
| Race, n (%) | | |
| Black/African American | 13 (8.2%) | 8 (10.8%) |
| Asian/Asian American | 11 (10%) | 11 (14.9%) |
| Native Hawaiian/other Pacific Islander | 3 (2.7%) | 3 (4.1%) |
| American Indian/Alaska Native | 9 (8.2%) | 7 (9.5%) |
| White | 89 (80.9%) | 57 (77%) |
| Other | 5 (4.5%) | 6 (8.1%) |
| Ethnicity, n (%) | | |
| Latinx | 20 (18.2%) | 17 (23%) |
| Non-Latinx | 90 (81.8%) | 57 (77%) |
| Partner status, n (%) | | |
| Partnered/married | 92 (83.6%) | 64 (86.2%) |
| Nonpartnered | 18 (16.4%) | 10 (13.5%) |
| Needs met, n (%) | | |
| Mostly met | 65 (59.1%) | 48 (64.9%) |
| Not met | 45 (40.9%) | 26 (35.1%) |
subscales, an eight-item conflict subscale that measures the parents’ perceived negative interactions in the parent–child relationship, and a seven-item closeness subscale that measures the parents’ perceived views of the warmth, affection, and open communication. The scale is scored by totaling items on the two subscales such that higher scores signify greater perceived conflict or closeness, respectively. Cronbach’s alpha reported from samples of parents of children as young as 3 years for the two subscales are good (α = .83 and .72 for conflict and closeness, respectively; Driscoll & Pianta, 2011), as they are in the current sample (α = .92 and .83 for conflict and closeness, respectively).

The Network of Relationships: Behavioral Systems Version—Short Form

The Network of Relationships: Behavioral Systems Version—Short Form (NRI-BSV-SF; Furman & Buhrmester, 2009) is an 11-item scale that assesses a parent’s perceptions of the focus child’s sibling interactions by using a 5-point Likert scale ranging from 1 = little or none to 5 = the most. The NRI-BSV-SF is composed of two subscales. The current study used the six-item negative interactions scale that measures siblings’ negative affect, conflict, and withdrawal and nonsupport. The scale is scored by averaging items on the two subscales, where higher scores indicate greater perceived conflict and closeness, respectively. Cronbach’s alphas are good for the current sample (α = .94 and .81 for the support and negative interaction, respectively).

Emotion Regulation Checklist

The Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997) is a 24-item scale that uses a Likert scale ranging from 1 = never to 4 = almost always to assess how children regulate their emotions. The ERC comprises two subscales, a 15-item negativity subscale that measures the lack of flexibility, negative mood, and dysregulated negative affect and an eight-item emotion regulation subscale that measures appropriate affect, empathy, and regulated positive affect. The scale is scored by summing 23 of the items (Item 12 is excluded), and higher scores indicate greater perceived negativity and greater emotion regulation for the two subscales, respectively (Shields & Cicchetti, 1997). Reported Cronbach’s alphas from a sample of school-age children are good (α = .96 and .83 for negativity and emotion regulation, respectively; Shields & Cicchetti, 1997), as are those for the current sample (α = .89 and .71 for negativity and emotion regulation, respectively).

COVID-19 Specific Stressors

The COVID-19 Specific Stressors (CSS; Park et al., 2020; Russell et al., 2022b) is a measure of COVID-19–specific stressors that was modified for use to evaluate parents’ exposure to and assessment of stressors exclusive to the COVID-19 pandemic. Although many challenges of conducting research during the pandemic emerged (i.e., high demands; lack of supplies, energy, and support; uncertainty; Il'tis, 2021), another challenge was designing a novel measure to capture the unprecedented experiences of the COVID-19 pandemic. The original measure includes questions about past-week exposure to 23 stressors among three abstract categories: Infection-related stressors, Daily Activity stressors, and Financial/Resource-related stressors (Russell et al., 2022b). Example items include “How stressful did you find reading about or hearing others talk about the severity and contagiousness of COVID-19” and “How stressful did you find the uncertainty about how long quarantine and/or social distancing requirements will last.” A preliminary psychometric assessment indicates a unidimensional configuration and internal
consistency are reported as very high at $\alpha = 0.87$, and $\alpha = 0.96$ (Russell et al., 2022a; Tambling et al., 2020). Internal consistency for these 23 items in the present study was $\alpha = 0.87$.

CSS—Adapted

To examine parents’ stress due to changes in their children’s daily routines, seven items were added to the measure for the present study. The items contained three from the original Child Routines Inventory (Sytsma et al., 2001): children’s daily living routines, household duties, and discipline routines, in addition to an adapted version of a fourth item where “homework routines” was adapted to “education routines” to incorporate online learning during the pandemic. Moreover, researchers developed two items to encapsulate stress due to (a) changes in children’s social routines and (b) interactions parents had with their children. A total of 30 stressor items resulted from the adaptions.

For each item, participants are initially requested to report the stressors they have experienced by responding to a twofold question “did you experience stressor X?” For each affirmatively recognized stressor, respondents are prompted to evaluate the stressfulness of the item on a scale of 1 to 5 (not at all stressful to extremely stressful). A total stressor count of endorsed items, in addition to total stress appraisal rating of stressfulness can be computed (Park et al., 2020; Tambling et al., 2021). A higher score on this scale indicates a larger number of stressors and more stress experienced. The adapted 30-item version with the additional family items yielded a strong Cronbach’s alpha of .90 (Russell et al., 2022b), as found for the current sample at baseline ($\alpha = .91$).

Perceived Stress Scale—Adult Form

The Perceived Stress Scale—Adult Form (PSS-AF; Cohen et al., 1983) is a 10-item measure that assesses individuals’ perceptions of their own stress during the past 2 weeks on a 5-point Likert scale (from never to very often). Items are totaled to create a composite score ranging from 0 to 40; higher scores indicate elevated perceived stress. Groupings of stress levels for this scale are as follows: 0 to 13 denotes mild stress, 14 to 26 denotes moderate stress, and 27 to 40 denotes high perceived stress. Prior research indicated a good Cronbach’s alpha is good ($\alpha = .85$; Cohen et al., 1983), as are those for current sample at baseline ($\alpha = .87$).

PSS—Child Form (PSS-CF)

The PSS-CF (Cohen et al., 1983) was taken from the National Institutes of Health Toolkit’s emotion resources (Beaumont et al., 2013) for parent-reported child stress. Cohen’s 10-item adaption of the original PSS (1983) assessed parents’ perceptions of their child’s stress using a 5-point Likert scale from 0 = never to 4 = very often. Items are totaled to create a composite score ranging from 0 to 40; higher scores denoted increased perceived stress. Cronbach’s alpha reported from a sample of parents of children as young as 8 years are acceptable ($\alpha = .87$; Salsman et al., 2013), as are those for the current sample ($\alpha = .83$).

Procedures

All study materials were approved by the University of Connecticut’s Institutional Review Board (X20-0075) before participant recruitment from MTurk’s online worker pool for this anonymous...
study of family experiences and coping during the COVID-19 pandemic. Prior research has reported MTurk recruitment and data collection to be a replicable and valid data collection technique (Mortensen & Hughes, 2018). MTurk workers have been shown to be reasonably similar to other large online populations, although slightly more diverse and fairly representative of the United States at large (Bartneck et al., 2015). Consenting participants who met the inclusion criteria were able to complete the 20- to 40-minute survey at two time points. The average completion time was 34 minutes. Participants were compensated for their time after completing each survey.

To ensure the exclusive individual participation and attentiveness of each response, rigorous data cleaning procedures for crowdsourced convenience samples were used (Chandler & Shapiro, 2016). These steps involved screening for identical IP addresses and global positioning authentication, in addition to assessing response times and eliminating all responses that were recorded in less than 10% of the average completion time. This data cleaning process eliminated 161 participants at Time 1 and 105 participants at Time 2. After following these steps, the larger study recorded 322 valid cases at baseline (Time 1) and 189 at the 30-day follow-up (Time 2). Missing data analysis shows that for the variables of interest, missingness was less than 1%. Previous research suggests that the test–retest reliability for the PSS-AF (Cohen et al., 1983) is strong between 2 days and 6 weeks (Lee, 2012). The 30-day period was also a meaningful selection criterion because we wanted to assess parents’ perceptions of their child’s emotion regulation outcomes over time. This is because parents need to be able to pick up on moment-to-moment signals from their children. These perceptions give us insight about the community’s responsiveness versus how much tolerance for disruption families can handle. For the current study, which only includes participants who reported on all variables of interest for a focal child with a sibling, 110 parents of children aged 6 to 18 years completed data for all variables of interest at baseline and 74 parents at Time 2. For all child-level reports, including sibling relationship qualities, parents were instructed to select a focus child of their choice, and to choose one sibling the focus child had also residing in the same household as the focus child.

**Data analysis plan**

First, descriptive data were examined to characterize the sample, including parent gender, race/ethnicity, and whether their financial needs were met. Next, correlations were run between all variables of interest. Time 1 factors (i.e., parent–child conflict, sibling conflict) predicting Time 2 child emotional regulation outcomes (i.e., child negativity, child stress) during the early months of the COVID-19 pandemic were then assessed using multiple stepwise linear regressions. Stepwise regression allows for the statistical software to construct a regression equation that enters variables in the equation only when they have met criteria imposed by the researchers. The inclusion criteria were $p = .05$. Finally, post hoc analyses to examine group differences were conducted using independent $t$ tests by parent gender.

**RESULTS**

**Descriptive results and bivariate associations**

Means for the variables of interest were calculated to determine portions of parents’ reports that fell above or below relative cutoff points that represent various levels of stress at baseline. Parents reported an average COVID-19 specific stressor (CSS-Adapted) score of 22.5, an average general perceived stress (PSS-AF) score of 16.5. The sample’s average child–parent relationship (CPRS) score was 17 for conflict and 30 for closeness, which indicates below average conflict and above average closeness (Driscoll & Pianta, 2011).
Additionally, participants reported an average perceived child stress (PSS-CF) score of 22.3, and a sibling conflict (NRI-BSV-SF) score of 2.4 and 3.4 for closeness, which indicates below average conflict and above average closeness between their children (Furman & Buhrmester, 2009). Average scores for child emotion regulation (ERC) were 27.1 for negativity and 25.3 for emotion regulation, indicating lower levels of negativity and average levels of emotion regulation (Kim & Page, 2013).

Bivariate correlations (see Table 2) indicate significant associations with child negativity and parents’ perceived general stress ($r = 0.40$, $p < .01$) and COVID-specific stress appraisals ($r = 0.42$, $p < .01$) at baseline, and sibling conflict ($r = 0.67$, $p < .01$), and child–parent conflict ($r = 0.74$, $p < .01$) at Time 2; perceived child stress has the strongest association with parents’ perceived general stress ($r = 0.48$, $p < .01$ and parents’ COVID-specific stress appraisals ($r = 0.56$, $p < .01$) at baseline, as with sibling conflict ($r = 0.59$, $p < .01$) and child–parent conflict ($r = 0.70$, $p < .01$) at Time 2.

Given the rapid changes in social restrictions and related impacts on family–school–work balance, we examined changes in variables of interest over the 30-day period. Results showed that parent general stress was on average higher at Time 1 ($M = 16.81$, $SD = 8.66$) than at Time 2 ($M = 14.72$, $SD = 7.38$). A paired-samples $t$ test found this difference to be significant, $t(73) = 4.01$, $p < .00$. Skew at Time 1 was 0.33, and kurtosis was −0.30. Skew at Time 2 was 0.56 and Kurtosis was −0.32. Additionally, results showed that parents’ COVID-19 specific stressors were on average higher at time 1 ($M = 22.73$, $SD = 4.80$) than at time 2 ($M = 14.81$, $SD = 10.24$). A paired-samples $t$ test found this difference to be significant, $t(72) = 9.347$, $p < .00$. Skew at Time 1 was 0.46, and kurtosis was 0.39; skew at Time 2 was 0.69, and kurtosis was −0.05.

**Linear stepwise regression**

Given significant changes in parent stress over the 30-day assessment period, linear stepwise regressions were conducted to examine child outcomes. Specifically, we predict scores on the

| TABLE 2 | Intercorrelations of study variables |
|---------|-----------------------------------|
| Variables | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
| 1. COVID stressors |   | 1  |    |    |    |    |    |    |    |    |    |    |
| 2. Adult stress   | .396** | 1  |    |    |    |    |    |    |    |    |    |    |
| 3. Child stress   | .560** | .478** | 1  |    |    |    |    |    |    |    |    |    |
| 4. Sibling conflict | .279** | .264** | .531** | 1  |    |    |    |    |    |    |    |    |
| 5. Parent–child conflict | .383** | .342** | .731** | .642** | 1  |    |    |    |    |    |    |    |
| 6. Child negativity | .424** | .403** | .759** | .527** | .790** | 1  |    |    |    |    |    |    |
| 7. COVID stressors T2 | .769** | .521** | .428** | .397** | .477** | .444** | 1  |    |    |    |    |    |
| 8. Adult stress T2 | .487** | .855** | .453** | .285* | .437** | .505** | .571** | 1  |    |    |    |    |
| 9. Child stress T2 | .522** | .432** | .759** | .557** | .663** | .707** | .533** | .530** | 1  |    |    |    |
| 10. Sibling conflict T2 | .475** | .421** | .593** | .815** | .648** | .666** | .620** | .503** | .690** | 1  |    |    |
| 11. Parent–child conflict T2 | .531** | .336** | .697** | .635** | .737** | .741** | .598** | .451** | .848** | .764** | 1  |    |
| 12. Child negativity T2 | .565** | .399** | .660** | .641** | .756** | .810** | .641** | .560** | .819** | .782** | .894** | 1  |

*Note: T2 = Time 2.  
*p < .05. **p < .01.
ERC (Shields & Cicchetti, 1997) and the PSS-CF (Cohen et al., 1983) using the CPRS (Driscoll & Pianta, 2011) and the NRI-BSV-SF (Furman & Buhrmester, 2009). A forward stepwise regression was conducted because it is dependent on statistical outcomes with inclusion criterion of $p = .05$, instead of the research team making an a priori assumption; therefore, it is appropriate for exploratory analyses such as linear stepwise regression.

Regressions were conducted separately for each emotion regulation outcome (see Table 3 and 4 for results). Parent age, gender, and whether financial resources were adequate to meet needs as well as focal child age were included as controls in each regression and entered as a block. The stepwise criteria for the probability of F for entry was 0.05 and for removal 0.10.

The first linear regression was conducted to test if adult general stress, COVID-19 specific stress, parent–child conflict, sibling conflict at Time 1 predicted 30-day perceived child emotional negativity. The results indicate that 64% of the variance in child negativity is significantly explained by conflict with a sibling, parents’ COVID-19—specific stressors, and child–parent conflict, respectively ($R^2 = .64$, $p = .00$). Holding constant all other predictors, child–parent conflict significantly predicted increased negativity in children ($\beta = -0.49, p < .00$, 95% confidence interval [CI] [0.12, 0.81]). In contrast, parent gender predicted decreases in child negativity ($\beta = 0.64, p < .5$, 95% CI [-4.35, 1.92]).

The second linear regression was conducted to test the degree to which adult general stress, COVID-19–specific stress, parent–child conflict, and sibling conflict at Time 1 predicted 30-day perceived child stress. Results indicate 48.3% of the variance in child stress is significantly explained by parents’ general stress and parent–child conflict, respectively ($R^2 = .483, p = .00$). Child–parent conflict significantly predicted perceived child stress ($\beta = .52, p < .00$, 95% CI [0.31, 0.67]) as did general parent stress ($\beta = .22, p < .018$, 95% CI [0.03, 0.35]). In contrast, parent gender predicted decreases in child stress ($\beta = -0.17, p < .059$, 95% CI [-5.41, 0.11]). Both linear stepwise regressions suggest that conflict within the parent–child relationship is the strongest predictor of child negativity and stress ($p < .001$).

### Table 3
Stepwise linear regression predicting child negativity at Time 2 from Time 1 parent–child and sibling conflict

| Time 1 predictor              | B     | SE B   | B     | 95% CI          | t     | p     |
|------------------------------|-------|--------|-------|-----------------|-------|-------|
| (Constant)                   | 4.954 | 5.439  | [-5.90, 15.81] | .911  | .366  |
| Parent gender                | -1.215| 1.572  | -.646 | [-4.35, 1.92]   | -7.73 | .442  |
| Parent–child conflict        | .559  | .117   | .485  | [.33, 0.79]     | 4.769 | .000  |
| Total COVID stressors        | .464  | .171   | .237  | [0.12, 0.81]    | 2.713 | .008  |
| Sibling conflict             | 1.908 | .873   | .211  | [0.17, 3.7]     | 2.186 | .032  |

**Note:** CI = confidence interval.

### Table 4
Stepwise linear regression predicting child stress at Time 2 from Time 1 parent–child and sibling conflict

| Time 1 predictor        | B     | SE B   | B     | 95% CI          | t     | p     |
|-------------------------|-------|--------|-------|-----------------|-------|-------|
| (Constant)              | 14.886| 3.210  | [8.45, 21.29] | 4.637 | .000  |
| Parent gender           | -2.653| 1.384  | -.172 | [-5.41, 0.11]   | -1.918| .059  |
| Parent–child conflict   | .486  | .090   | .521  | [0.31, 0.67]    | 5.407 | .000  |
| Adult stress            | .191  | .079   | .219  | [0.03, 0.35]    | 2.414 | .018  |

**Note:** CI = confidence interval.
Post hoc analyses

Given the role of parent gender in both regression models, further analysis sought to elaborate on hypothesis-driven findings. $t$ tests of independent group differences based on parent gender were conducted. Post hoc analyses indicate significant group differences based on parents’ reports of child–parent conflict ($t = 2.3, p < .05$, Cohen’s $d = .48$), as did reports of child negativity ($t = 3.5, p < .001$, Cohen’s $d = .87$) and perceived child stress ($t = 3.4, p < .001$, Cohen’s $d = .82$) such that fathers reported significantly higher levels of all three variables.

DISCUSSION

In the present study, researchers sought to examine parents’ reports of the impact of family conflict on children’s emotion regulation outcomes during the early months of the COVID-19 pandemic. Changes to daily routines, increased general and COVID-19–specific stress, as well as other challenges to the disruptions in everyday life can lead to the exacerbation of stress and emotional negativity among children (Wang et al., 2020; Ye, 2020). Given the importance of family relationships during prolonged periods of elevated stress (Bundick et al., 2010), it is clear that families play an important role in children’s emotion regulation outcomes. Our findings that parents’ stress predicts children’s stress are supported by the spillover hypothesis, which states that affect and behavior can be transferred across family subsystems (Nelson et al., 2009).

Notably, stepwise linear regression results indicate that child–parent conflict is a significant predictor of children’s negativity and perceived stress during the COVID-19 pandemic. These findings are in line with reports of parent–child conflict resulting in increased negativity among children (Prime et al., 2020). Parents need to be cognizant of engaging in high levels of conflict with their children, as child–parent conflict was found to be the largest predictor of both emotional negativity and perceived stress in children. The results align with previous literature indicating that parent–child conflict is one of the largest predictors of children’s maladaptive mental health outcomes after a crisis (Zheng et al., 2020). Research also suggests that the still-evolving restrictions due to the COVID-19 pandemic are significantly affecting mental health, well-being, and psychosocial functioning in both children and adults (Borbás et al., 2021). Our results support this notion as seen through the elevated levels of stress and negativity of children as well as parents’ reports of their own stress levels over time. These findings suggest that individuals’ ability to cope with the stresses and strains of parenting during a pandemic are influencing their children’s abilities to regulate their stress and negativity.

Additionally, the data indicate that sibling conflict significantly predicted perceived child stress at Time 2. These findings are in line with reports that sibling conflict may lead to negative mental health outcomes (Feinberg et al., 2012). However, the current study found that sibling conflict was not a significant predictor of children’s negativity as hypothesized. This may be due to the sample’s below average conflict and above average closeness among siblings (Driscoll & Pianta, 2011). Alternatively, children may normalize conflict with their siblings (Campione-Barr et al., 2018) but may struggle to process conflict with their parents during stressful times (Ye, 2020). This may also be the case as parents are the chief source of emotional socialization for children, not siblings (Kliewer et al., 1996). Therefore, knowledge of increased stress and family conflict during the COVID-19 pandemic is necessary to protect children’s mental health outcomes.

Moreover, our data support that the COVID-19 pandemic has led to increases in stress (Park et al., 2020; Russell et al., 2022a). Clearly our sample of parents experienced increases in general stress as well as stress due to the COVID-19 pandemic. For example, our participants reported an average perceived stress score of 16.5 and a perceived child stress score of 22.3, levels indicative of moderate stress (Cohen et al., 1983). This finding is noteworthy because
Elevated levels of stress have been shown to lead to increases in parent–child conflict (Zheng et al., 2020), as well as negative mental health outcomes for the children involved, specifically in times of the COVID-19 pandemic (Tambling et al., 2020; Wu et al., 2020; Ye, 2020).

Limitations and future research

The authors examined time-sensitive data about families’ experiences during the COVID-19 pandemic, but several limitations should be noted. Our sample included reports by both men and women, this sample of parents included more women (63.6%). Although the sample reported a relatively normal income distribution that indicates strong generalizability to other families, Amazon’s MTurk platform tends to attract users who want to earn money in their free time and have access to the Internet as well as higher education levels, which may make the results from this sample less generalizable than those recruited through a probability sample (Bartneck et al., 2015; Mortensen & Hughes, 2018). Moreover, the present study collected parents’ longitudinal reports of their experiences and perceptions of their children’s functioning during the early months of the COVID-19 pandemic. The current study did not include demographic characteristics (e.g., age, gender) of all the children in the home (i.e., a threat to internal validity) or child reports of conflict or emotion regulation outcomes, nor did it control for the selection of the focus child and sibling; however, it does provide important information on the perceptions of children’s negativity and stress during the novel COVID-19 pandemic. The study did not capture demographic information of the focus child’s sibling (e.g., age, gender, birth order/step-sibling status). These additional data would strengthen further studies.

Additionally, although Cohen’s (1983) PSS is among the most common assessments of stress, the adapted child version has not yet been validated in children younger than 8 years. Moreover, whereas the CSS (Park et al., 2020; Russell et al., 2022b) has been validated, the adapted version used in the current study has not yet been validated. Further research needs to be conducted to validate the NRI-BSV-SF as well. It is also possible that there would have been larger changes in stress levels due to the ever-changing COVID-19 pandemic and related community responses if there were more time between the Time 1 and Time 2 data collections or if further follow-up assessments were included because two time points make it difficult to be sure of the results’ directionality (Kaya, 2015). Specifically, results could vary if these data were collected at different points during the pandemic because stress levels have varied over the course of the crisis. There is evidence that individuals and families can muster resources for resilience over time, adapting to stresses and strains by rallying preexisting resources and capacities as well as building new ones (Masten, 2001). When aligned with the results presented here, the literature on family resilience and adaptation in the face of prolonged stress indicates that the coping behaviors used to mitigate stress are not fixed but evolve, continuing to shift in response to the circumstances at hand and the corresponding impacts of a given coping strategy. The results may also vary if an individual’s family dynamic differs from the families in the sample.

An additional threat to the current study’s internal and external validity is our inability to separate regular stress from stressors specific to COVID-19. It would be ideal to have comparative data that were collected before the start of the COVID-19 pandemic. Last, given the lack of a theoretical basis for differentiating and ordering predictors, the data were entered as a block for the regression analysis, but results may shift using alternative entry methods, such as single entry. Single entry allows for the assessment of each independent variable without influence from the other variables.

Despite these limitations, the current study provides valuable information on the impact of family conflict on children’s negativity and stress during the COVID-19 pandemic. Future research is needed to examine how additional family members’ reports of family conflict
influence reports of emotion regulation outcomes. Therefore, a follow-up study on children’s reports of their emotion regulation outcomes following the COVID-19 pandemic is warranted.

Conclusion and implications for future research

Overall, it is evident that family conflict during the COVID-19 pandemic influences children’s emotion regulation outcomes as seen through significant associations between child–parent conflict, sibling conflict, perceived child stress, and children’s negativity. Given the novelty and uncertain duration of the COVID-19 pandemic and the public health conditions in place to prevent its spread, parents clearly need support to protect children’s mental health and well-being from the effects of prolonged stress.

At the time of this writing, pediatric vaccines for COVID-19 are only available to children over 12 years of age, and the rise of new viral variants that seem to carry greater morbidity for younger people are on the rise. A second year of modified education operations is on the American horizon, with social distancing, masking, and reduced capacity guidelines evolving for the academic year ahead. Families and the professionals who support them will need to identify a set of coping skills for managing uncertainty and stress that include family-focused activities that promote closeness while reducing accumulated COVID-19–related strains. Parents should also help their children cope with their own stresses, recognizing that important steps to regulate distress can also be taken on an individual basis, outside interactions within the family. Thus, efforts to teach and support their children’s autonomous efforts to regulate their emotions are also valuable. The COVID-19 pandemic is an unprecedented global event. It is likely the pervasiveness and duration of the event will exceed any other known disaster, so it is unknown how this event may compare with others. As we learn more about the specific impacts of COVID-19 and related trauma, we are hopeful that important comparisons will occur. The present study provides valuable information about family conflict and its impact on children’s emotional regulation outcomes during the COVID-19 pandemic and also provides potential implications for parents and teachers.

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